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AI ACCADEMIA ITALIANA ENDODONZIA ®

Salviamo i denti naturali!



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Udine 19 settembre

Progetto CAO–AIE

L'Endodonzia come mezzo per mantenere i denti naturali

Federica Fonzar

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Socio Attivo

RAZIONALE DEL CORSO E PATTO D'AULA

Giovanni Braga



Presentazione base a cura della Commissione di Progetto, approvata dal Consiglio Direttivo e dalla Commissione Culturale AIE.

Si ringraziano per il contributo: Emanuele Ambu, Francesco Bellucci, Elisabetta Cotti, Gabriele Conte, Luigi Generali, Nicola Grande, Piero Alessandro Marcoli, Aniello Mollo, Eugenio Pedullà, Gianluca Plotino

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L'Accademia Italiana di Endodonzia è una Società scientifica fondata nel 1992 da un gruppo di cultori della disciplina endodontica, Carlo Marin, Nicola Perrini, Gianfranco Vignoletti, Amedeo Zerbinati, uniti dalla passione per l'attività clinica e per la ricerca scientifica e desiderosi di condividere e accrescere, in un clima amichevole ed informale, le proprie conoscenze e competenze in campo endodontico e non solo. L'atmosfera che si percepisce in AIE è da sempre un elemento distintivo: disponibilità e accoglienza sono riconosciute come tratti caratteristici della nostra Società da tutti coloro che la frequentano.

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Step by Step

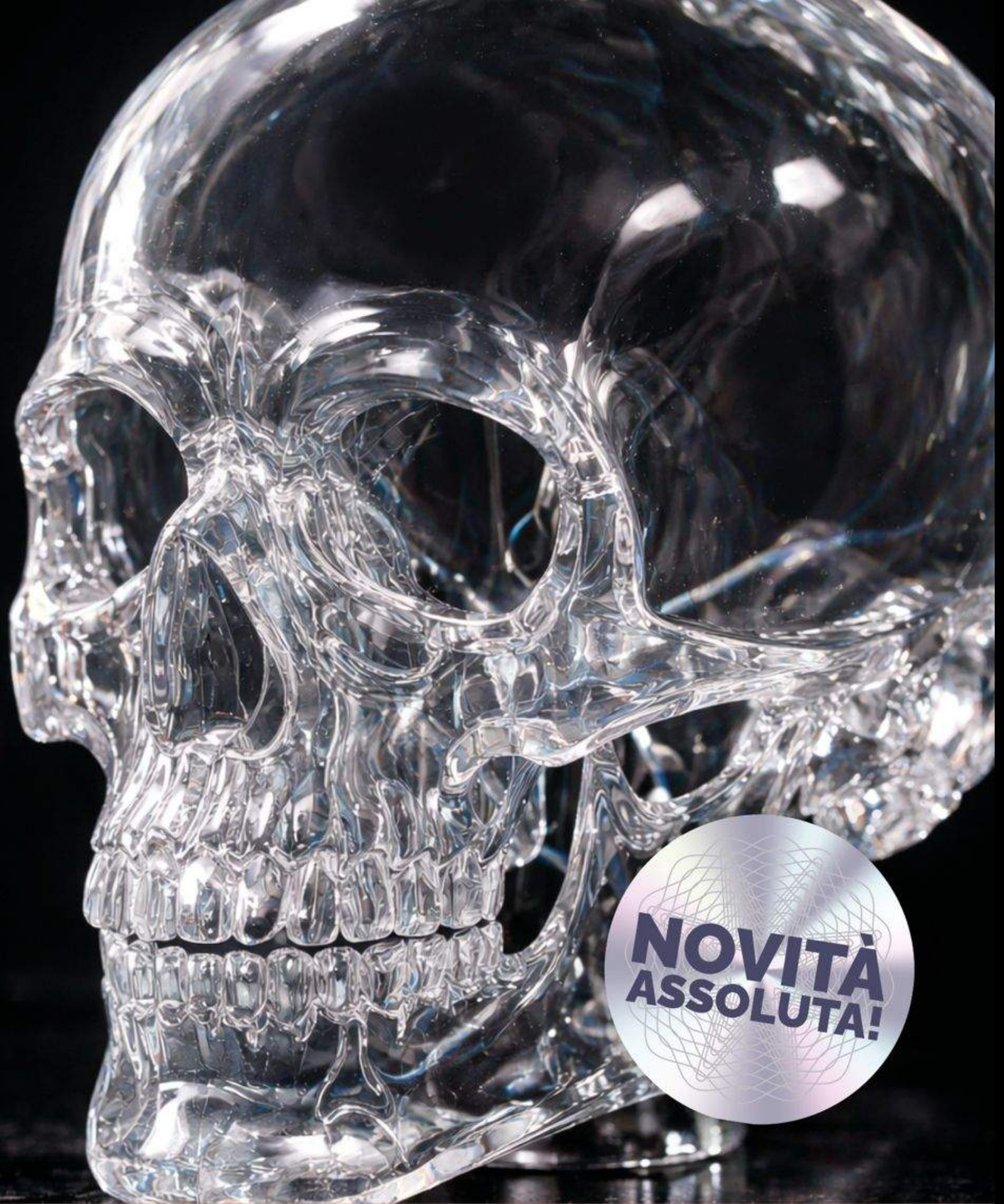
Procedure cliniche a confronto



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CBCT: NO FEAR!

Bruno Azevedo

19.30 - 21.00

Lunedì 9 novembre 2026

RESTORATION OF ENDODONTICALLY TREATED MOLARS

Julian Leprince

19.30 - 21.00

Lunedì 30 novembre 2026

SAVING THE CASE: HOW ENDODONTISTS HELP IN IMPLANT PROSTHETIC RESCUE

Laura Andriukaitiene

19.30 - 21.00

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Lunedì, 12 aprile

Anestesia e Farmacologia in Endodonzia: chi ben comincia è a metà dell'opera

Fabrizio Nicoletti, Raffaela Castagnola

ore 19.00-20.30

Lunedì, 24 maggio

La terapia della polpa vitale

Francesco Bellucci

ore 19.00-20.30

Lunedì, 28 giugno

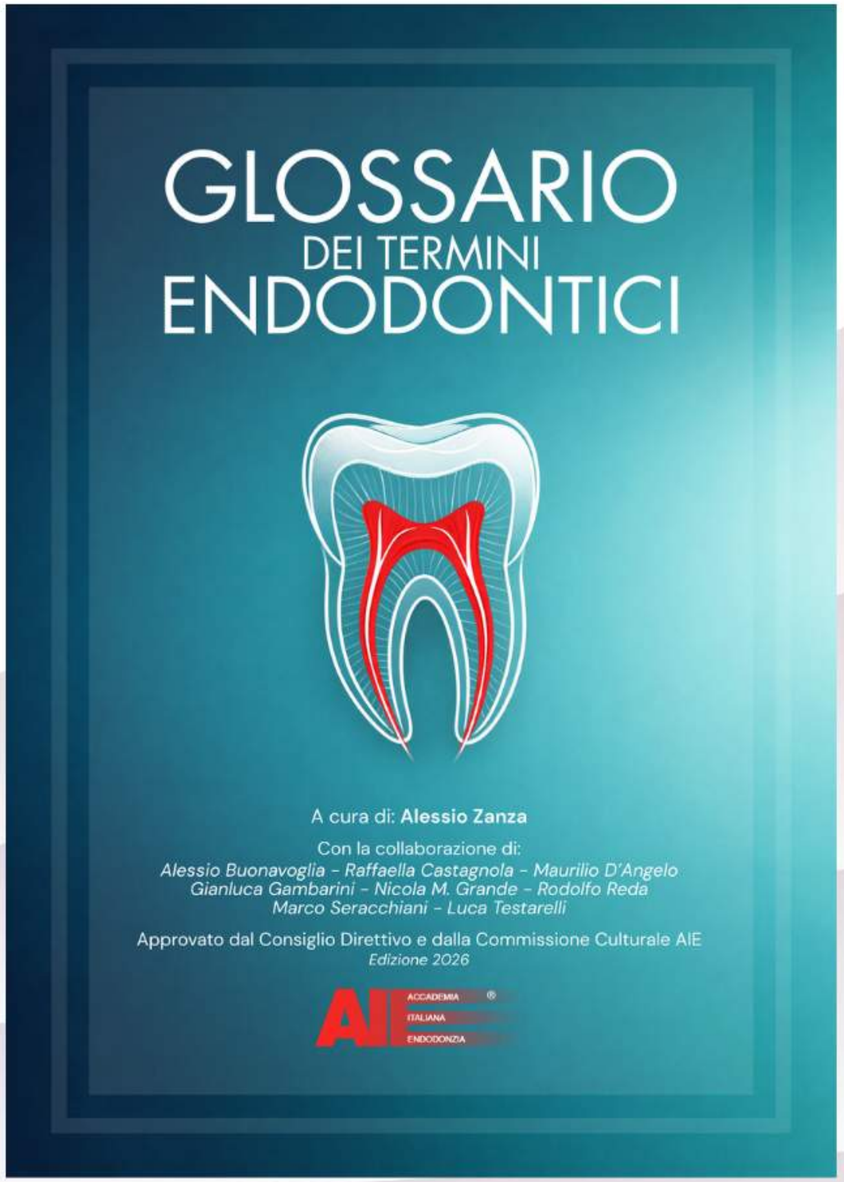
Endopedodonzia clinica

Maurizio Bossù

ore 19.00-20.30

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Salviamo i denti naturali!

Un progetto con grandi obiettivi!

- Salvaguardare i denti naturali recuperabili
- Contrastare tendenza a estrazioni precoci
- Coinvolgere Odontoiatri, MMG e cittadini



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Salviamo i denti naturali!

Un progetto strategico!



- Diffondere la cultura del mantenimento dei denti naturali
- Promuovere il valore scientifico e sociale dell'Endodonzia
- Rafforzare il ruolo del dentista nel prevenire l'estrazione
- Informare i MMG e la popolazione

Perché questo progetto?

Ogni anno in Italia vengono estratti migliaia di denti naturali che, in molti casi, potrebbero essere salvati.



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Salviamo i denti naturali!

Perché questo progetto?

Il progetto 'Salviamo i denti naturali!' nasce per sensibilizzare i dentisti, i MMG e la popolazione sul valore biologico dei denti naturali e sull'importanza di mantenerli il più a lungo possibile.



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Salviamo i denti naturali!

Perché questo progetto?

La conservazione dei denti non è solo una questione estetica, ma riguarda anche la salute generale, la funzione masticatoria e la qualità della vita e può evitare o procrastinare interventi più invasivi e costosi.



AGENDA



1. Perché salvare il dente naturale:
    - Valore biologico
    - Impatto funzionale, estetico, psicologico
    - Confronto denti naturali Vs. Impianti

AGENDA



2. Elementi prognostici chiave:
    - Fattori di rischio clinici e sistemici
    - Struttura sana residua
    - Valutazione endodontica, parodontale e restaurativa

AGENDA



3. L’ausilio della tecnologia:
   - CBCT e indicazioni all’uso della CBCT
   - Microscopia ed endodonzia guidata
   - Presenza di impedimenti all’accesso (perni, strumenti fratturati, calcificazioni)

AGENDA



4. Relazioni interdisciplinari:
    - Endo-Perio
    - Casi complessi di perforazioni, apici beanti, riassorbimenti radicolari cervicali e radicolari

AGENDA



5. Criteri decisionali che portano all'estrazione:
   - Quali sono i casi veramente senza speranza?
   - Fratture radicolari (problemi diagnostici e possibilità terapeutiche)
   - Endodonzia chirurgica

AGENDA



6. Recupero endo-restaurativo:
    - Estrusione ortodontica, estrusione chirurgica, chirurgia parodontale

AGENDA



7. La gestione dei traumi dentali:
   - Fratture coronali, sublussazione, lussazione, fratture radicolari, fratture corono-radicolari, avulsioni traumatiche.

AGENDA



ENDO vs IMPIANTO

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Salviamo i denti naturali!

Natural tooth preservation versus extraction and implant placement: patient preferences and analysis of the willingness to pay

D. Re,[1,2] C. Ceci,[2,3] F. Cerutti,[1,2] M. Del Fabbro,[2,3] S. Corbella[2,3] and S. Taschieri*[2,3]

In brief

Highlights the importance of ensuring the patient's participation during dental treatment decision-making.	Suggests dental treatment cost may influence patients' dental visits and oral health.	Patients may prefere to preserve natural tooth by a conservative treatment approach

Objectives The aim of this study was to evaluate the patients' willingness to pay (WTP) values and preference for the treatment of a tooth with very poor prognosis, among two options: root canal therapy and crown positioning or tooth extraction, implant insertion and crown positioning. **Methods** A total of 103 patients were recruited from a private dental clinic and interviewed. A questionnaire measured individuals' preferences among the two alternative treatments for a tooth with poor prognosis and the maximum amount of money they would be willing to pay for their choice with a starting bid of €2,000 in €100 increment/decrement. Demographic data, patient choice, median values and WTP association with socio-demographic factors (Student ttest and one-way ANOVA) and correlation between variables (Pearson chi-square test) were revealed. **Results** Seventy-six percent of patients expressed a preference for root canal therapy, while the remaining 24% chose the dental surgery. A fair agreement between previous experience and current therapeutic choice was found (P = 0.0001). The WTP median value was €2,000 and 46% of participants would pay an additional sum of money for the therapy (median: €300). The preferred treatment was influenced by previous experience, but no association was found between WTP values and socio-demographic factors. **Conclusion** Patients tend to prefer a conservative approach for the treatment of a tooth with poor prognosis and are willing to pay an additional fee to receive their treatment choice.

Introduction

In 1948 the World Health Organisation defined health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.'[1] Consequently, oral health must also include well-being, and general health and oral health should not be interpreted as separate entities. Therefore, oral health is a critical component of the overall health, since the health of the mouth mirrors the condition of the body as a whole, and must be included in the provision of healthcare and the design of community programmes. Oral health importance has improved significantly over the last 30 years and healthcare is still in transition. This means that the treatment decision-making process shifted from the traditional paternalistic model of the 1980s (where the physician is the solely responsible for clinical decision-making, assuming the dominant role, while the patient is a passive object with his/her preferences and opinions rarely, if ever, taken into consideration) to the new shared decision-making approach (where the patient has a larger role in the healthcare decision-making process).[2–4] In this person-centred model, the patient is dynamic, context-aware and cooperates with the health professional in order to achieve the most satisfactory treatment decision for him/herself, creating a balance between the preferences of the former and the expertise of the latter. Pain, negative earlier dental experiences and negative attitudes in a patient's family are often cited as the major factors in the development of dental anxieties.[5,6] Therefore, despite advances in dental care, dental fear and anxiety can lead to avoidance strategies of patients to elude dental treatment.[7] Consequently, a vicious circle of dental fear could occur, whereby people delay dental visiting allowing the continued progression of oral disease, thus resulting in a further deterioration in oral health, which may require a more traumatic and invasive emergency treatment, leading to a maintenance or increase in their level of dental fear.[8] According to the concept of patients' role preferences in relation to dental treatment decision-making, today, choices about dental healthcare could be made by the patient in agreement with the clinician, but the patient's participation during dental consultations could be influenced by several variables, such as patients' characteristics, fears and previous dental treatment, and dentists' professional

[1]Division of Oral Rehabilitation, Istituto Stomatologico Italiano, University of Milan, Milan, Italy; [2]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy; [3]IRCC Istituto Ortopedico Galeazzi, Milan, Italy
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British Dental Journal 2017

Lo scopo era valutare la **disponibilità a pagare** (WTP) dei pazienti e le loro **preferenze** per il **trattamento di un dente con prognosi molto sfavorevole**, tra due opzioni:

1) Terapia canalare con posizionamento di una corona

oppure

2) estrazione del dente, inserimento di un impianto e posizionamento di una corona

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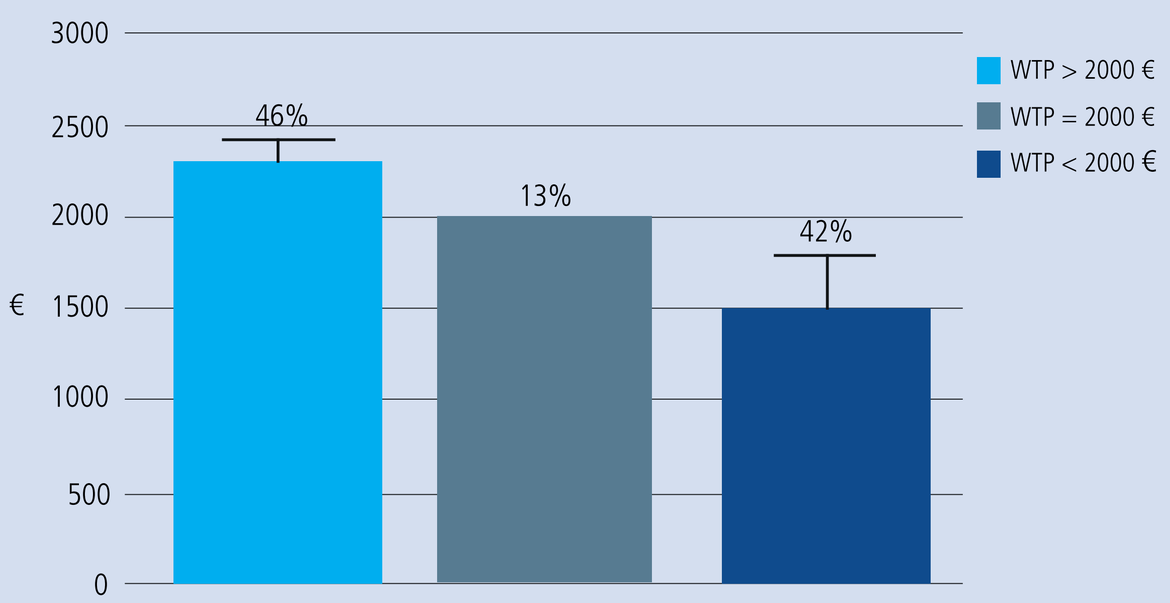
British Dental Journal 2017

Table 1 Demographic and clinical profile of the participants (N = 103)

Characteristic	N patients
Gender	
Female	51 (50%)
Male	52 (50%)
Age (years)	
Range	2365
Mean ± standard deviation	44.1 ± 9.5
Education	
Nil or primary	6 (6%)
Secondary	36 (35%)
Tertiary	61 (59%)
Employment status	
Nil	5 (5%)
Employee	65 (63%)
Private practice	33 (32%)
Personal income (€/year)*	
<15,000	22 (21%)
15,00030,000	46 (45%)
>30,000	35 (34%)
Dental care-routine check-ups/year	
0	19 (18%)
1-2	81 (79%)
>2	3 (3%)
History of hopeless tooth	
Yes	62 (60%)
No	41 (40%)
Current treatment preference	
Restorative dentistry	78 (76%)
Surgery	25 (24%)

*Questionnaire optional field

Fig. 1 Mean willingness to pay (WTP) value of patients regardless of the new treatment solution



76% preferisce la terapia canalare

24% preferisce la chirurgia

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Endo vs Impianto:
decision making nel mantenere o estrarre un dente

DENTE VITALE CHE NON NECESSITA DI ENDO	DENTE VITALE CHE NECESSITA DI ENDO	DENTE CON CARIE SUBGENGIVALE	DENTE CON LESIONE CRONICA
• Trauma • Carie • Terapie di mantenimento della vitalità della polpa (es. incappucciamento diretto)	• Carie profonde • Traumi • Strategie pre-protesiche • Lesioni endo-perio • Perno o no perno	• Allungamento di corona clinica • Gengivectomia • Estrusione ortodontica	• Ritrattamento ortogrado • Endodonzia chirurgica • Trattamento combinato

QUALI SONO I CRITERI CHE CI GUIDANO NELLA DECISIONE CLINICA ?

What are the longevities of teeth and oral implants?

Poul Holm-Pedersen
Niklaus P. Lang
Frauke Müller

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Key words: endodontically treated, longevity, oral implants, periodontally compromized, survival, tooth loss

Abstract

Objective: To analyse tooth loss and to evaluate the longevity of healthy teeth and teeth compromised by diseases and influenced by therapy as well as that of oral implants.

Material and methods: On the basis of an electronic and manual search using key words for survival, success, longevity of teeth, longevity of implants, epidemiology, periodontally compromised, endodontically compromised, risk for tooth extraction 49 full-text articles were identified to construct a traditional review. Among these, six systematic reviews addressing longevity were found.

Results: Tooth loss is a complex outcome, it is influenced by the extent of dental caries and its sequelae and/or the presence or absence of periodontitis as well as the decisions taken by dentists when evaluating possible risk factors for rendering successful therapy. In addition, tooth loss is related to behavioural and socio-economic factors and associated morbidity and cultural priorities. Generally, teeth surrounded by healthy periodontal tissues yield a very high longevity (up to 99.5% over 50 years). If periodontally compromised, but treated and maintained regularly, the survival of such teeth is still very high (92–93%). Likewise, endodontically compromised, but successfully treated devital teeth yield high survival and success rates. The survival of oral implants after 10 years varies between 82% and 94%.

Conclusions: Teeth will last for life, unless they are affected by oral diseases or service interventions. Many retained teeth thus may be an indicator of positive oral health behaviour throughout the life course. Tooth longevity is largely dependent on the health status of the periodontium, the pulp or periapical region and the extent of reconstructions. Multiple risks lead to a critical appraisal of the value of a tooth. Oral implants when evaluated after 10 years of service do not surpass the longevity of even compromised but successfully treated natural teeth.

In the beginning of the 20th century extraction of teeth and their replacement with dentures were perceived as an acceptable – and perhaps even preferable – approach to treating substantial dental problems, especially for those of limited means and socio-economic status. Consequently, tooth loss and edentulism were common among older people just a few decades ago. However, several recent studies have yielded a significant decline in edentulism and tooth loss in adult and older populations as well as among subcategories of elderly persons such as the oldest old (e.g., Petersen & Yamamoto 2005; Vilstrup et al. 2007; Müller & Carlsson 2007).

Tooth loss reflects the ultimate outcome of oral disease over the course of life.

To cite this article:
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Clin Oral Impl Res 2007

Le comparazioni tra la longevità dei denti naturali e degli impianti dentali sono difficili a causa della eterogeneità tra gli studi

Salviamo i denti naturali!

CRITICAL REVIEWS IN ORAL BIOLOGY & MEDICINE

F.C. Setzer and S. Kim*

University of Pennsylvania, Philadelphia, PA, USA; *corresponding author, syngcuk@dental.upenn.edu

J Dent Res 93(1):19-26, 2014

Comparison of Long-term Survival of Implants and Endodontically Treated Teeth

ABSTRACT

The outcomes of both dental implants and endodontically treated teeth have been extensively studied. However, there is still a great controversy over when to keep a natural tooth and when to extract it for a dental implant. This article reviews the benefits and disadvantages of both treatment options and discusses success *vs.* survival outcomes, as well as the impact of technical advances for modern endodontics and endodontic microsurgery on the long-term prognosis of tooth retention.

KEY WORDS: dental implants, endodontic therapy, oral health, outcome, systematic review, treatment planning.

INTRODUCTION

Helping people to keep their dentition is the ultimate goal of dentistry. A challenging dilemma faced by clinicians—and one that has been hotly debated—is when teeth should be condemned and implants used instead (Ruskin *et al.*, 2005; John *et al.*, 2007; Torabinejad *et al.*, 2007). A tendency exists toward a simplified approach of 'extraction and implant', but this is not always simple or ethical. Particularly, endodontically treated teeth have been regarded as inferior to implants in terms of long-term stability and retention (Ruskin *et al.*, 2005).

Endodontics includes primary and secondary endodontic treatment and periradicular surgery, all of which are applied to save teeth with prognostic value that can be restored. Dental implants extend the dentition when teeth are missing or cannot be maintained with reasonable effort. However, teeth need not be replaced prematurely, since the overall goal in dentistry is the patient's long-term health and benefit. Endodontics and implantology should complement each other and not compete. Unfortunately, because of misinformation, great confusion exists regarding the long-term outcome of implants and endodontics. The following essential issues will be addressed in this review: retention *vs.* replacement, misconceptions associated with endodontic therapy and implants, and current strategies for endodontic treatment planning relating to long-term success and tooth retention.

Modern dentistry should follow an evidence-based approach. However, the question of retention or extraction of a tooth has not been satisfactorily answered at a high level of evidence (Iqbal and Kim, 2007). The decision-making process between tooth retention and extraction is difficult to investigate. A tooth may be functioning; however, multi-factorial risks may lead to extraction upon endodontic or restorative treatment attempts (Wolcott and Meyers, 2006). This is complicated by countless natural or pathological variations, different treatment planning options, a clinician's attitude and/or skillfulness, and patient preferences. Altogether, limitations in study design become apparent.

In spite of the existence of good evidence, many myths regarding endodontic treatment have spread, including the notion to connect "failing" endodontic cases and reported endodontic outcome rates with general tooth retention to support the need for implants (Ruskin *et al.*, 2005). This has been done repeatedly and falsely without addressing the failures, longevity, and, particularly, complications associated with implants (Lundgren *et al.*, 2008). Nevertheless, evidence exists that the loss rate of implants is higher than that of natural teeth in clinically well-maintained patients (Tomasi *et al.*, 2008).

BENEFITS OF IMPLANTS

In the past, clinicians used various now-obsolete implant designs that healed by fibro-osseous integration. Modern dental implantology began with the introduction of screw-type, root-form implants healing by osseointegration,

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J Dent Res 2014

La sopravvivenza degli impianti posizionati da operatori inesperti era del 73,0%, rispetto al 95,5% degli specialisti in impianti (Morris e Ochi, 2000a,b).

Una comparazione dei tassi di sopravvivenza dei denti dopo il trattamento endodontico da parte di specialisti in endodonzia rispetto ai dentisti generici, in uno studio multicentrico che ha coinvolto 350 denti che soddisfacevano i criteri di inclusione, ha mostrato una differenza di solo il 98,1% contro l'89,7% (Alley et al., 2004).

IMPIANTI - - dal 73% al 95,5%

DENTI TRATTATI ENDO - - - dal 89,7% al 98,1%

JOE 2019

Clinical Research

A Retrospective Comparison of Outcome in Patients Who Received Both Nonsurgical Root Canal Treatment and Single-tooth Implants

Seyed Aliakbar Vahdati, DDS, MSD, Mahmoud Torabinejad, DDS, MSD, PhD,† Robert Handysides, DDS,‡ and Jamie Lozada, DMD‡*

Abstract

Introduction: Currently, no study has compared the outcome of nonsurgical root canal treatment (NSRCT) and single-tooth implants (STIs) provided to the same patient. The purpose of this study was to determine if the survival outcome of the 2 treatment modalities is different. **Methods:** The medical/dental records of 3671 patients with at least 1 STI and 1 NSRCT were reviewed. One hundred seventy patients with at least a 5-year follow-up were included. The survival outcome of NSRCT and STI and related factors were evaluated. **Results:** Both treatments had a 95% survival rate with a mean 7.5-year follow-up. Most preoperative and postoperative factors involved in both procedures

The main objective of modern dentistry is to preserve and restore the natural dentition (1). Historically, 1 of the cornerstones to achieve this goal has been the use of nonsurgical root canal treatment (NSRCT) and nonsurgical and surgical retreatments (2). When retaining teeth because of periodontal or restorative concerns is not possible or in edentulous patients, osseointegrated dental implants offer a significant improvement in the rehabilitation of the oral environment (3). Current trends in dentistry seem to indicate a more favorable preference for placing implants as standard treatment instead of treating teeth that need NSRCT or retaining teeth with endodontic treatment

Significance

In the era of multidisciplinary dentistry, endodontists and implantologists must approach a compromised tooth in a symbiotic rather than a competitive manner.

Conclusion

NSRCT and STI have a 95% survival rate with a mean 7.5-year follow-up.

However, adjunct and additional treatments, the number of appointments, the elapsed time before the final restoration, and the cost of the treatment were significantly higher for STI in comparison with NSRCT. In addition, STI generated more prescribed medications with possible associated complications.

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European Journal of Oral Sciences

Dental implants – are they better than natural teeth?

Bjarni E. Pjetursson[1,2], Kristin Heimisdottir[3]
[1]Division of Reconstructive Dentistry, Faculty of Odontology, University of Iceland, Reykjavik, Iceland; [2]Division of Fixed Prosthodontics and Biomaterials, University Clinics for Dental Medicine, University of Geneva, Geneva, Switzerland; [3]Division of Orthodontics, Faculty of Odontology, University of Iceland, Reykjavik, Iceland;

Pjetursson BE, Heimisdottir K. Dental implants – are they better than natural teeth?. Eur J Oral Sci 2018; 126(Suppl. 1): 81–87. © 2018 Eur J Oral Sci

Nowadays, patients find much information on dental treatment from the Internet. There is a vast amount of information on dental implants, in contrast to the limited information available on natural teeth. This review addresses research on survival of natural teeth and dental implants, and discusses factors affecting the survival rate of implants, as well as certain dogmas in implant dentistry. To simplify treatment planning, the article presents a classification system in which teeth are classified as secure, doubtful, or irrational to treat. Secure teeth should last for a long period of time without need for complex treatment. Doubtful teeth are teeth that might need complicated treatment and additional maintenance in order to be maintained. Teeth irrational to treat are teeth that cannot be saved and for which extraction is the only treatment option. Multiple risk factors might decrease the survival probability of teeth. The survival and success rates of dental implants will never succeed the survival rates of healthy, clean teeth. Dental implants and implant-supported restorations are an excellent treatment modality, but it must always be kept in mind that it is associated with a risk of biological and technical complications. Implants are supposed to replace missing teeth – they are not supposed to replace teeth.

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Key words: complications; implant survival; peri-implantitis; periodontal disease; tooth survival; treatment planning

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Salviamo i denti naturali!

JDR 2016

Editorial

Are Dental Implants a Panacea or Should We Better Strive to Save Teeth?

Journal of Dental Research
2016, Vol. 95(1) 5–6
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sagepub.com/journalsPermissions.nav
DOI: 10.1177/0022034515618942
jdr.sagepub.com

W.V. Giannobile[1,2] and N.P. Lang[3]

Keywords: peri-implantitis, oral implants, implant dentistry, periodontitis, tooth maintenance, function

Dental implants have become an important treatment for the replacement of teeth lost due to disease, injury, or congenital tooth agenesis (Adell et al. 1990). Over the past 30 years, the incorporation of dental implants into everyday clinical dental practice has resulted in major improvements in oral health of our patients through enhancements in function, esthetics, and phonetics. In this month's issue of the *Journal*, we highlight new evidence on the biological complications of dental implants and the great challenges associated with predictable implant therapy. These adverse outcomes associated with implants have come to the forefront of discussion groups in periodontology, oral surgery, prosthodontics, and implant dentistry relating not only to prosthetic (technical) failure but also persistent infections surrounding implants. A recent systematic review based on a European consensus conference revealed that the prevalence of peri-implant mucositis and peri-implantitis ranges from 19% to 65% (Derks and Tomsai 2015). This month, results from one of the largest studies performed in Sweden show that peri-implantitis and peri-implant mucositis are common biological complications of implant therapy (Derks et al. 2016) that may jeopardize the longevity of reconstructions on implants. Tarnow (2016) comments on how far we have come in implant dentistry while at the same time recognizing the influence on success of implant placements by generalists, specialists, and different implant configurations/surfaces. One finds that reconstructive therapy of peri-implantitis lesions is unpredictable as yet when compared to surgical resection, as evidenced by recent investigations and systematic reviews (Khoshkam et al. 2013; Carcuac et al. 2016; Jepsen et al. 2016).

A trend affecting clinical practice over the past 2 decades has been the reduced emphasis to "save compromised teeth." In fact, studies have demonstrated that those with less training in periodontology and implant dentistry generally apply reduced efforts in addressing tooth retention (Lang-Hua et al. 2014). It is noted that less trained individuals are often recommending tooth extraction versus retention. As such, many teeth are being condemned at early stages given the expediency that lends itself to quickly rid a problematic tooth and provide a new tooth replacement implant. It is not unusual for many practitioners to recommend tooth extraction with modest tooth-associated ailments such as caries, need for endodontic therapy, or periodontal involvement. There are many scenarios where patients are advised to get rid of the compromised tooth and get the "newer, better" implant. It has recently been advocated that practice patterns should change to retain more teeth given the excellent long-term track record of successful therapy for tooth preservation (Axelsson and Lindhe 1981; Lindhe and Pacey 2014). It is acknowledged that in many clinical situations, advanced diseases such as caries and periodontitis render teeth hopeless, requiring implant prosthetic solutions to rehabilitate patients. Most all dental implant systems are susceptible to peri-implant biological complications (Derks et al. 2015). These complications result in very difficult to treat options, including local mechanical therapy and antibiotics, resective surgery, regeneration, or, in a large number of cases, removal. The erroneous belief of implants yielding a better long-term prognosis has now clearly been rejected in several comparative studies and systematic reviews. Teeth even compromised because of periodontal disease or endodontic problems may have a longevity that surpasses by far that of the average implant (Carnevale et al. 1998; Hardt et al. 2002; Lang and Zitzmann 2012; Salvi et al. 2014; Klinge et al. 2015).

This dialogue can be a call to action to revisit the long history of success of tooth maintenance to preserve the natural dentition without the rush to extract teeth and replace with implants. We do a disservice to our patients and ourselves without carefully weighing the advantages and disadvantages of such options in providing the optimal oral health care delivery to our patients. We have been trained to preserve teeth. Let us face the challenge. If we select an "early removal of compromised teeth" paradigm, the dental profession will lose most of its expertise in preserving a functional dentition for a lifetime.

Acknowledgments

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Facciamo un disservizio ai nostri pazienti e a noi stessi se non ponderiamo attentamente i vantaggi e gli svantaggi di tali opzioni nel fornire la migliore assistenza sanitaria orale ai nostri pazienti.

Siamo stati formati per preservare i denti. Affrontiamo questa sfida.

Se scegliamo il paradigma di "*rimozione precoce dei denti compromessi*", la professione odontoiatrica perderà gran parte della sua competenza nel preservare una dentizione funzionale per tutta la vita.

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Journal of Endodontics 2018

2018 MEETING OF THE WORLD CONGRESS ON DENTAL TRAUMATOLOGY

In the Dental Implant Era, Why Do We Still Bother Saving Teeth?

Danielle Clark, RDH, BSc, MSc and Liran Levin, DMD, RCD(C), FIADT, FICD

ABSTRACT

Teeth are vital sensory organs that contribute to our daily activities of living. Unfortunately, teeth can be lost for several reasons including trauma, caries, and periodontal disease. Although dental trauma injuries and caries are more frequently encountered in a younger population, tooth loss because of periodontal disease occurs in the older population. In the dental implant era, the trend sometimes seems to be to extract compromised teeth and replace them with dental implants. However, the long-term prognosis of teeth might not be comparable with the prognosis of dental implants. Complications, failures, and diseases such as peri-implantitis are not uncommon, and, despite popular belief, implants are not 99% successful. Other treatment options that aim to save compromised or diseased teeth such as endodontic treatment, periodontal treatment, intentional replantation, and autotransplantation should be considered on an individual basis. These treatments have competing success rates to dental implants but, more importantly, retain the natural tooth in the dentition for a longer period of time. These options are important to discuss in detail during treatment planning with patients in order to clarify any misconceptions about teeth and dental implants. In the event a tooth does have to be extracted, procedures such as decoronation and orthodontic extrusion might be useful to preserve hard and soft tissues for future dental implant placement. Regardless of the treatment modality, it is critical that strict maintenance and follow-up protocols are implemented and that treatment planning is ethically responsible and evidence based. *(J Endod 2019;45:S57–S65.)*

KEY WORDS:

Plaque; prevention; trauma

SIGNIFICANCE

Dental implants are a popular treatment option for patients who are missing teeth. Nonetheless, several less extensive and invasive treatment options that involve saving the natural tooth are available and have good prognosis and success rates. If these options are used first, the option to place a dental implant is still available. If the dental implant fails, we no longer have the option of restoring the natural tooth.

Teeth are sensory organs that function in several different aspects of everyday life. Mastication is an important role that teeth serve, and the ability to chew food is associated with an individual's quality of life[1]. Other daily activities such as speech, and even smiling, are done with one's teeth. As a result, teeth are important organs that are associated with quality of life because of their role with esthetics, chewing, and speech[2]. When other organs in the body become compromised, much energy is spent on preventing further damage or even trying to reverse the damage. However, surprisingly, when it comes to our teeth, patients and, sometimes, dental professionals do not seem to value the preservation of them nearly as much. This is a negative phenomenon because the more teeth a person has, the more likely they are to have a higher quality of life[3]. Unfortunately, these vital organs are not invincible and can be lost because of several reasons during one's lifetime. Periodontal disease, caries, and dental trauma can all result in tooth loss across all ages[4,5]. Furthermore, the treatments provided to patients for periodontal disease, caries, and trauma can also lead to tooth loss or poor prognosis.

In today's dental implant era, there are several treatment options available to either save teeth or replace missing teeth. Periodontal treatment, guided bone regeneration, supportive periodontal therapy, endodontic treatment, and dental implants are all available. However, before determining the treatment plan, the proper diagnosis must be made, and, then, an unbiased assessment of the prognosis needs to be performed[6]. When evaluating prognosis, one should examine the patient to assess the long-term prognosis of the different treatment options and determine which one will best serve the specific patient in the long run. For instance, when assessing a diseased tooth, there is a need to evaluate if taking the required steps to save the tooth will lead to a better prognosis than extracting it and placing an implant.

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0099-2399/$ - see front matter

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https://doi.org/10.1016/j.joen.2019.05.014

Anche se i trattamenti non riescono a salvare un dente per tutta la vita del paziente, ritardare il posizionamento di un impianto dentale può essere importante, così come preservare i tessuti duri e molli.

La decisione di estrarre basandosi sulla valutazione della prognosi non è sempre adeguata, poiché la letteratura supporta il successo e la sopravvivenza dei denti trattati con terapia canalare, terapia parodontale, autotrapianto e così via.

Gli impianti dentali, sebbene apparentemente di successo, non dispongono di dati a lungo termine (oltre 50 anni) e rappresentano un'opzione terapeutica irreversibile.

Se un impianto fallisce, possiamo solo posizionarne un altro; se un dente fallisce, almeno abbiamo ancora l'opzione di inserire un impianto dentale.

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Sequenza Operativa nel piano di trattamento

1° APPUNTAMENTO

DIAGNOSI
Pianificazione del trattamento
- trattamento d'urgenza
- status radiografico
- modelli in gesso o digitali

TERAPIA ETIOLOGICA
- carie
- endo
- perio
- estrazioni
- 1° provvisorio

RIVALUTAZIONE
- indice di placca
- valutazione tasche
- valutazione del rischio di carie
- endodonzia strategica

COLLABORAZIONE

PIANIFICAZIONE DEL TRATTAMENTO DEFINITIVO
- 2° provvisorio
- chirurgia perio
- ortodonzia
- estrazioni
- impianti
- protesi definitiva

MANTENIMENTO

RICHIAMI

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PIANO DI TRATTAMENTO MULTIDISCIPLINARE



PERIO



ENDO



PROTESI

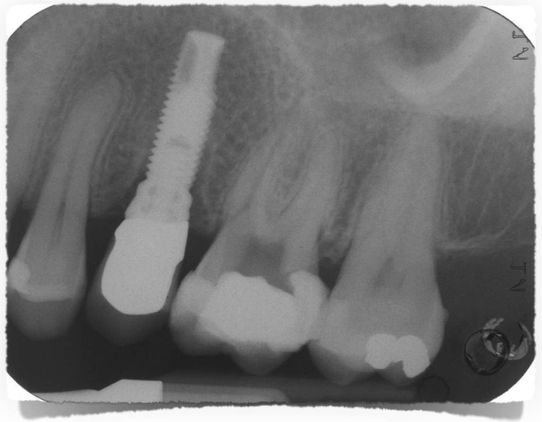
PAZIENTE



ORTO



RESTAURATIVA



IMPLANTOLOGIA

Aust Endod J 2015; 41: 2–6

LITERATURE REVIEW

Should retention of a tooth be an important goal of dentistry? How do you decide whether to retain and restore a tooth requiring endodontic treatment or to extract and if possible replace the tooth?

Jessica J. Zachar, BDSc, fifth-year student

School of Dentistry and Health Sciences, Charles Sturt University, Orange, New South Wales, Australia

Keywords
extract, implants, questionable, retention, root canal therapy.

Correspondence
Miss Jessica Zachar, Charles Sturt University, Leeds Parade PO Box 883, Locked Bag No. 1, Orange, NSW 2800, Australia. Email: jessica.zachar@outlook.com

doi:10.1111/aej.12102

This was the winning entry in the 2014 Australian Society of Endodontology Undergraduate Essay Competition.

Abstract

Whether a questionable tooth should be treated endodontically or extracted, is still a dilemma clinicians encounter every day. With advances in technology such as implantology, deciding whether or not to save a tooth is still not clear. Local site-specific factors and patient-related factors that may affect the longevity of a particular tooth should be considered in preparing the treatment plan. Long-term success rates for root canal therapy and implant-supported crowns demonstrate similar outcomes. A choice between these alone is not sufficient in the decision-making process. Only following a systematic evaluation of the reasons for and against tooth retention as directed by each individual case, can the best option be decided.

Introduction

To extract, or not to extract, a questionable tooth is a decision that remains controversial to this day. As a result, it has become a frequent dilemma for clinicians to decide whether to restore a tooth or to replace it with a prosthesis such as an implant. There is endless literature available on this topic, with no current clinical standard evaluation method to use when deciding the most appropriate option for a particular tooth.

There are conflicting conclusions and variations in the meaning of 'success'. A review of the most recent of literature will assist the practitioner in making an evidence-based decision. This will revolve around key patient-related and site-specific prognostic factors. Patient-related factors include the patient's systemic health and their perception on treatment modalities that are available. Site-specific factors such as endodontic, periodontic, restorative and prosthodontic specialty areas will also be discussed.

The retention of a tooth should be a vital goal in dentistry as it is a primary objective in periodontal therapy to maintain the natural dentition in high function (1). It is important to keep in mind that teeth are irreplaceable since prosthetics cannot compete with a natural tooth in relation to its physical, biomechanical and sensory properties (1).

Root canal–treated (RCT) teeth and implant success rates

A review conducted by Doyle *et al.* in 2006 highlighted that the success rates between a RCT tooth and an implant-supported single crown (ISC) is quite similar (2). The success rates were 94% (RCT) and 96% (ISC) at five years, while 97% (RCT) and 94% (ISC) at six years (2). The failure rates for each treatment were consistent at 6%. Complications were found to be 18% for implants with peri-implantitis as the common failure and 4% for endodontically treated teeth with persistent apical periodontitis or re-treatment (2). Because of similar outcomes, deciding whether to restore a tooth with root canal therapy or extraction and replacing it with an implant or another type of prosthesis must be based on multiple factors as opposed to treatment success alone.

© 2015 Australian Society of Endodontology

Conclusion

The current long-term success rates of root-filled teeth and implants demonstrates that the **decision-making process cannot be replaced**. Multiple **factors** need to be evaluated such as **site-specific and patient-related factors** in making an overall decision. Each case should be evaluated **individually** with thorough treatment plan.

The evidence presented clearly indicates that the extraction of a natural tooth without any consideration of its health will result in a failure to recognize risks and complications that may possibly arise with implant treatment.

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International Endodontic Journal

doi:10.1111/j.1365-2591.2009.01561.x

REVIEW

Endodontics or implants? A review of decisive criteria and guidelines for single tooth restorations and full arch reconstructions

N. U. Zitzmann, G. Krastl, H. Hecker, C. Walter & R. Weiger
Clinic for Periodontology, Endodontology and Cariology, University of Basel, Hebelstrasse, Basel, Switzerland

SUCCESS

VS

SURVIVAL

in alcuni studi, i **tassi di sopravvivenza** includono sia i denti/impianti di successo sia quelli classificati come semplicemente sopravviventi, invece di riportare separatamente denti/impianti di successo, sopravviventi e falliti

CRITERI DI SUCCESSO PER I DENTI TRATTATI CON TERAPIA CANALARE (RCT) E PER GLI IMPIANTI

	RCT tooth in function			implant in function		
clinical & radiographic measures	no clinical signs and absence or decreasing radiolucency	no clinical signs and persisting radiolucency	symptomatic situation and radiolucency, no further treatment feasible	absence of bleeding on probing, suppuration, bone loss	bleeding on probing with/without bone loss	mobility
↓	↓	↓	↓	↓	↓	↓
diagnosis & prognosis	healed or healing "success" good	continued disease state "survival"[1] questionable	vertical fracture etc. "failure" hopeless/untreatable	healthy "success" good	diseased "survival"[1] questionable	loss of osseointegration "failure" hopeless/untreatable
↓	↓	↓	↓	↓	↓	↓
treatment requirements	no treatment, supportive maintenance	optional, in case of progression	extraction	no treatment, supportive maintenance	necessary	removal

[1] In some studies survival data are presented as sum of surviving and successful RCT teeth/ implants

Zitzmann et al. J Endod 2009

SUCCESS vs SURVIVAL

Received: 1 July 2020 | Revised: 9 October 2020 | Accepted: 3 January 2021

DOI: 10.1111/clr.13706

ORIGINAL RESEARCH

CLINICAL ORAL IMPLANTS RESEARCH WILEY

Implant soft tissue Dehiscence coverage Esthetic Score (IDES): A pilot within- and between-rater analysis of consistency in objective and subjective scores

Giovanni Zucchelli[1,2] | Shayan Barootchi[1] | Lorenzo Tavelli[1] | Martina Stefanini[2] | Giulio Rasperini[3] | Hom-Lay Wang[1]



Clin Oral Impl Res 2021

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SUCCESS vs SURVIVAL

Received: 29 May 2023 | Revised: 14 September 2023 | Accepted: 15 September 2023

DOI: 10.1111/jerd.13141

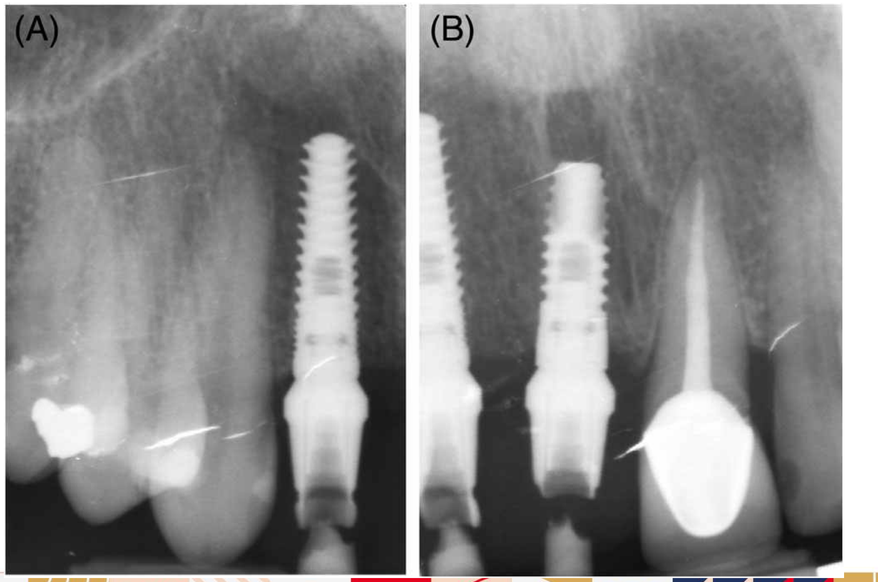
CLINICAL ARTICLE

WILEY

Long-term outcome of implants exhibiting buccal soft tissue dehiscence in the esthetic zone

Francisco J. Enrile de Rojas PhD | Javier Ventura de la Torre PhD | José Miguel Romero Griñolo BSc





J Esthet Restor Dent 2024

Peri-implant health and disease. A systematic review of current epidemiology

Jan Derks and Cristiano Tomasi

Department of Periodontology, Institute of Odontology, The Sahlgrenska Academy at University of Gothenburg, Gothenburg, Sweden

Derks J, Tomasi C. Peri-implant health and disease. A systematic review of current epidemiology. J Clin Periodontol 2015; 42 (Suppl. 16): S158–S171. doi: 10.1111/jcpe.12334.

Prevalence of Mucositis: 43%

Prevalence of Perimplantitis: 22%

AGENDA



2. Elementi prognostici chiave:
   - Fattori di rischio sistemici e clinici
   - Struttura sana residua
   - Valutazione endodontica, parodontale e restaurativa

Articoli di riferimento principali:

SCAN ME

Prognostic factors endodontics

Piñas-Alonzo, R., Bello, R., Hernández, A. *et al.* **Clinical outcomes and prognostic factors in endodontic treatment: a systematic review from 2002-2022.** *Br Dent J* (2025) Aug 4.

doi.org/10.1038/s41415-025-8639-x

SCAN ME

Factors affecting outcome

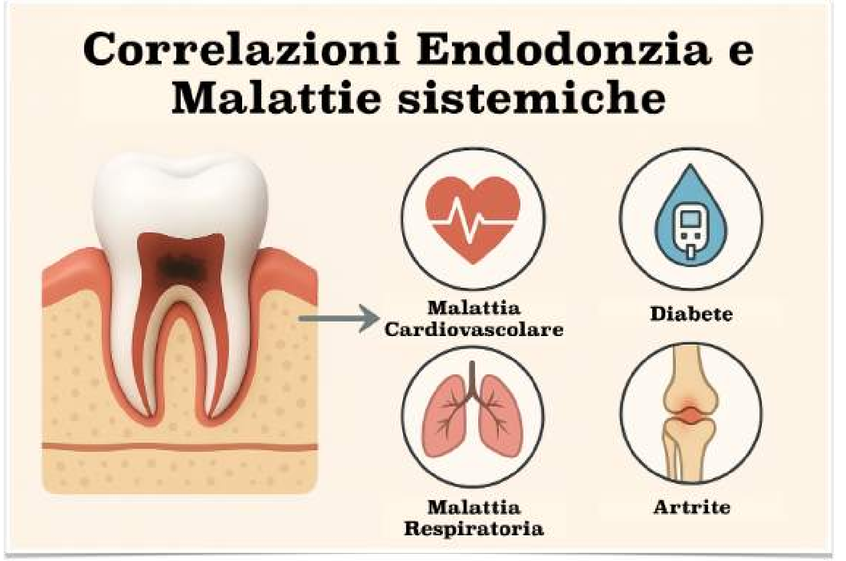
Gulabivala K, Ng YL. **Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles.** Int Endod J. 2023 Mar;56 Suppl 2:82-115.

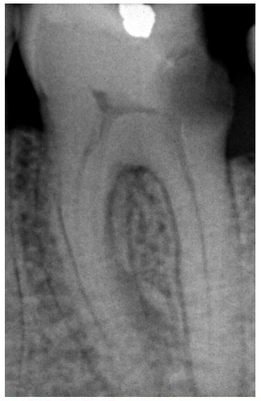
doi: 10.1111/iej.13897.

Elementi prognostici chiave

- Fattori di rischio sistemici e clinici
- Struttura sana residua
- Valutazione endodontica parodontale e restaurativa











Fattori di rischio sistemici

Età e sesso

Non sembrano avere influenza sul successo del trattamento endodontico





Ng, Y.-L., Mann, V. & Gulabivala, K. (2011)
A prospective study of the factors affecting outcomes of nonsurgical root canal treatment: part 1: periapical health.
International Endodontic Journal, 44(7), 583–609.

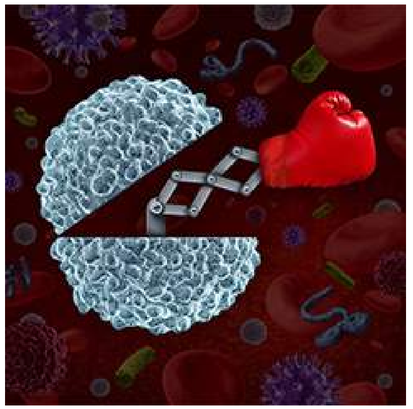
Ng, Y.-L., Mann, V. & Gulabivala, K. (2011)
A prospective study of the factors affecting outcomes of nonsurgical root canal treatment: part 2: periapical health.
International Endodontic Journal, 44(7), 610–625.

Fattori di rischio sistemici

DIABETE E SISTEMA IMMUNITARIO COMPROMESSO

Ci sono evidenze che dimostrano una possibile influenza nel ridurre il successo del trattamento endodontico





Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles. Int Endod J. 2023 Mar;56 Suppl 2:82-115.

Fattori di rischio sistemici

POLIMORFISMO GENETICO

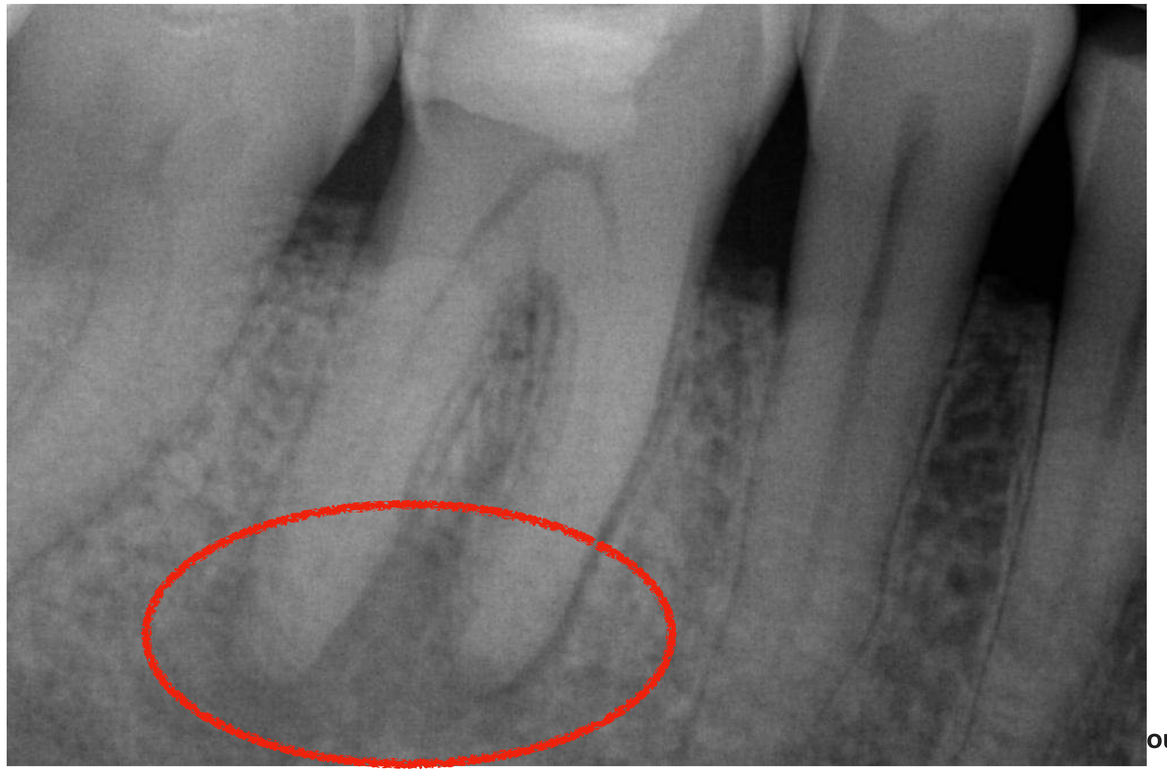
Può avere un ruolo nella guarigione delle lesioni



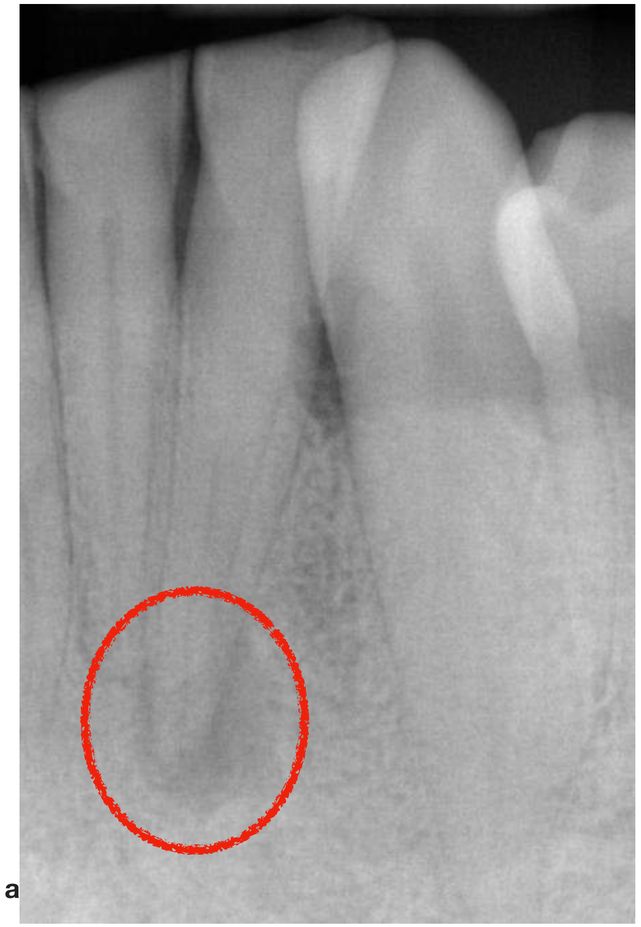
Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles. Int Endod J. 2023 Mar;56 Suppl 2:82-115.

Fattori di rischio clinici

Pre-esistente lesione periapicale



LA PERCENTUALE DI SUCCESSO È INFERIORE RISPETTO AI DENTI SENZA LESIONE PERIAPICALE PRE-ESISTENTE, SIA NEI TRATTAMENTI PRIMARI CHE NEI RITRATTAMENTI



Piñas-Alonzo, R., Bello, R., Hernández, A. *et al.* **Clinical outcomes and prognostic factors in endodontic treatment: a systematic review from 2002-2022.** *Br Dent J* (2025) Aug 4.

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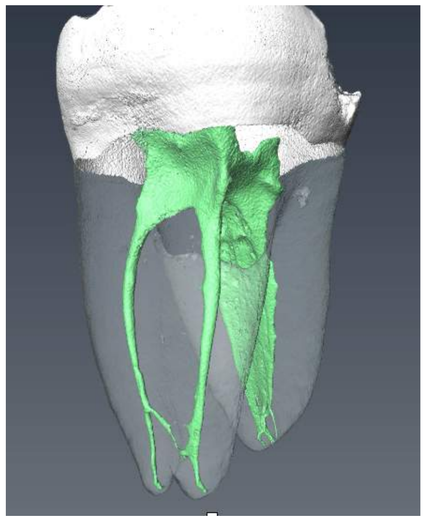
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Fattori di rischio clinici

Localizzazione e tipo di dente da trattare

Piñas-Alonzo, R., Bello, R., Hernández, A. *et al.* **Clinical outcomes and prognostic factors in endodontic treatment: a systematic review from 2002-2022.** *Br Dent J* (2025) Aug 4.





Il trattamento dei Denti mascellari ha più successo di quelli mandibolari





Il trattamento dei Denti Monoradicolati ha più successo di quelli pluriradicolati





molari mandibolari possono avere più successo di incisivi mandibolari

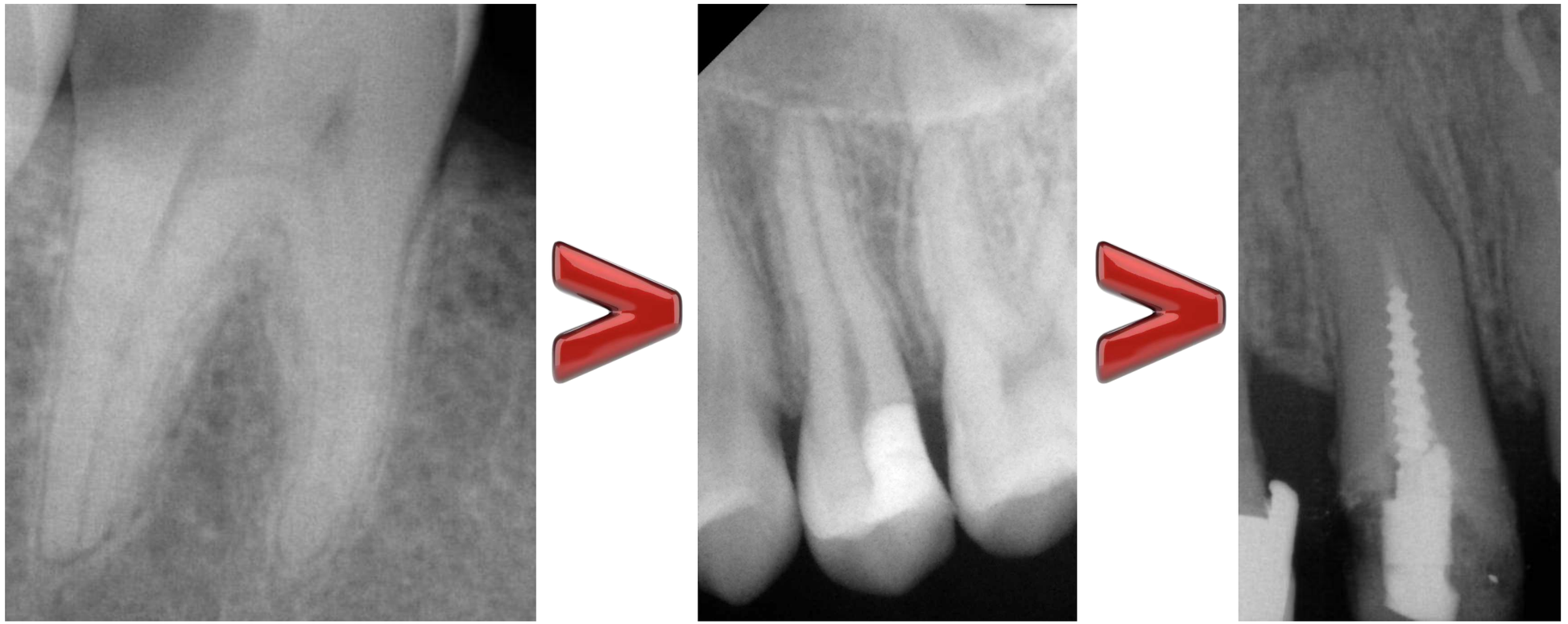
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Fattori di rischio clinici

Condizione della polpa pre-trattamento



DENTI VITALI HANNO PIÙ SUCCESSO RISPETTO A QUELLI CON POLPA NECROTICA O GIÀ TRATTATI

Prati C, Pirani C, Zamparini F, Gatto M R, Gandolfi M G. A 20-year historical prospective cohort study of root canal treatments. A Multilevel analysis. *Int Endod J* 2018; 51: 955–968.

Fattori di rischio clinici

Dimensioni lesione apicale

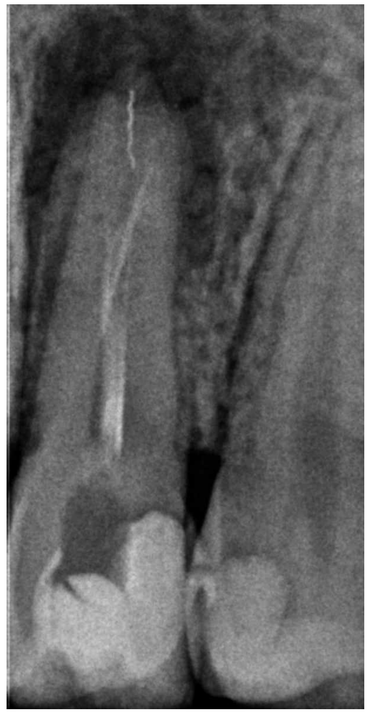


LA PERCENTUALE DI SUCCESSO È INFERIORE CON LESIONI MAGGIORI DI 5CM E NEI RITRATTAMENTI SPECIE CORTI O CON ALTERAZIONI ANATOMICHE O STRUMENTI FRATTURATI

Ng, Y.-L., Mann, V. & Gulabivala, K. (2011)
A prospective study of the factors affecting outcomes of nonsurgical root canal treatment: part 1: periapical health.
International Endodontic Journal, 44(7), 583–609.

Ritrattamnenti (Corti o con complicanze)





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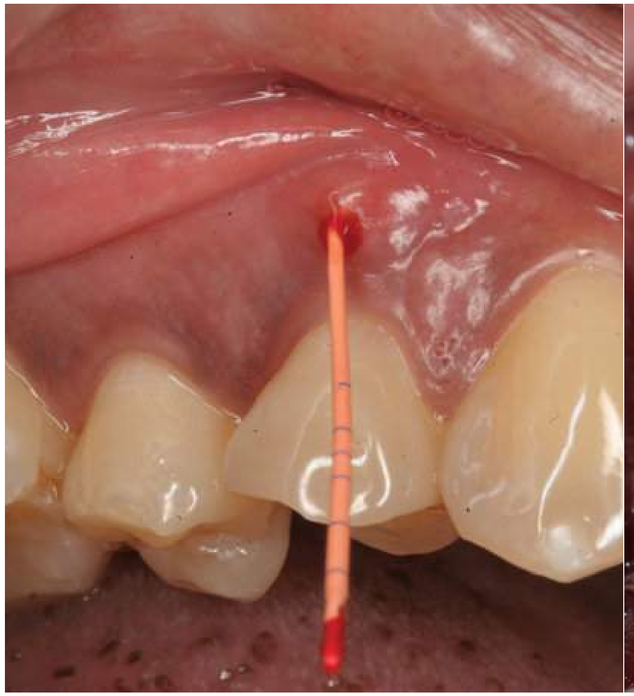
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Fattori di rischio clinici

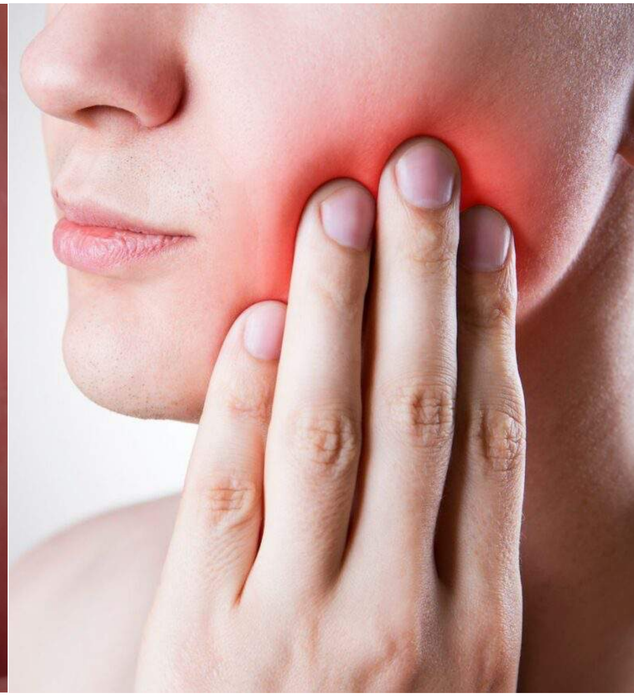
Presenza di fistola, gonfiore e dolore

Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles. Int Endod J. 2023 Mar;56 Suppl 2:82-115.

POSSONO RIDURRE IL SUCCESSO O RITARDARLO IN VIRTÙ DI UNA POTENZIALE MAGGIORE PROLIFERAZIONE BATTERICA NEL TESSUTO PERIAPICALE



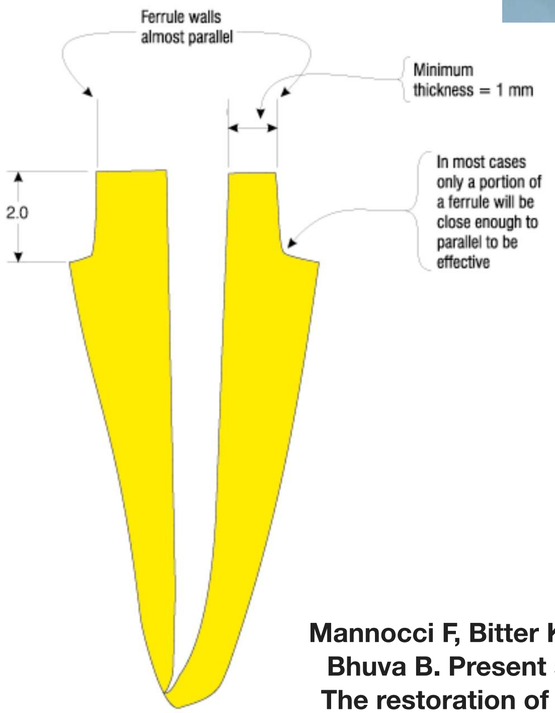




Struttura sana residua

Presenza di Ferula





LA PRESENZA DI FERULA SEMBRA AUMENTARE IL SUCCESSO DEI DENTI TRATTATI ENDODONTICAMENTE, SPECIE PER I PREMOLARI, MA I DATI CLINICI NON SONO CONCORDI

Mannocci F, Bitter K, Sauro S, Ferrari P, Austin R, Bhuva B. Present status and future directions: The restoration of root filled teeth. Int Endod J. 2022 Oct;55 Suppl 4 (Suppl 4):1059-1084. doi: 10.1111/iej.13796.

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Struttura sana residua

Numero pareti residue



Mannocci F, Bitter K, Sauro S, Ferrari P, Austin R, Bhuva B. Present status and future directions: The restoration of root filled teeth. Int Endod J. 2022 Oct;55 Suppl 4 (Suppl 4):1059-1084. doi: 10.1111/iej.13796.

LA PRESENZA DI NESSUNA O DI SOLO UNA PARETE RESIDUA RIDUCE LA SOPRAVVIVENZA E QUINDI LA PROGNOSI DEI DENTI TRATTATI ENDODONTICAMENTE RISPETTO ALLA PRESENZA DI DUE O PIÙ PARETI



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Struttura sana residua

Volume rimanente di dente sano

Mannocci F, Bitter K, Sauro S, Ferrari P, Austin R, Bhuva B. Present status and future directions: The restoration of root filled teeth. Int Endod J. 2022 Oct;55 Suppl 4 (Suppl 4):1059-1084. doi: 10.1111/iej.13796.

UN VOLUME DI STRUTTURA SANA RESIDUA INFERIORE AL 30% RIDUCE IL SUCCESSO E LA LONGEVITÀ DEI DENTI TRATTATI ENDODONTICAMENTE; I DENTI PIÙ DISTALI SONO QUELLI CHE POSSONO SUBIRE MAGGIORMENTE FALLIMENTO DA FRATTURA



Struttura sana residua

Contatti prossimali

L'ASSENZA DI DENTI CONTIGUI AL DENTE TRATTATO RIDUCE LA SOPRAVVIVENZA



Skupien JA, Opdam N, Winnen R, Bronkhorst E, Kreulen C, Pereira-Cenci T, Huysmans MC. A practice-based study on the survival of restored endodontically treated teeth. J Endod. 2013 Nov;39(11):1335-40. doi: 10.1016/j.joen.2013.06.028.

Journal of Endodontics 2013: 1335-1340

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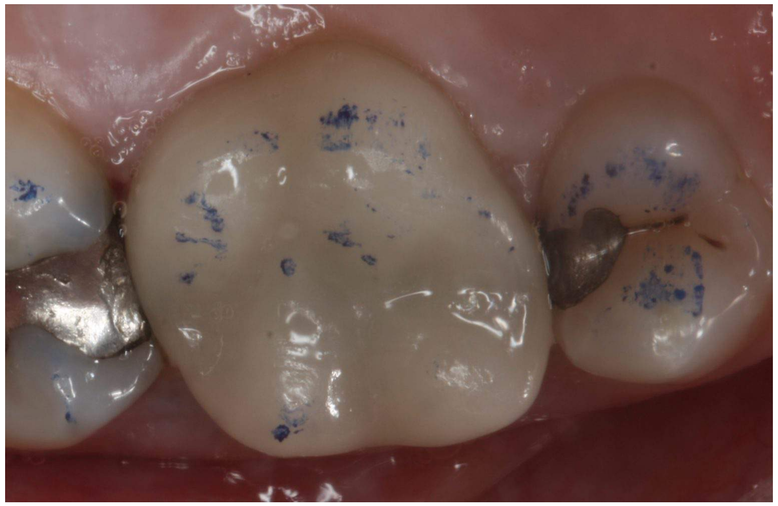
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Struttura sana residua

Occlusione

Il non controllo delle forze occlusali dell'antagonista del dente trattato riduce la sopravvivenza



Atlas AM, Behrooz E, Barzilay I. Can bite-force measurement play a role in dental treatment planning, clinical trials, and survival outcomes? A literature review and clinical recommendations. Quintessence Int. 2022 Jun 20;53(7):632-642. doi: 10.3290/j.qi.b3044939.

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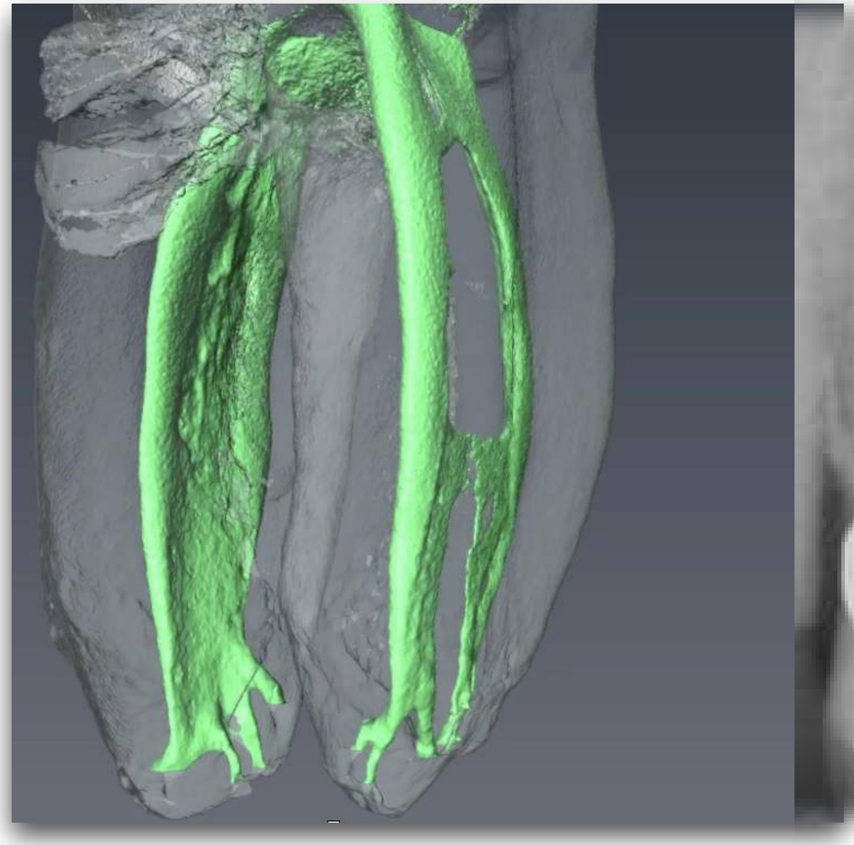
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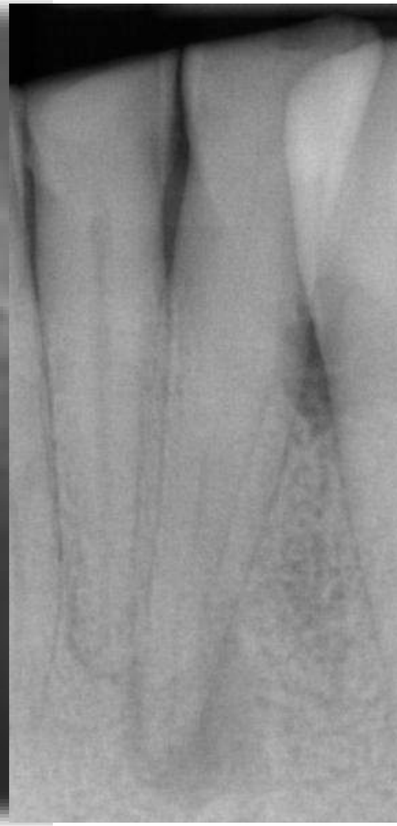
Valutazione Endodontica

Anatomia endodontica, accessibilità al sistema endodontico

UN ANATOMIA ENDODONTICA COMPLESSA, ANOMALA O ALTERATA, UNA IMPOSSIBILITÀ O DIFFICILE ACCESSO AL SISTEMA ENDODONTICO, RIDUCONO LA PROGNOSI DEL DENTE TRATTATO ENDODONTICAMEMTE







Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles. Int Endod J. 2023 Mar;56 Suppl 2:82-115.

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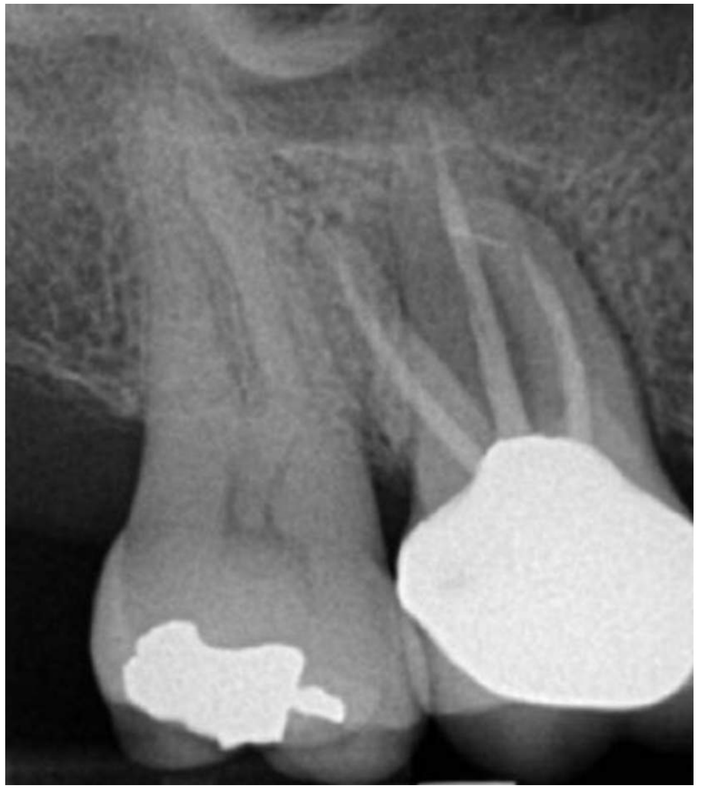
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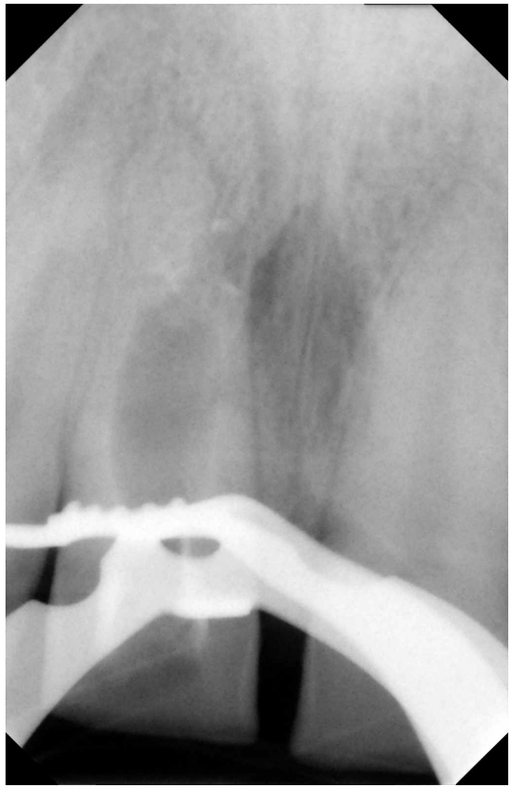
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Valutazione Endodontica

Presenza di ostacoli e capacità dell'operatore

LA PRESENZA DI OSTACOLI QUALI STRUMENTI ROTTI DIFFICILMENTE RIMOVIBILI O RIASSORBENTI CHE NECESSITINO STRUMENTARIO E CAPACITÀ SPECIFICHE POSSONO RIDURRE LA PROGNOSI DEL DENTE TRATTATO ENDODONTICAMENTE







Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment-A reframing of the principles. Int Endod J. 2023 Mar;56 Suppl 2:82-115.

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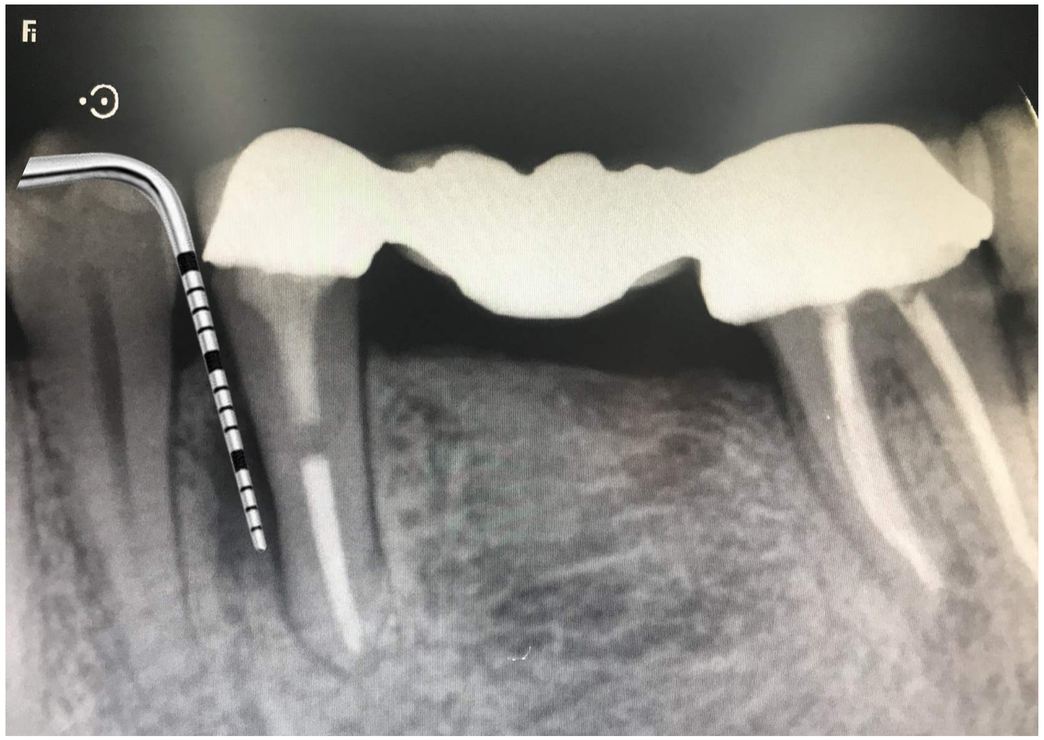
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Valutazione Parodontale

Tasche parodontali profonde e perdita ossea alveolare superiore al 50%

Profondità di sondaggio di circa 10mm, isolata e puntiforme può esser segno di frattura verticale di radice; Tasche superiori a 5mm devono essere trattate anche parodontalmente





Essam O, Umerji S, Blundell K. Endodontic assessment, complexity, diagnosis and treatment planning. Br Dent J. 2025 Apr;238(7):441-447. doi: 10.1038/s41415-025-8452-6.

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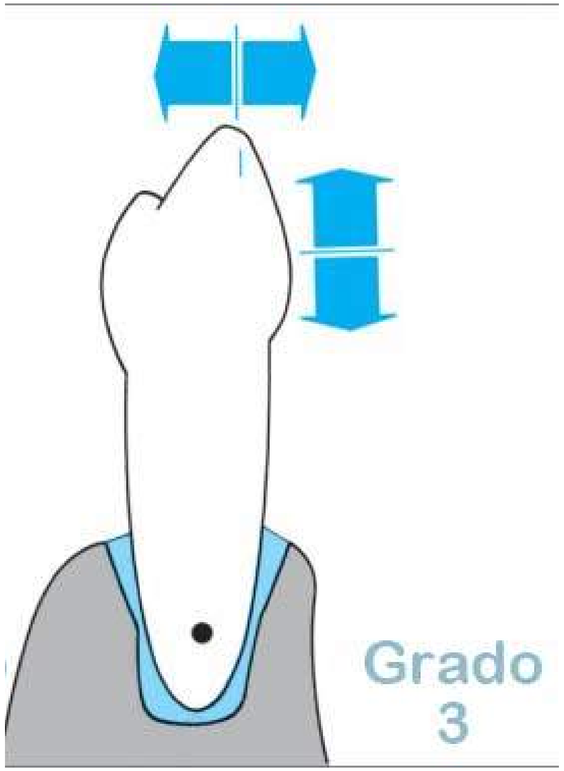
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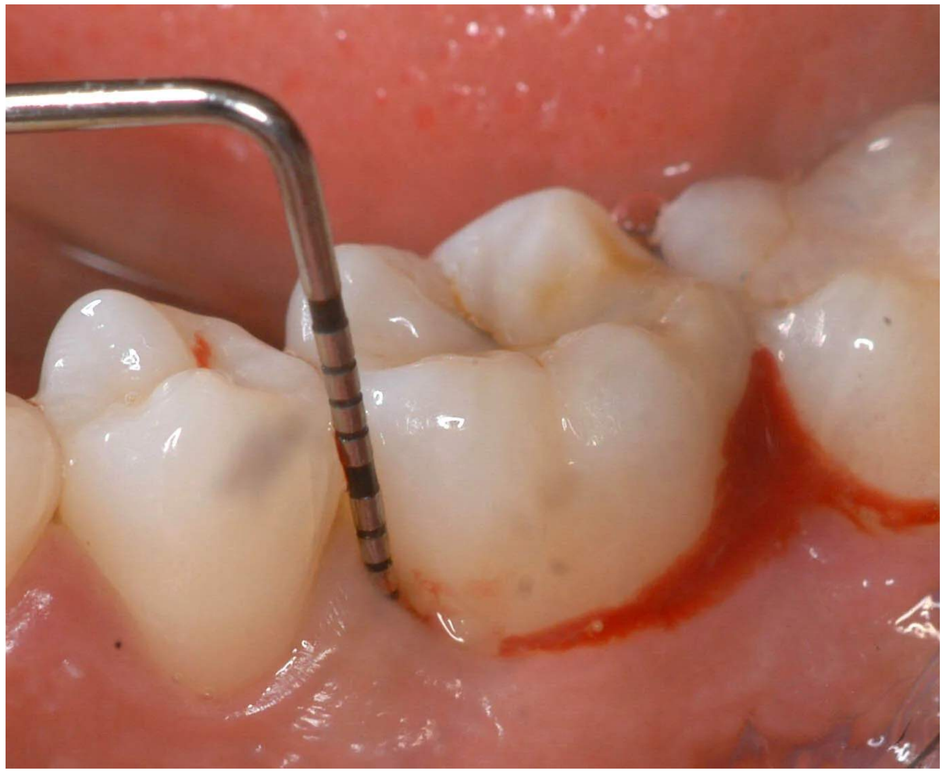
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Valutazione Parodontale

Mobilità dentale elevata e sanguinamento al sondaggio parodontale

MOBILITÀ DI GRADO III (ORIZZONTALE OLTRE 1 MM E ANCHE VERTICALE) RIDUCE LA PROGNOSI DELL'ELEMENTO DENTARIO; SANGUINAMENTO AL SONDAGGIO NECESSITA TERAPIA PARODONTALE PRIMA O CONTESTUALE A QUELLA ENDODONTICA





Khalighinejad N, Aminoshariae A, Kulild JC, Wang J, Mickel A. The Influence of Periodontal Status on Endodontically Treated Teeth: 9-year Survival Analysis. J Endod. 2017 Nov;43(11):1781-1785. doi: 10.1016/j.joen.2017.06.022.

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Valutazione Restaurativa

Restauro diretto, indiretto o ricopertura con corona?

RESTAURO DIRETTO SOLO IN CASO DI POCA STRUTTURA DENTALE RIMOSSA; RESTAURO INDIRETTO A RICOPERTURA PARZIALE O TOTALE QUANDO MANCANO PIÙ DI UNA PARETE E RIDOTTA DENTINA INTERASSIALE; RICOPERTURA CON CORONA IN ASSENZA DI ENTRAMBE LE CRESTE MARGINALI E RIDOTTO VOLUME RESIDUO







Mannocci F, Bitter K, Sauro S, Ferrari P, Austin R, Bhuva B. Present status and future directions: The restoration of root filled teeth. Int Endod J. 2022 Oct;55 Suppl 4 (Suppl 4):1059-1084. doi: 10.1111/iej.13796.

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Valutazione Restaurativa

Restauro diretto, indiretto o ricopertura con corona?

Scelta del Restauro per Denti Trattati Endodonticamente

Tipo di Restauro	Struttura Residua	Protezione Cuspidale	Conservazione Dente
Diretto o Inlay	Elevata (>70%)	No	Massima
Onlay/overlay	Moderata (50-70%)	Sì	Buona
Corona	Scarsa (<50%)	Totale	Minima (richiede limatura)

Mannocci F, Bitter K, Sauro S, Ferrari P, Austin R, Bhuva B. Present status and future directions: The restoration of root filled teeth. Int Endod J. 2022 Oct;55 Suppl 4 (Suppl 4):1059-1084. doi: 10.1111/iej.13796.

Patel SR, Youngson C, Jarad F. Principles guiding the restoration of the root-filled tooth. Br Dent J. 2025 Apr;238(7):508-516. doi: 10.1038/s41415-025-8401-4.

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INTERNATIONAL ENDODONTIC JOURNAL | WILEY

REVIEW

European Society of Endodontology position statement: The restoration of root filled teeth

European Society of Endodontology developed by: | Francesco Mannocci[1] | Bhavin Bhuva[1] | Miguel Roig[2] | Maciej Zarow[3] | Kerstin Bitter[4]

AGENDA



3.L’ausilio della tecnologia:

- Microscopio operatorio
- CBCT e indicazioni all’uso della CBCT
- Presenza di impedimenti all’accesso (perni, strumenti fratturati, calcificazioni)

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Come aumentare l'apporto tecnologico nel trattamento endodontico

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Microscopio operatorio





Dispositivi CBCT

Microscopio operatorio

- I primi microscopi operatori compaiono in Italia negli anni ’90 del secolo scorso
- Nonostante la loro grande importanza per migliorare le prestazioni odontoiatriche non hanno una grande diffusione fino agli ultimi anni
- Presenti sul mercato modelli di marche diverse, con prezzi diversi ma anche qualità differenti
- Fondamentale la qualità della lente e la potenza della illuminazione
- Ingrandimento, illuminazione delle aree anche più interne e raffinatezza del movimento sono le caratteristiche migliorative prodotte da questi dispositivi



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I movimenti dell'operatore, che senza ingrandimento hanno una oscillazione di 1-2 mm, oscillano tra 10 e 20 micron quando si lavora a ingrandimento 20x. Questo perché, concludono gli Autori, i limiti alla precisione del trattamento non sono a carico delle mani ma degli occhi.



Tibbets LS, Shanelec DA.
Periodontal microsurgery.
Dent Clin North Am 1998;42:339-59

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CLINICAL RESEARCH

The Influence of Missed Canals on the Prevalence of Periapical Lesions in Endodontically Treated Teeth: A Cross-sectional Study

Abayomi Omokeji Baruwa, BDS,[*] Jorge N.R. Martins, DDS, MSc,[*] João Meirinhos, DDS, MSc,[*] Beatriz Pereira, DDS, MSc,[*] José Gouveia, DDS, MSc,[*] Sérgio A. Quaresma, DDS, MSc,[*] Adam Monroe, DMD,[†] and António Ginjeira, MD, DMD, PhD[*]

J Endod 2020;46:34-39.

with all canals identified and treated. **Conclusions:** The association between untreated root canals and the presence of periapical lesions noted in the present study shows that missed canals have a significant impact on treatment prognosis.

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CLINICAL RESEARCH

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J Endod 2020;46:34-39.

$P < .05$ was considered statistically significant. **Results:** The prevalence of missed canals was 12.0%, and teeth with untreated canals were associated with periapical pathology in 82.6% of the cases. The root presenting with the highest percentage of missed canals (62.8%) was the mesiobuccal root of the maxillary first molar, being associated with periapical lesions in 75.2% of cases. Maxillary molar mesiobuccal roots presenting with a missed canal were 3.1 times more likely to be associated with periapical pathology than maxillary molars with all canals identified and treated. **Conclusions:** The association between untreated root

J Endod 2017;43:728-32.

The Effect of the Dental Operating Microscope on the Outcome of Nonsurgical Root Canal Treatment: A Retrospective Case-control Study

Navid Khalighinejad, DDS, Anita Aminoshariae, DDS, MS,* James C. Kulild, DDS, MS,* Kristin A. Williams, DDS, MPH,† Jeannie Wang, DMD,* and Andre Mickel, DDS, MS**

There was a significant association between a missed MB2 canal and an MB lesion in the group in which the initial NS RCT was performed without the use of a microscope.

J Endod 2017;43:728-32.

The Effect of the Dental Operating Microscope on the Outcome of Nonsurgical Root Canal Treatment: A Retrospective Case-control Study

Navid Khalighinejad, DDS, Anita Aminoshariae, DDS, MS,* James C. Kulild, DDS, MS,* Kristin A. Williams, DDS, MPH,† Jeannie Wang, DMD,* and Andre Mickel, DDS, MS**

There was a significant association between the use of a microscope and identification of the MB2 canal in the initial NS RCT.

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J Endod 2017;43:728-32.

The Effect of the Dental Operating Microscope on the Outcome of Nonsurgical Root Canal Treatment: A Retrospective Case-control Study

Navid Khalighinejad, DDS, Anita Aminoshariae, DDS, MS,* James C. Kulild, DDS, MS,* Kristin A. Williams, DDS, MPH,† Jeannie Wang, DMD,* and Andre Mickel, DDS, MS**

Significance

With proper education, dentists can gain further insight into recognizing limitations in treating cases that require advanced training and advanced optics such as a dental operating microscope.

and treat all the root canal systems (RCSs) is one of the factors that may lead to a nonhealing outcome after nonsurgical endodontic treatment (1).

The use of a dental operating microscope allows the detection of canals that have normally been difficult to recognize and treat in the absence of enhanced magnification (2, 3). The American Association of Endodontics suggests that all endodontists learn about the benefits of microscopes and incorporate the use of those devices in their practice (4).

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Influence of access cavity design and use of operating microscope and ultrasonic troughing to detect middle mesial canals in extracted mandibular first molars

E. B. Mendes[1], A. J. Soares[1], J. N. R. Martins[2,3], E. J. N. L. Silva[4,5] & M. R. Frozoni[1]
[1]Department of Endodontics, Faculdade São Leopoldo Mandic, Centro de Pesquisa São Leopoldo Mandic, Campinas, Brazil;

International Endodontic Journal, **53**, 1430–1437, 2020.

Conclusion The access cavity design did not significantly affect detection of middle mesial canals in extracted mandibular first molars placed in a mannequin. However, the use of OM increased the accuracy of the MMC identification, especially when associated with ultrasonic troughing.

Influence of Access Cavity Design on Root Canal Detection, Instrumentation Efficacy, and Fracture Resistance Assessed in Maxillary Molars

Gabriela Rover, DDS, MSc, Felipe Gonçalves Belladonna, DDS, MSc,† Eduardo Antunes Bortoluzzi, DDS, MSc, PhD,* Gustavo De-Deus, DDS, MSc, PhD,† Emmanuel João Nogueira Leal Silva, DDS, MSc, PhD,‡§ and Cleonice Silveira Teixeira, DDS, MSc, PhD**

($P > .05$). **Conclusions:** The current results did not show benefits associated with CECs. This access modality in maxillary molars resulted in less root canal detection when no ultrasonic troughing associated to an OM was used and did not increase fracture resistance. *(J Endod 2017;43:1657–1662)*

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Saygili *et al. BMC Oral Health* (2018) 18:121
https://doi.org/10.1186/s12903-018-0570-y

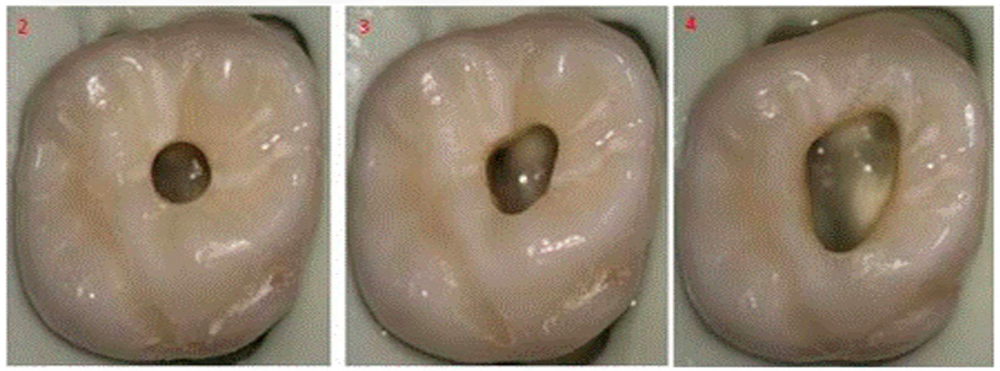
BMC Oral Health

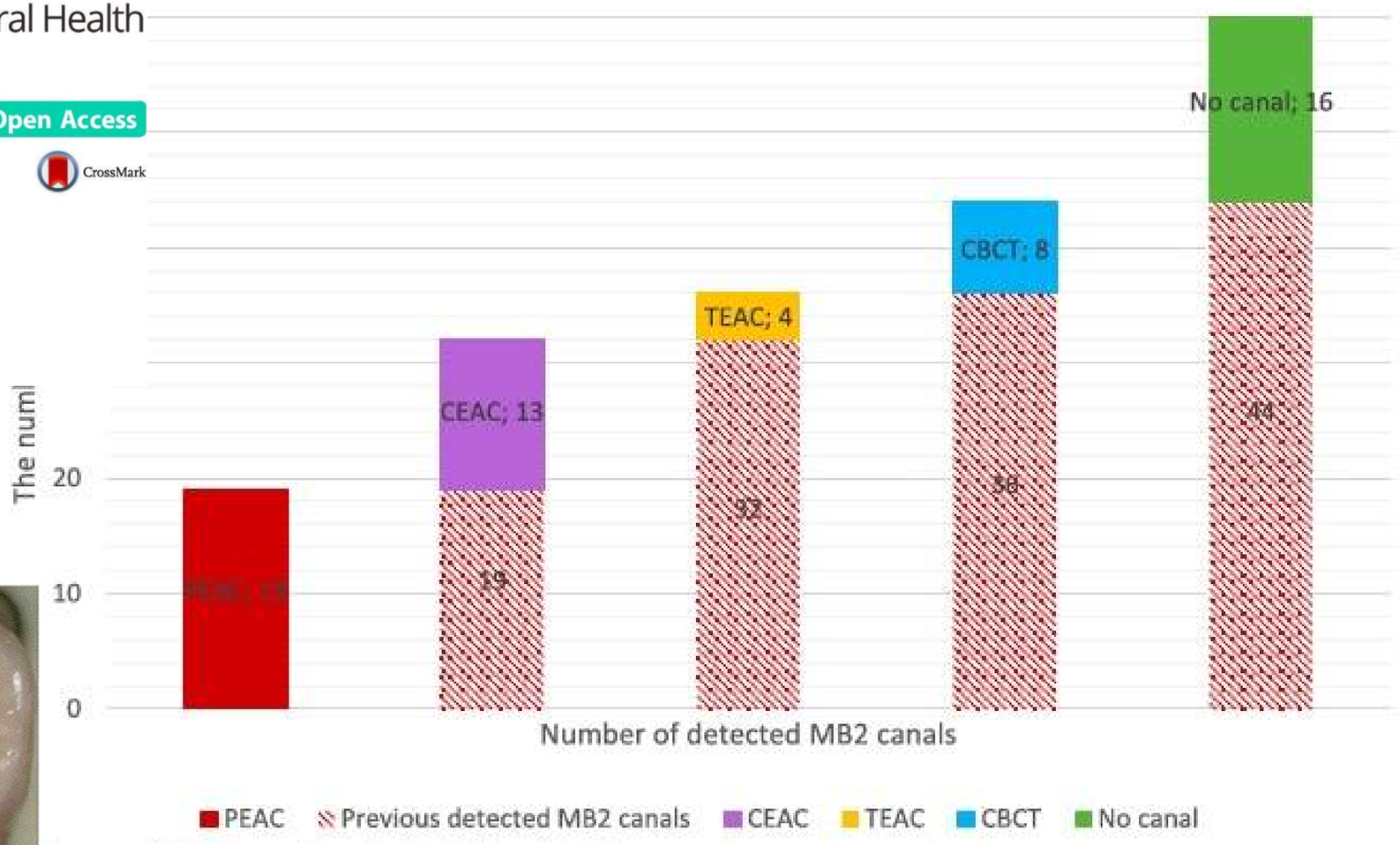
RESEARCH ARTICLE Open Access

Evaluation of relationship between endodontic access cavity types and secondary mesiobuccal canal detection

Gokhan Saygili[1*], Banu Uysal[1], Bawar Omar[2], Elif Tarim Ertas[1] and Huseyin Ertas[1]

BMC Oral Health 2018;18:121.





Dispositivi CBCT

- Compaiono in Italia a partire dalla metà del primo decennio del 2000
- Nonostante la loro grande importanza per migliorare le prestazioni endodontiche inizialmente vengono percepiti come utili soprattutto per implantologi e chirurghi orali
- Suddivisi in «entry level» e «avanzati», garantiscono mediamente buone capacità di interpretazione dei dati
- Manca una «scolarizzazione diffusa», limitando così l'uso per una corretta utilizzazione
- Non sono ancora completamente chiariti gli aspetti legali del loro utilizzo da parte degli Odontoiatri



Indicazioni

- Non è l'esame di primo livello in endodonzia che resta, anche per motivi medico-legali, l'rx endorale
- Serve a superare i limiti fisici dell'esame bidimensionale, ovvero la sovrapposizione di più piani che limita la comprensione spaziale
- Permette il riconoscimento delle lesioni periapicali anche molto piccole, laddove non è possibile con le rx endorali almeno nel 30% dei casi,
- Permette il riconoscimento delle diverse anatomie canalari, consentendone un miglior rinvenimento clinico



Indicazioni

- Permette di collocare spazialmente diversi tipi di lesioni, come i riassorbimenti radicolari e le calcificazioni canalari e di valutare le confluenze anatomiche
- Permette di evidenziare la presenza e la prossimità alle lesioni periradicolari di strutture anatomiche importanti come il seno mascellare, le fosse nasali, il foro mentoniero o il nervo alveolare inferiore,
- Permette di costruire dime che consentano di effettuare sia la chirurgia endodontica che il trattamento di canali calcificati digitalmente guidati,
- Permette la misurazione delle lunghezze canalari in modo relativamente preciso, favorendo il trattamenti e i ritrattamenti ortogradi e i trattamenti chirurgici.



Indicazioni

- Per quel che riguarda l'endodonzia, il FOV utilizzato deve essere sempre quello «piccolo», ovvero 6x6 di media
- Lo spessore in acquisizione delle «fette» viene determinato dall'uso che si fa delle immagini, ovvero più piccolo per la diagnosi e più grande per i controlli o in casi particolari, nel rispetto dei principi di ottimizzazione e giustificazione
- Il professionista che esegue l'esame deve conoscere le modalità di post-produzione delle immagini, in modo da ottenere il massimo dell'informazione possibile



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INTERNATIONAL
ENDODONTIC JOURNAL

European Society of Endodontology position statement: Use of cone beam computed tomography in Endodontics

Patel S, Brown J, Semper M, Abella F, Mannocci F.
Int Endod J 2019;52:1675-1678.

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Vol. 141 No. 1 January 2026

AAE and AAOMR Joint Position Statement: Use of Cone-Beam Computed Tomography in Endodontics 2025 Update

The following statement was prepared by the Special Committee to Revise the Joint Position Statement on Cone-Beam Computed Tomography of the American Association of Endodontists (AAE) and the American Academy of Oral and Maxillofacial Radiology (AAOMR), and was approved by the AAE Board of Directors and the AAOMR Executive Council in the spring of 2025. (Oral Surg Oral Med Oral Pathol Oral Radiol 2026;141:126–135)

Saulo L. Sousa Melo, DDS, MSD, PhD, [*] *Mohamed I. Fayad, DDS, MS, PhD,* [†] *Anita Gohel, BDS, PhD,* [‡]
Bradford R. Johnson, DDS, MHPE, [†] *Sajitha Kalathingal, BDS, DDS, MS,* [§] *Mina Mahdian, DDS, MDSc,* [‖] *Madhu Nair, BDS, DMD, MS, PhD,* [¶]
Frank C. Setzer, DDS, DMD, MS, PhD, [#] *and Scott R. Makins,*

AAE POSITION STATEMENT

AAE and AAOMR Joint Position Statement: Use of Cone-Beam Computed Tomography in Endodontics 2025 Update

Lesioni endodontiche

Granulomi

Lesioni infiammatorie dovute alla necrosi pulpare caratterizzate da una capsula fibrosa infiltrata da plasmacellule, macrofagi e linfociti

- Lo stato della polpa (vitale o necrotica) non influisce sulla guarigione (Rossi Fedele & Ng 2022)
- La lesione compare in presenza di polpa necrotica contaminata e è uno dei maggiori fattori che influiscono sulla guarigione (Rossi Fedele & Ng 2022)
- La lesione periapicale segnala la contaminazione del sistema canalare (Nair 2006)
- Più grande è la dimensione della lesione, peggiore la prognosi
- Le maggiori dimensioni della lesione possono essere collegate ad un maggior numero di specie batteriche, cosa che rende più difficoltoso il controllo (Bystrom e Sundqvist 1981)

Lesioni endodontiche

Granulomi

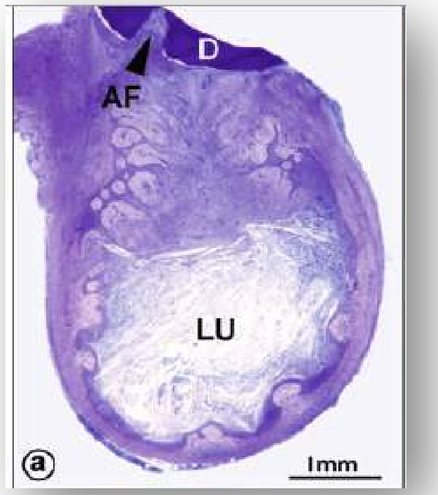
Lesioni infiammatorie dovute alla necrosi pulpare caratterizzate da una capsula fibrosa infiltrata da plasmacellule, macrofagi e linfociti

- La grandezza della lesione può essere collegata al maggior tempo trascorso dall'infezione con maggior penetrazione di tubuli dentinali e canali accessori (Shovelton 1964)
- Dolore spontaneo, dolorabilità alla percussione e alla palpazione vestibolare, tumefazione e fistola, così come il sondaggio parodontale di origine endodontica e riassorbimento radicolare rappresentano una interiezione più aggressiva tra ospite e batteri con maggior distruzione ossea (Weiss 1966)
- Fistola e gonfiore possono rappresentare una maggior penetrazione del microbiota nei tessuti periradicolari con compromissione della guarigione

Lesioni endodontiche

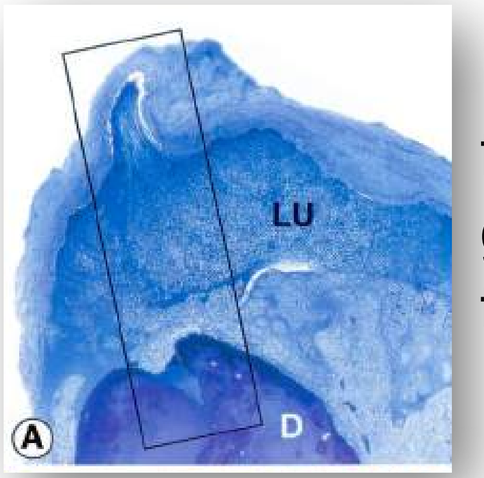
Cisti

Lesioni infiammatorie dovute alla necrosi pulpare caratterizzate da una capsula, epitelio squamoso pluristratificato e contenuto liquido e sieroso



La lesione è indipendente dal forame apicale e può guarire solo con la chirurgia endodontica

Cisti «vere»



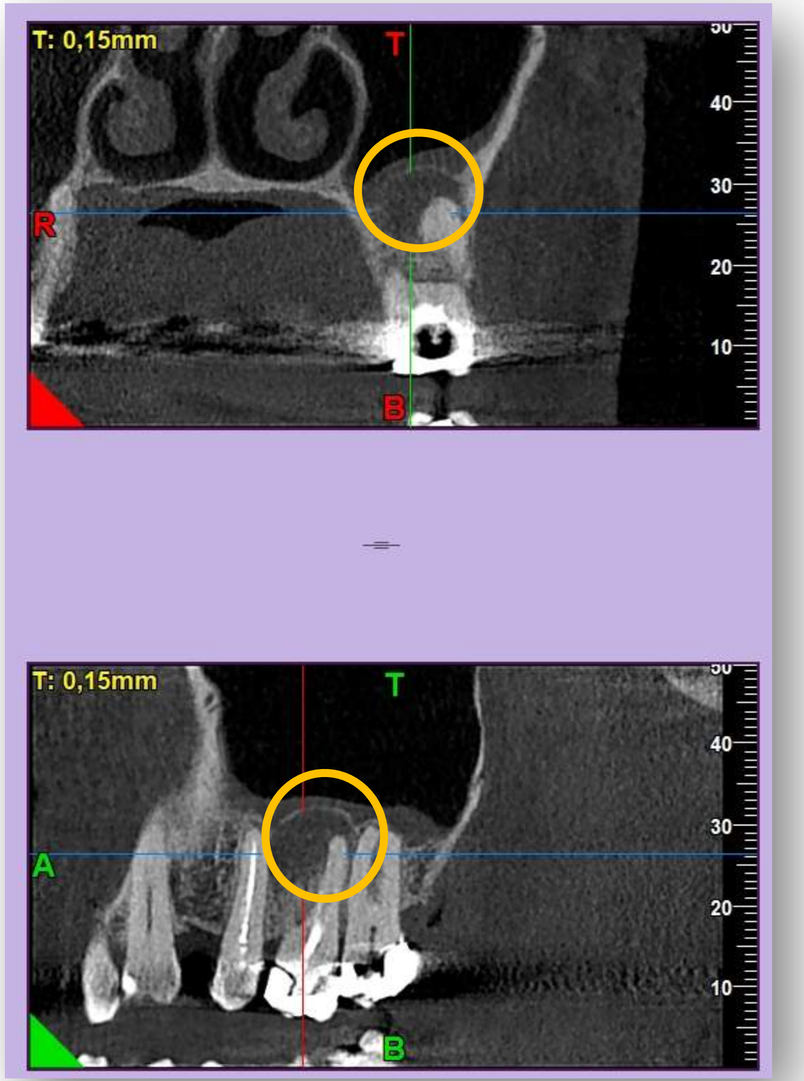
La lesione è collegata al forame apicale e può guarire con il trattamento endodontico

Cisti « a tasca»

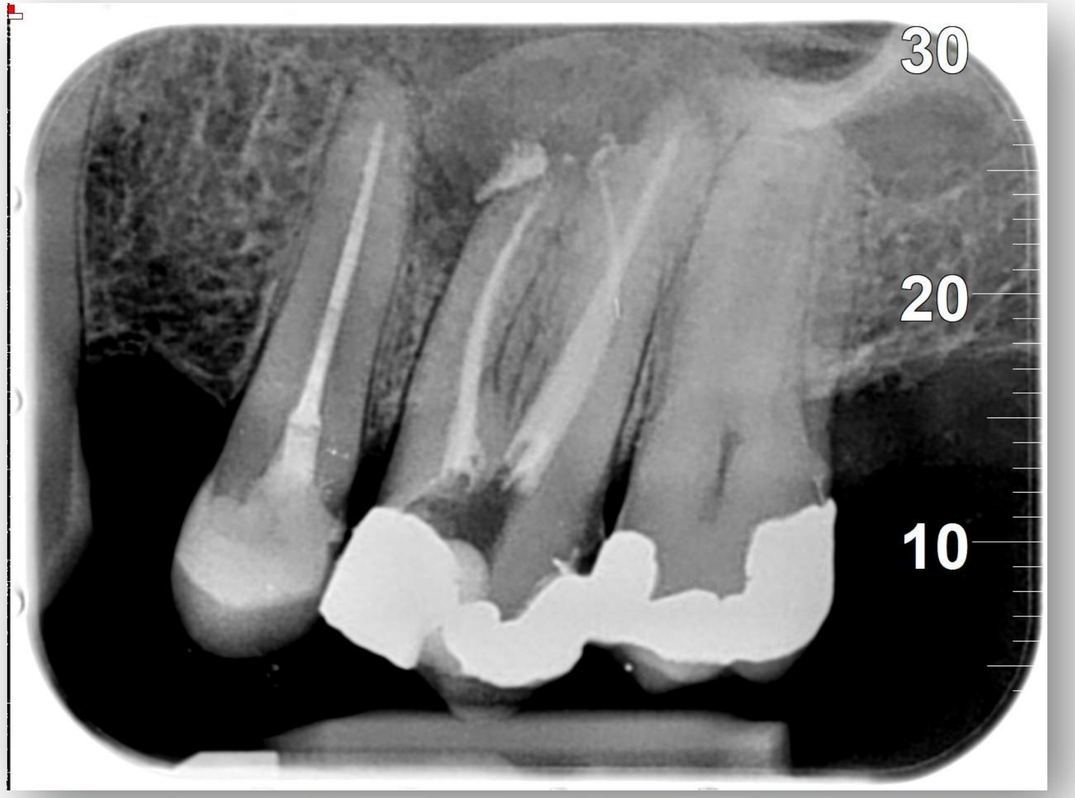
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AI ACCADEMIA ITALIANA ENDODONZIA

Salviamo i denti naturali!



Un corretto trattamento endodontico può risolvere il problema!!!

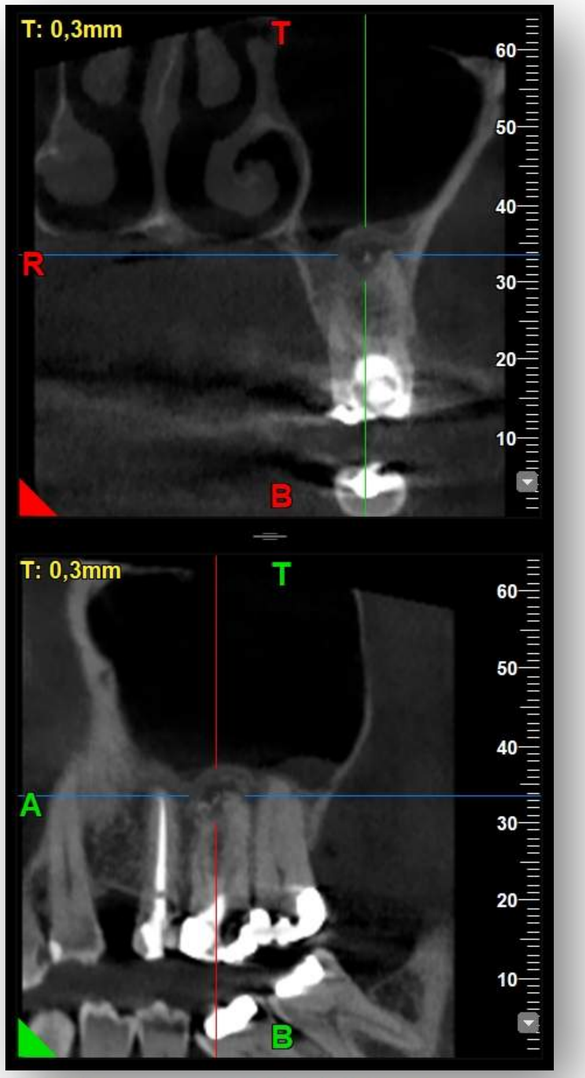


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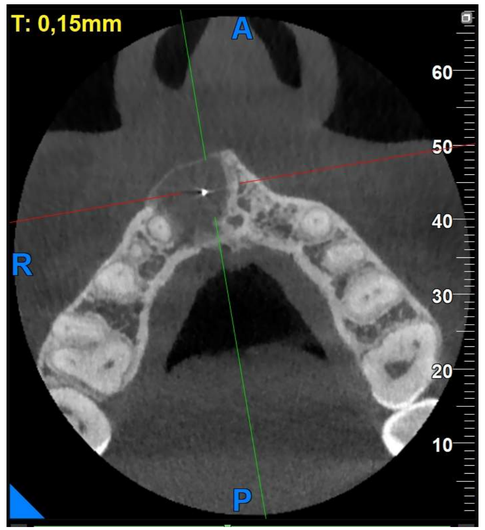


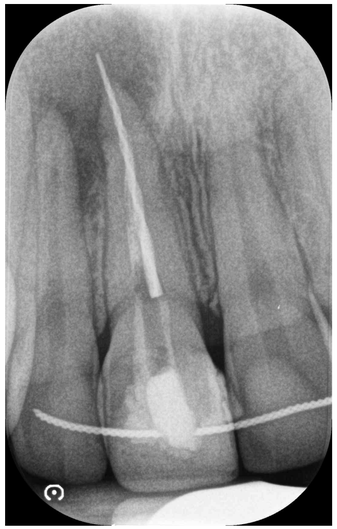
Ma se questo non è sufficiente si può risolvere con un trattamento chirurgico

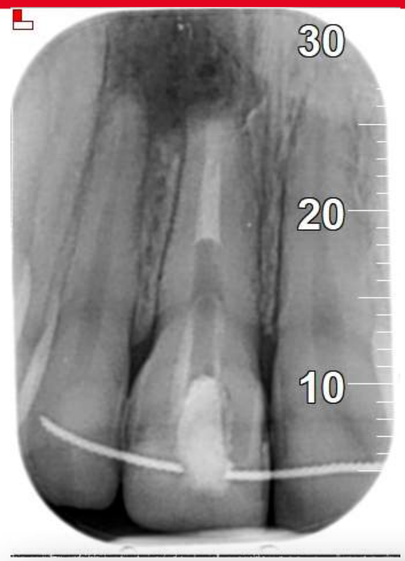
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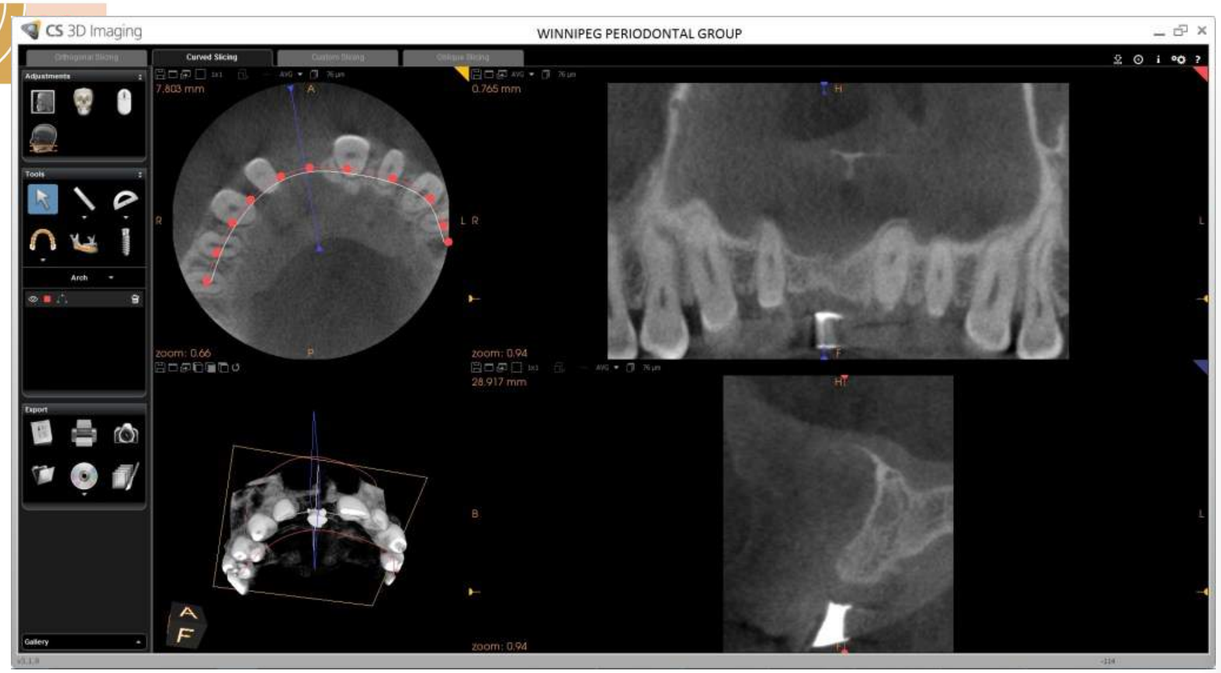


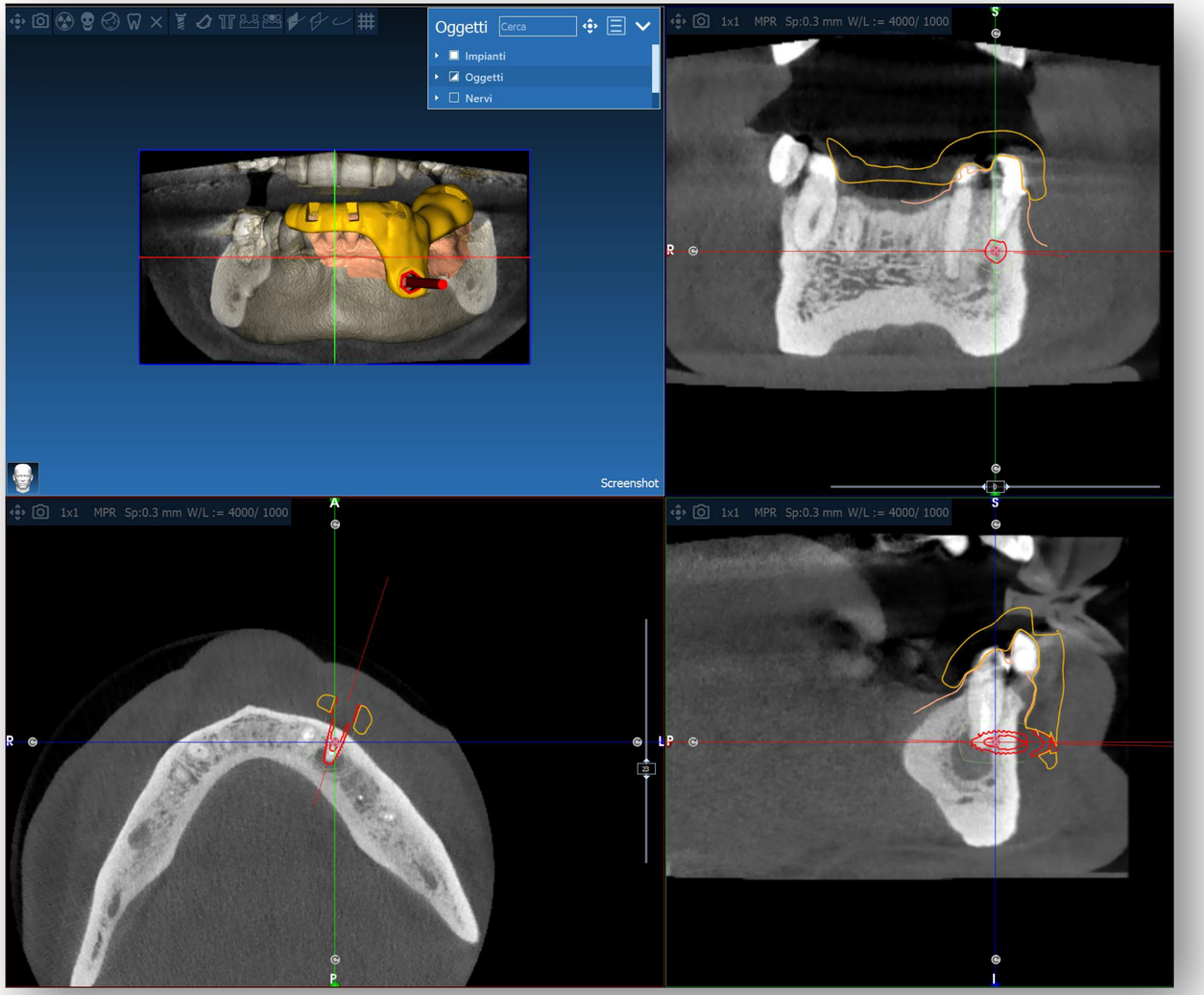


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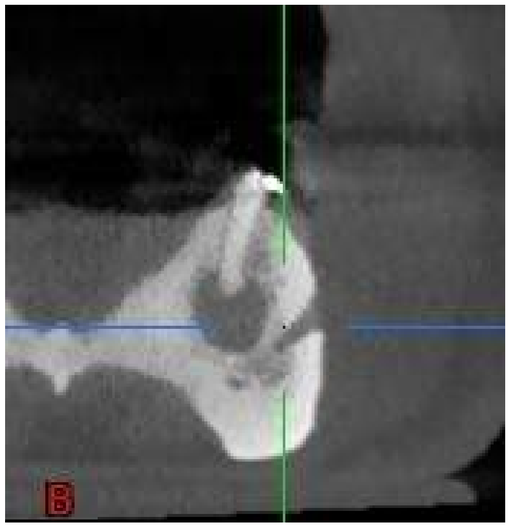
Endodonzia chirurgica guidata

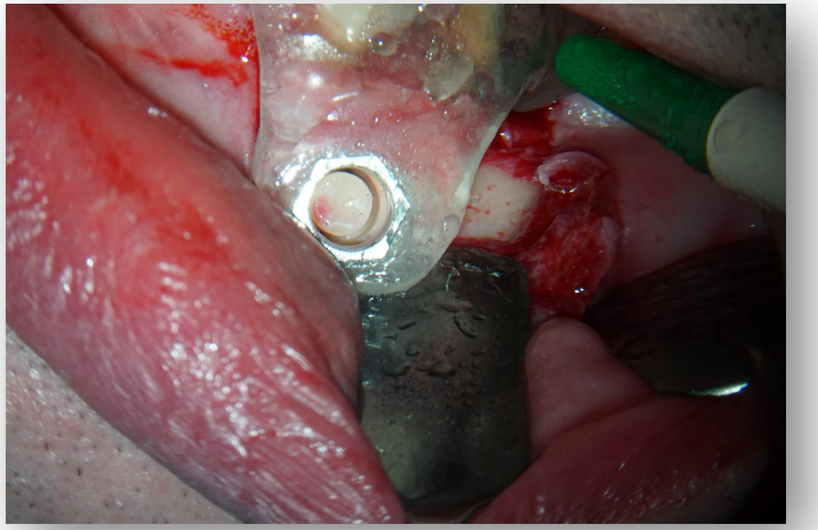


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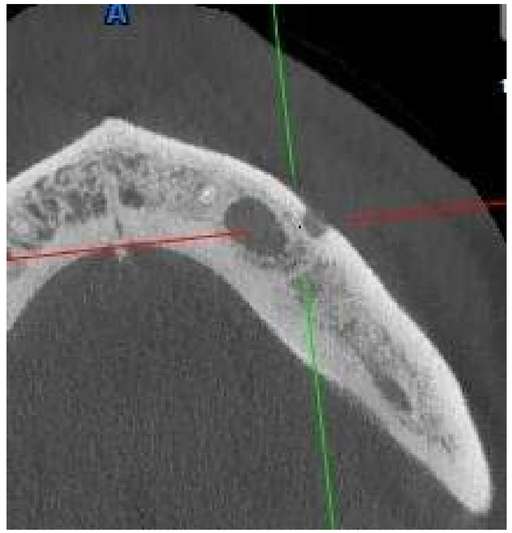
AI ACCADEMIA ITALIANA ENDODONZIA

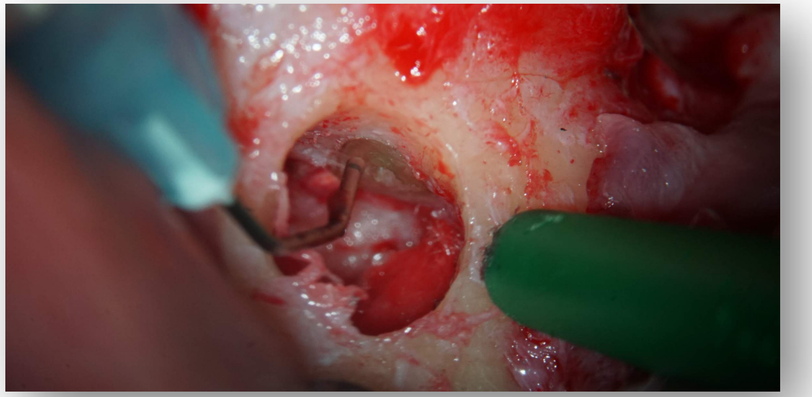
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Gli elementi dentari che possono essere trattati endodonticamente

- Con polpa viva o necrotica ma senza lesione
- Con polpa necrotica e contaminata (lesione)
- Con un pregresso trattamento endodontico
- Con un pregresso trattamento endodontico e varie difficoltà d'accesso



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Impedimenti all'accesso ai canali

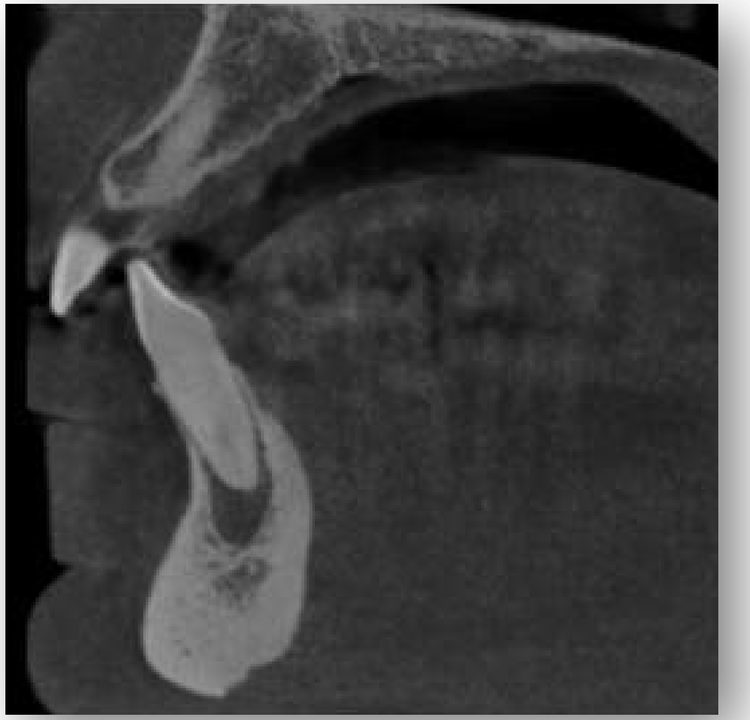
Perni



Strumenti rotti



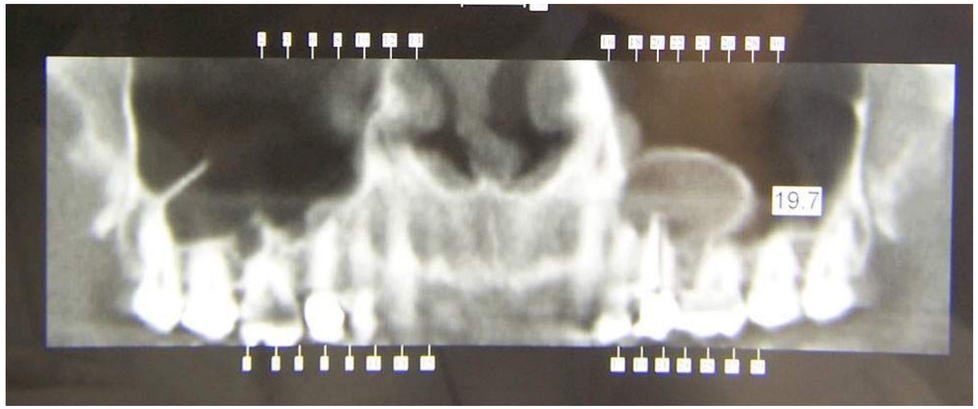
Calcificazioni



Perni in fibra

- Microscopio operatorio (molto utile)
- Sorgente ultrasonica
- Punte dedicate

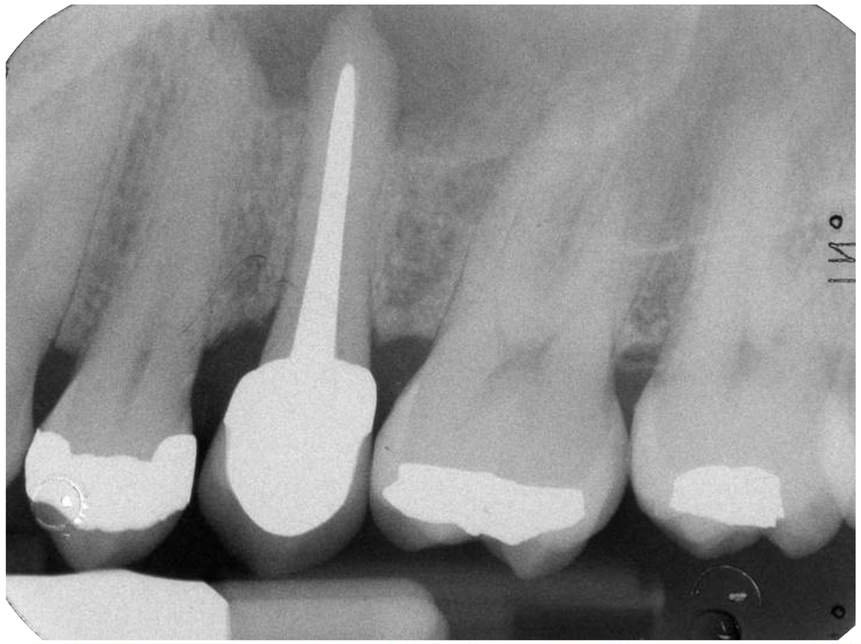


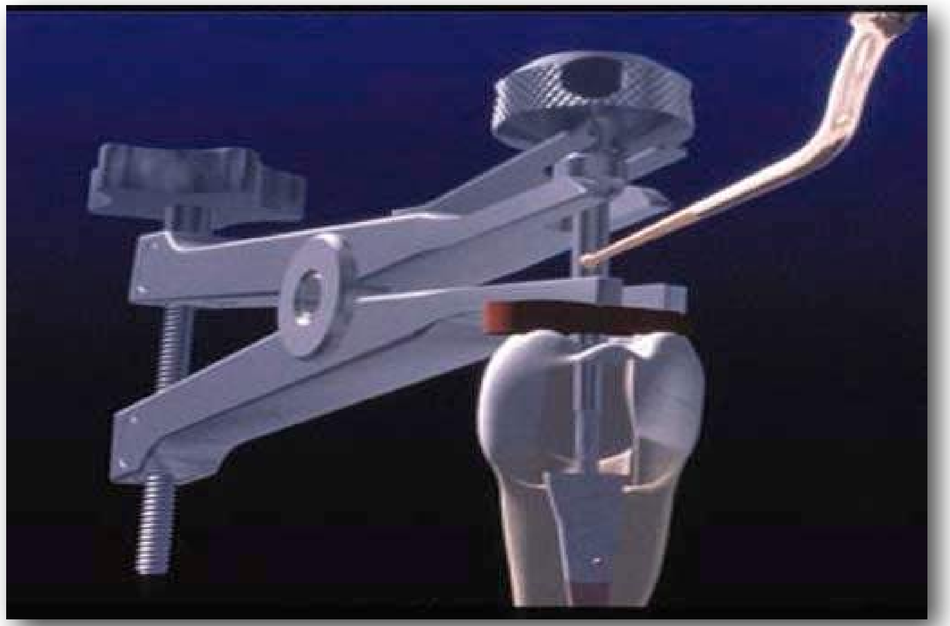


Perni fusi

Ultrasuoni
Dispositivi dedicati









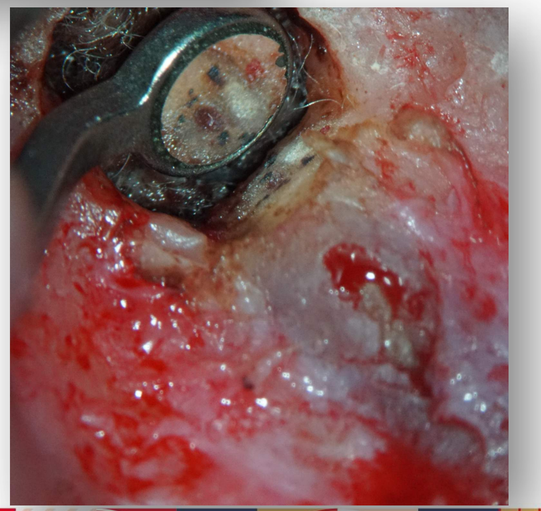
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Trattamento chirurgico



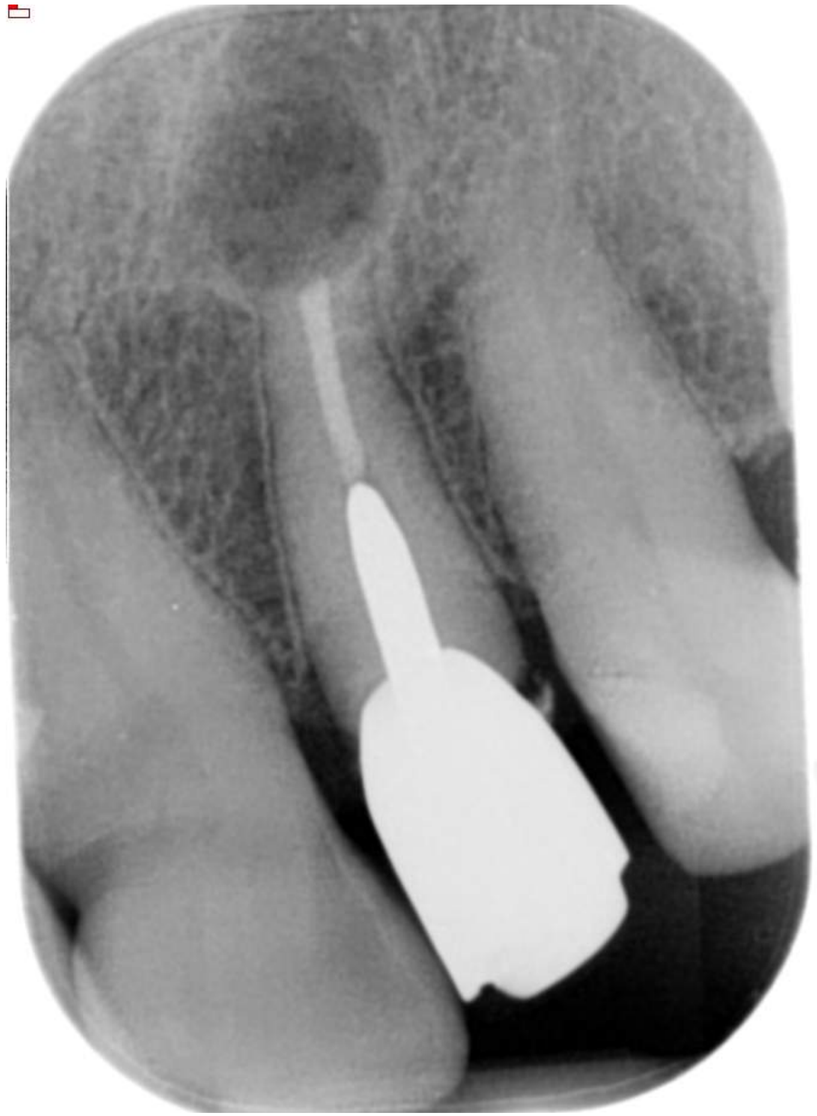


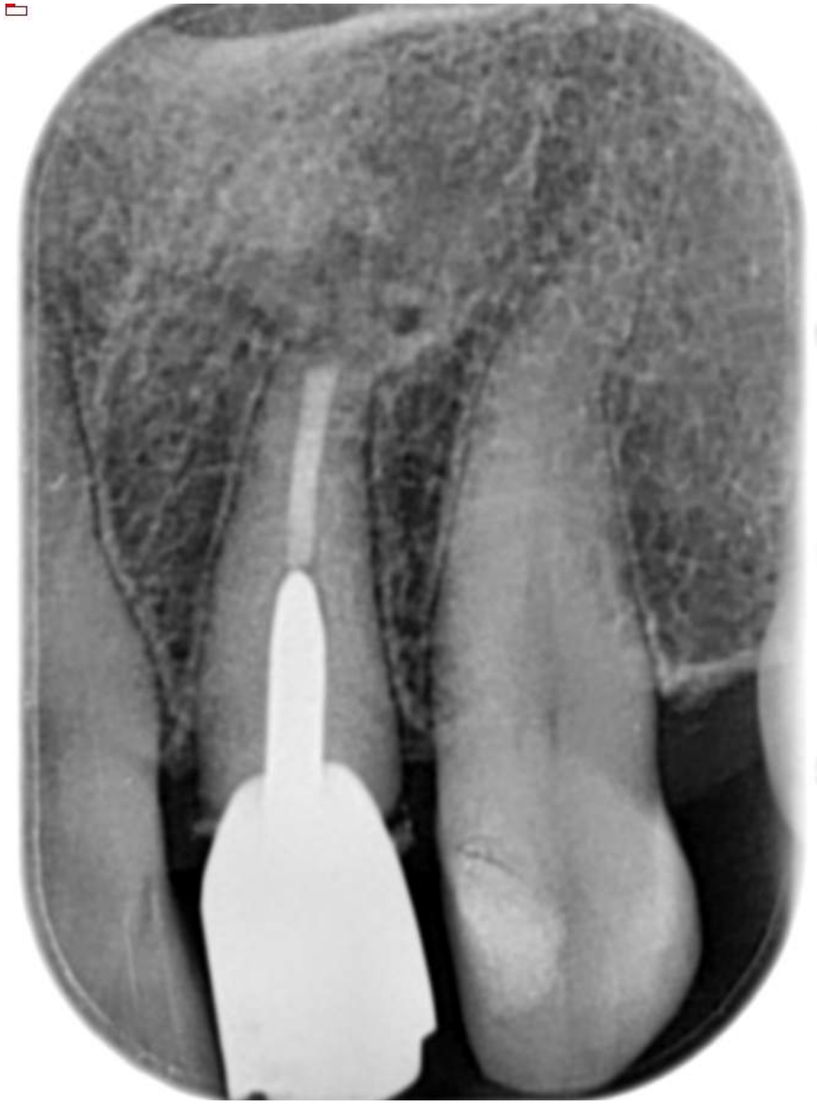


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Risoluzione strumenti rotti

Valutazione radiografica dell'anatomia endodontica (con due canali in una radice)

- Se i due canali sono confluenti

1. Si bypassa lo strumento attraverso il canale «libero»

- Se non sono confluenti

1. Superamento dello strumento passandogli internamente
2. Rimozione dello strumento

Valutare la confluenza con un esame CBCT



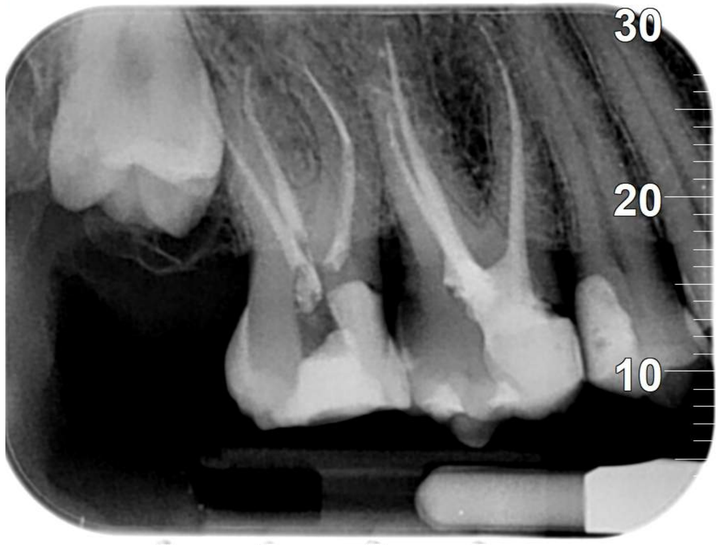


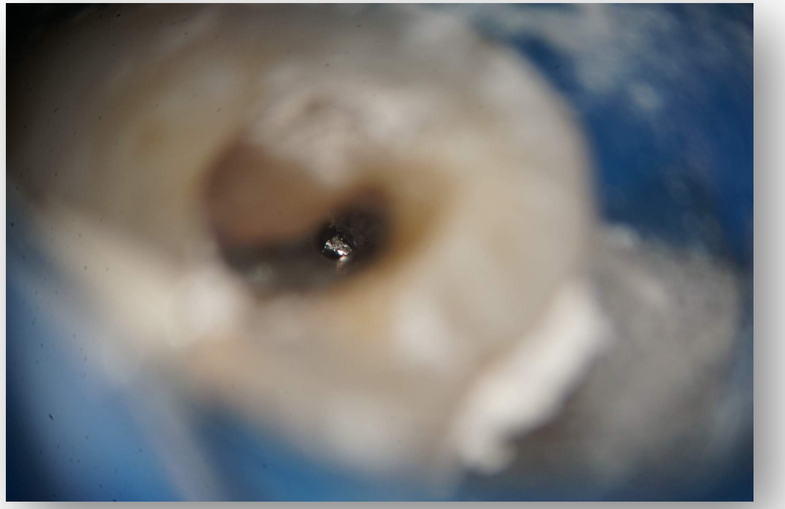




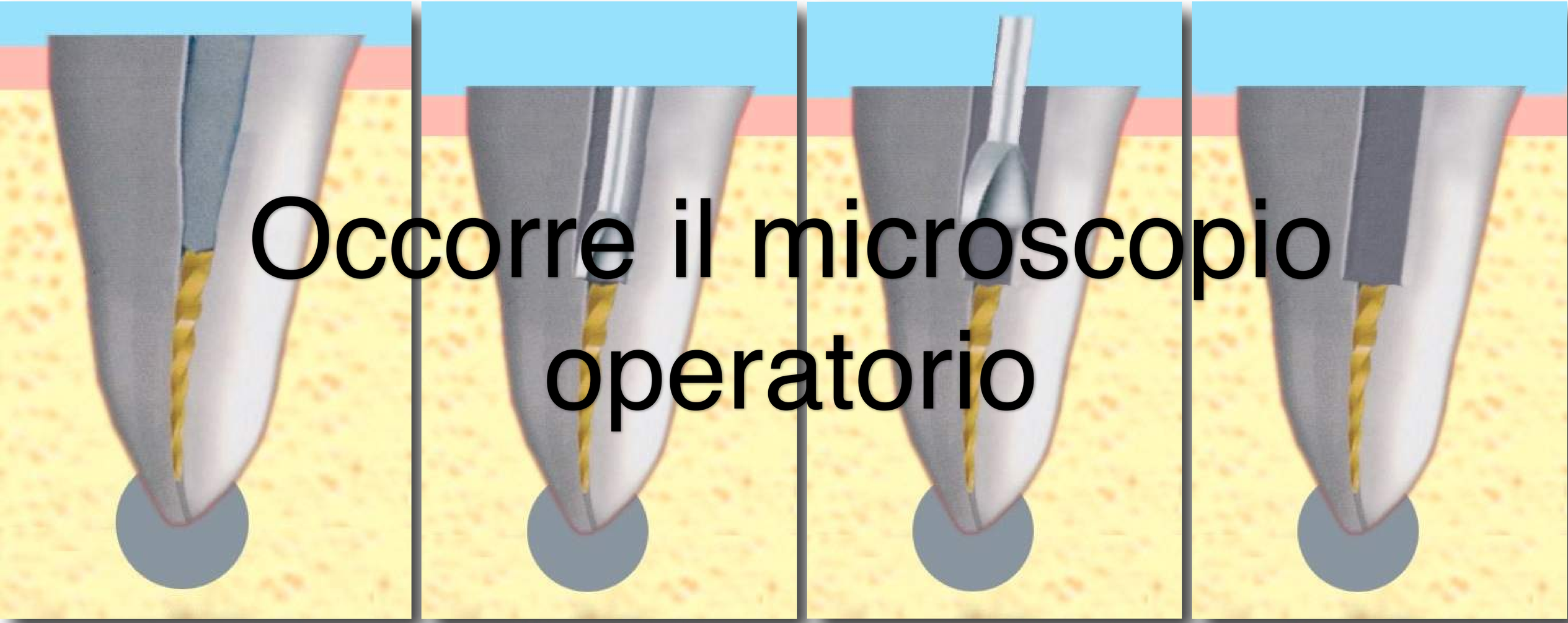
By pass







Rimozione



Occorre il microscopio operatorio

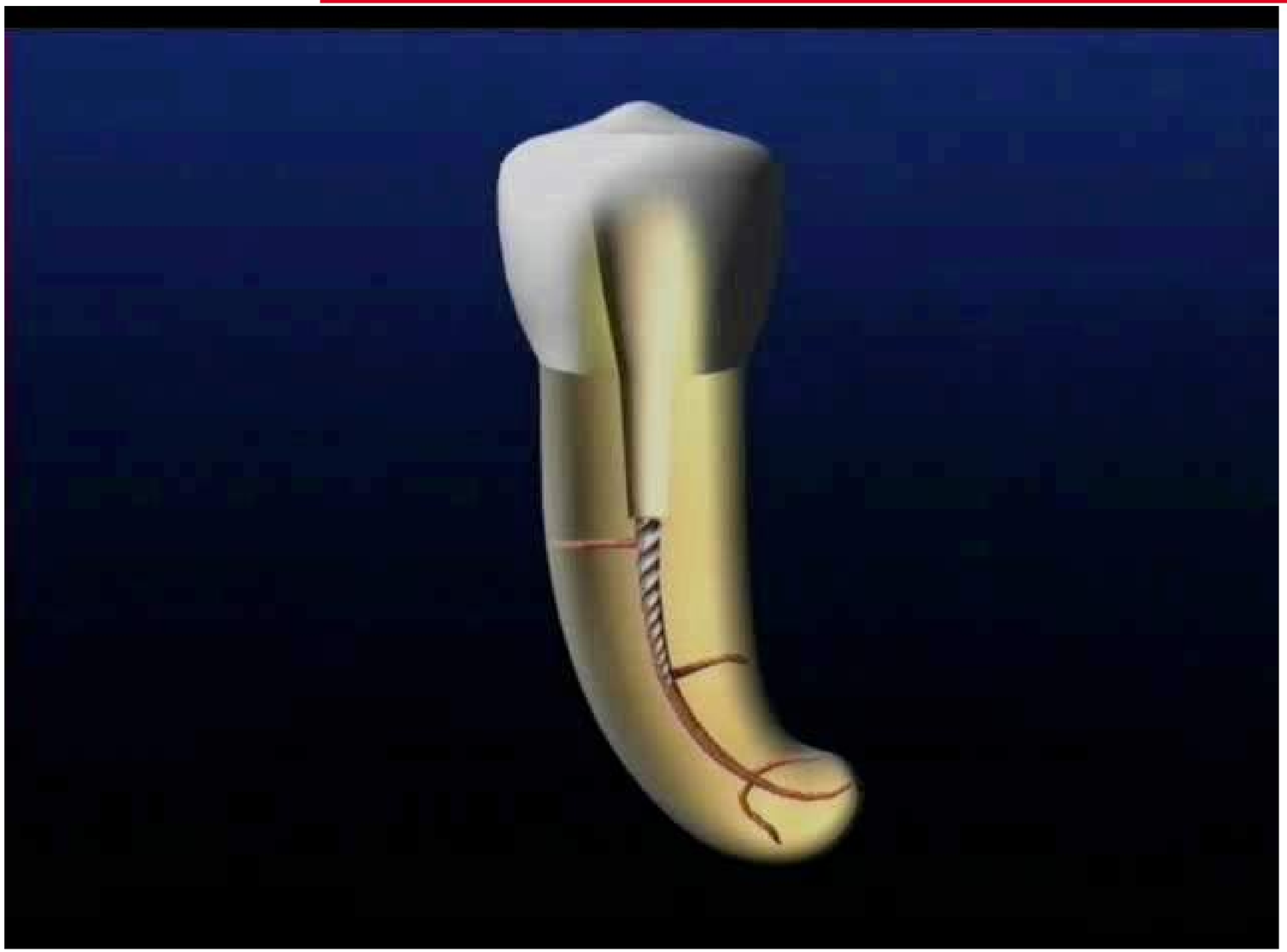
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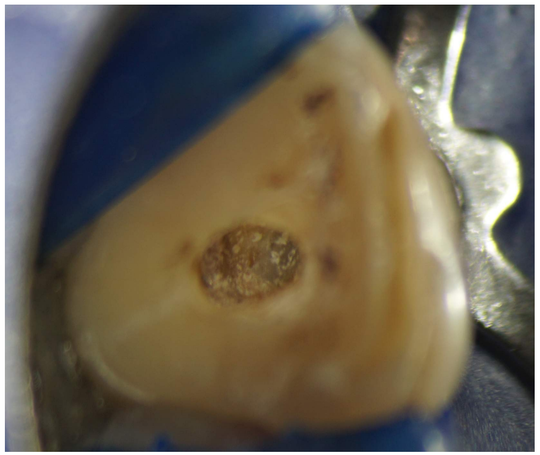


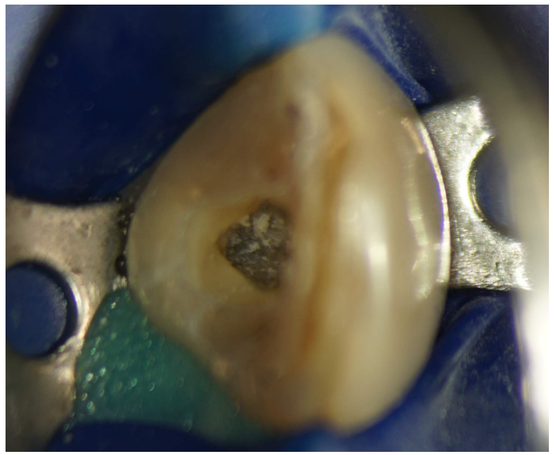
Calcificazioni

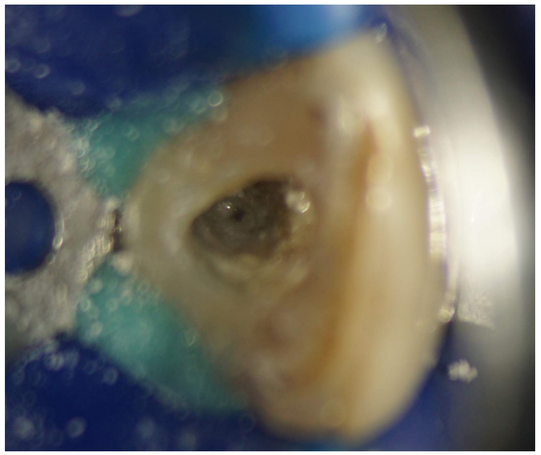


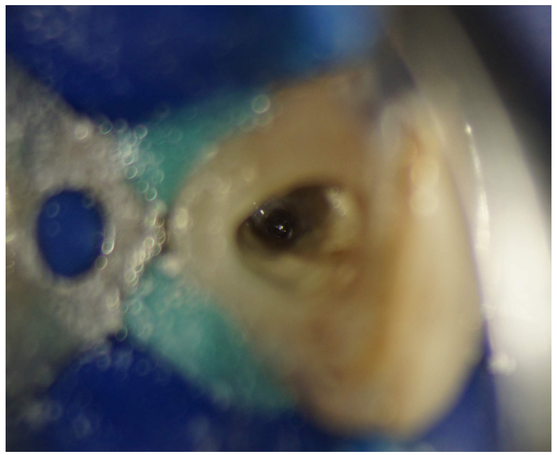
Tecnica «a mano libera»

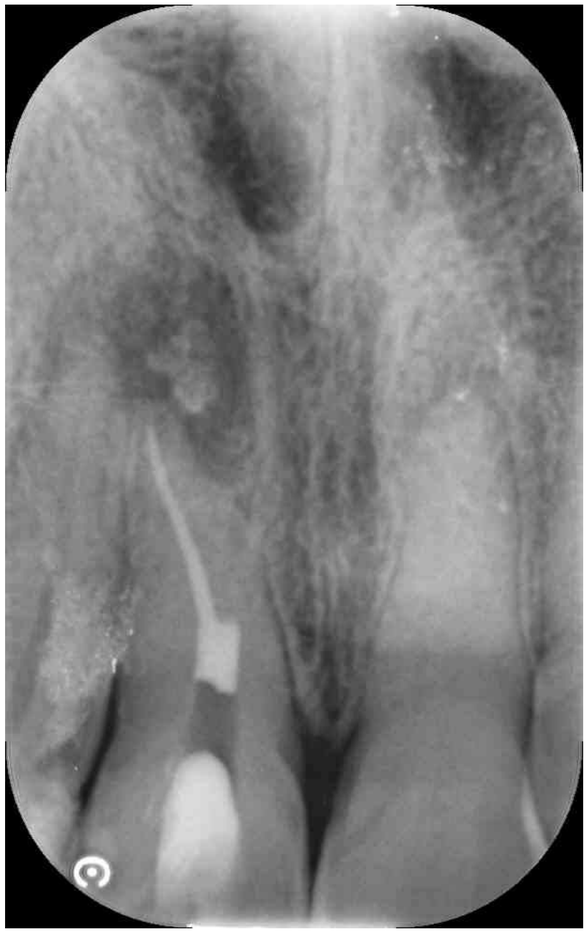








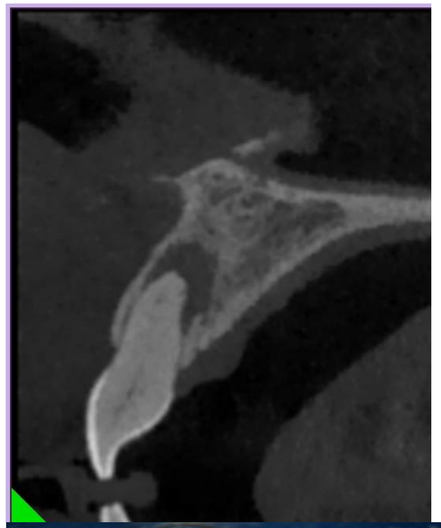




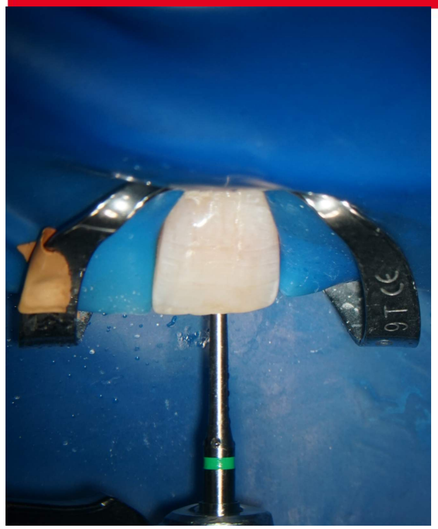
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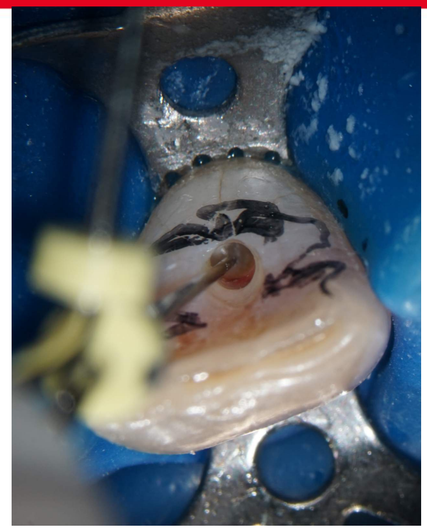
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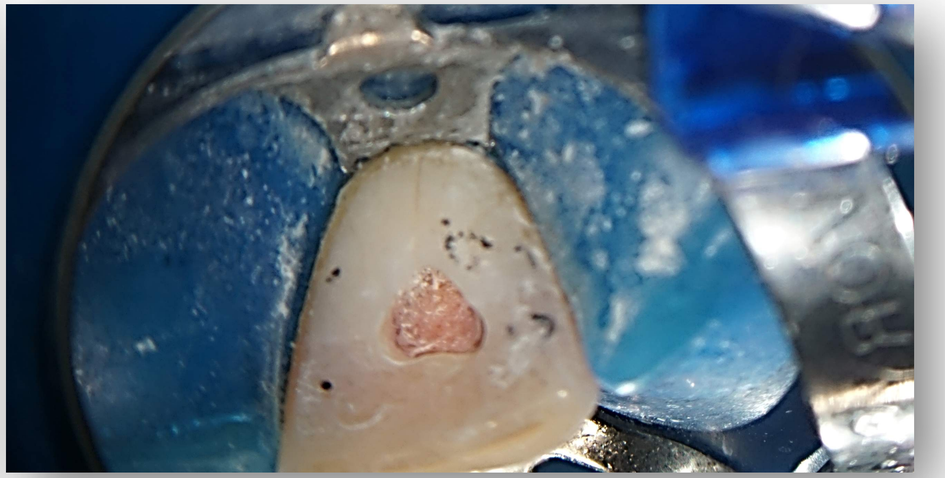






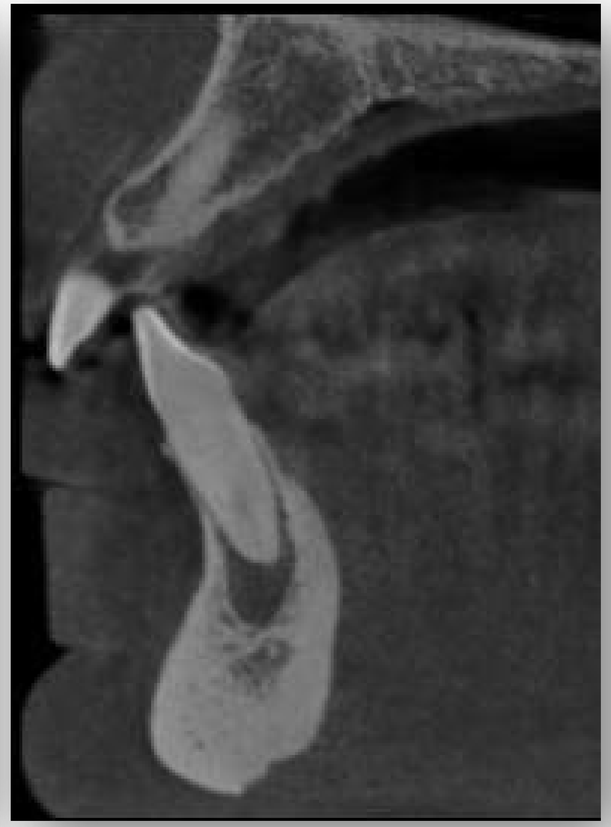


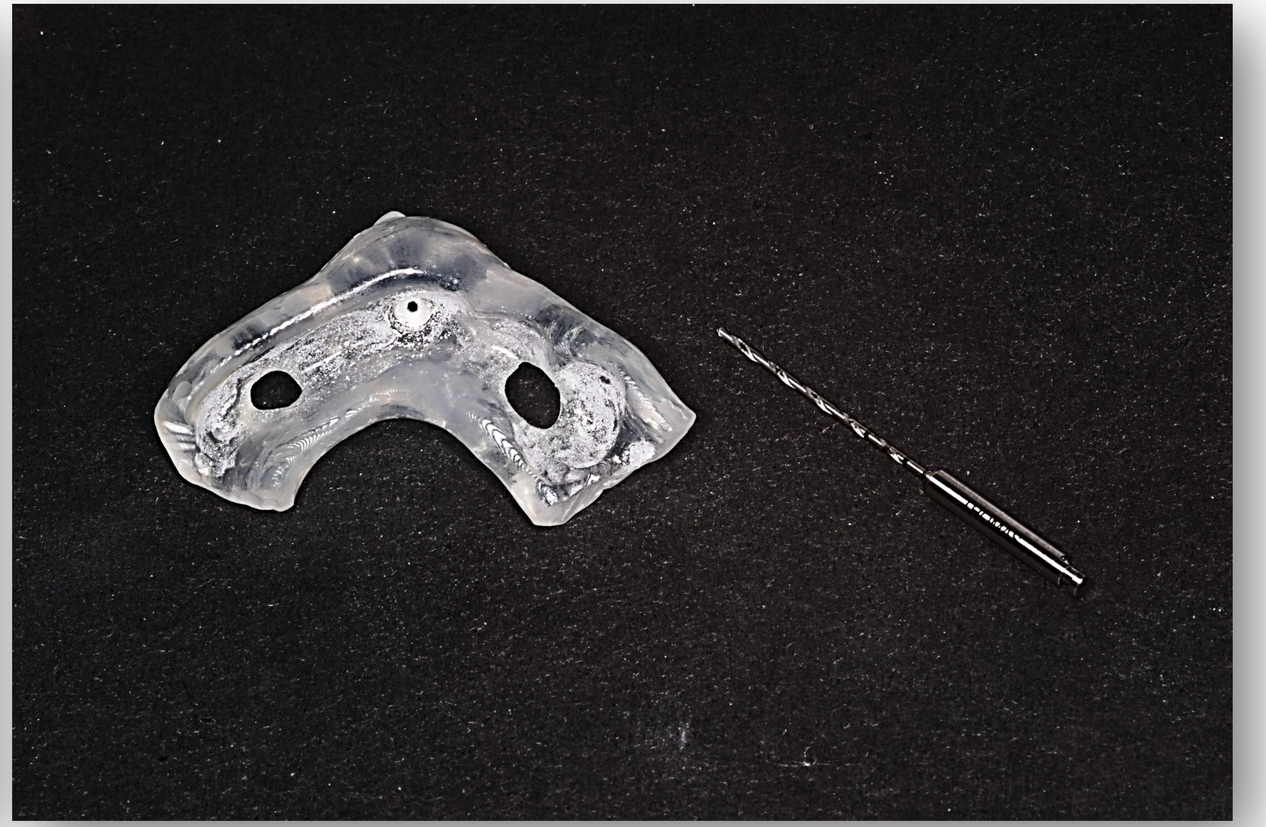




Tecnica «guidata»







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AGENDA



4. Relazioni interdisciplinari:
    - Endo-Perio
    - Casi complessi di perforazioni, apici beanti, riassorbimenti radicolari, apicali e cervicali

DENTE GRAVEMENTE COMPROMESSO



Dente Recuperabile

A compromised tooth will be defined as a complex clinical syndrome that can result from any structural or pathologic disorder that impairs the ability of the tooth to function properly without some type of restoration.

Dente Perso → Estrazione

An end-stage tooth can be defined as a pathologic state or structural deficiency that cannot be successfully repaired with reconstructive therapies, including root canal treatment and retreatment, and continues to exhibit progressive pathologic changes and clinical dysfunction of the tooth.

Iqbal MK & Kim S, 2008 *J Endod*

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Restoration or implant placement: a growing treatment planning quandary

Robert B. O'Neal & Bobby L. Butler

2002

The compromised tooth: conservative treatment or extraction?

DOMENICO RICUCCI & ANTONIO GROSSO

2006

Outcomes of root canal treatment and restoration, implant-supported single crowns, fixed partial dentures, and extraction without replacement: A systematic review

2007

Mahmoud Torabinejad, DMD, MSD, PhD,[a] Patricia Anderson, MILS,[b] Jim Bader, DDS, MPH,[c] L. Jackson Brown, DDS, PhD,[d] Lie H. Chen, MPH,[e] Charles J. Goodacre, DDS, MSD,[f] Mathew T. Kattadiyil, DDS, MDS, MS,[g] Diana Kutsenko, DMD,[h] Jaime Lozada, DDS,[i] Rishi Patel, BDS,[j] Floyd Petersen, MPH,[k] Israel Puterman, DMD,[l] and Shane N. White, BDentSc, MS, MA, PhD[m]

A Review of Factors Influencing Treatment Planning Decisions of Single-tooth Implants versus Preserving Natural Teeth with Nonsurgical Endodontic Therapy

Mian K. Iqbal, BDS, DMD, MS, and Syngcuk Kim, DDS, PhD

2008

Root Canal Treatment versus Single-Tooth Implant: A Systematic Review of Internet Content

CrossMark

Giampiero Rossi-Fedele, DDS, MClinDent, PhD, Davide Musu, DDS,† Elisabetta Cotti, DDS, MS,† and Esma J. Doğramaci, BDS, MSc, MFDS, MOrth**

2016

Tooth Retention through Endodontic Microsurgery or Tooth Replacement Using Single Implants: A Systematic Review of Treatment Outcomes

2015

Mahmoud Torabinejad, DDS, MSD, PhD, Maria Landaez, DDS,† Marites Milan, DDS, MS,* Chun Xiao Sun, DDS, MS,† Jeffrey Henkin, DDS, MS,† Aladdin Al-Ardah, DDS, MS,‡ Mathew Kattadiyil, DDS, MDS, MSD,§ Khaled Bahjri, MD, DrPH, MPH,‖ Salem Debom, MPH,‖ Elisa Cortez, MILS,¶ and Shane N. White, BDentSc, MS, MA, PhD#*

Endodontics, Endodontic Retreatment, and Apical Surgery Versus Tooth Extraction and Implant Placement: A Systematic Review

2017

Anna Chércoles-Ruiz, Alba Sánchez-Torres, DDS,† and Cosme Gay-Escoda, MD, DDS, MS, PhD, EBOS, OMFS‡§¶*

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Restoration or implant

The compromised tooth: conservative treatment or extraction?

DOMENICO RICUCCI & ANTONIO GROSSO 2006

.....these results come from retrospective c

a lack of randomized clinical studies comparing both types of therapeutic options.

....lack of comparative studies with similar outcomes criteria with comparable time intervals limited comparison of these treatments.

The endodontic treatment and the implant placement are both valid and complementary options for planning oral rehabilitation

Replacement Using Single Implants: A Systematic Review of Treatment Outcomes 2015

Mahmoud Torabinejad, DDS, MSD, PhD, Maria Landaez, DDS,† Marites Milan, DDS, MS,* Chun Xiao Sun, DDS, MS,† Jeffrey Henkin, DDS, MS,† Aladdin Al-Ardah, DDS, MS,‡ Mathew Kattadiyil, DDS, MDS, MSD,§ Khaled Bahjri, MD, DrPH, MPH,‖ Salem Debom, MPH,‖ Elisa Cortez, MILS,¶ and Shane N. White, BDentSc, MS, MA, PhD**

Surgery Versus Tooth Extraction and Implant Placement: A Systematic Review 2017

Anna Chércoles-Ruiz, Alba Sánchez-Torres, DDS,† and Cosme Gay-Escoda, MD, DDS, MS, PhD, EBOS, OMFS‡§¶*

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Chércoles-Ruiz A, Sánchez-Torres A, Gay-Escoda C: Endodontics, endodontic retreatment, and apical surgery versus tooth extraction and implant placement: a systematic review. ***J Endod 2017;43:679-686***

.....the decision to conserve or to extract a tooth must be based on the current scientific literature. However, because the different treatment options are comparable in terms of success and survival rates, the treatment should be agreed upon in accordance with patient preferences and realistic expectations.



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Re D, Ceci C, Cerutti F, Del Fabbro M, Corbella S, Taschieri S

Natural tooth preservation versus extraction and implant placement: patient preferences and analysis of the willingness to pay

Brit Dent J 2017;222:467-471

AIM to evaluate the preference of patients among two alternative interventions for the treatment of a hopeless tooth (root canal therapy and crown positioning or tooth extraction, implant insertion and crown positioning) . In addition, the amount of willingness to pay for their treatment choice was identified.

76% (N = 78) of patients preferred the endodontic treatment, while the remaining **24%** (N = 25) directed his/her choice to the dental surgery.

Of the patients previously treated with **restorative treatment**, ***36 out of 36*** would confirm the same choice.

Of the patients previously treated **surgically**, only ***19 out of 26*** declared they wish to undergo the same treatment

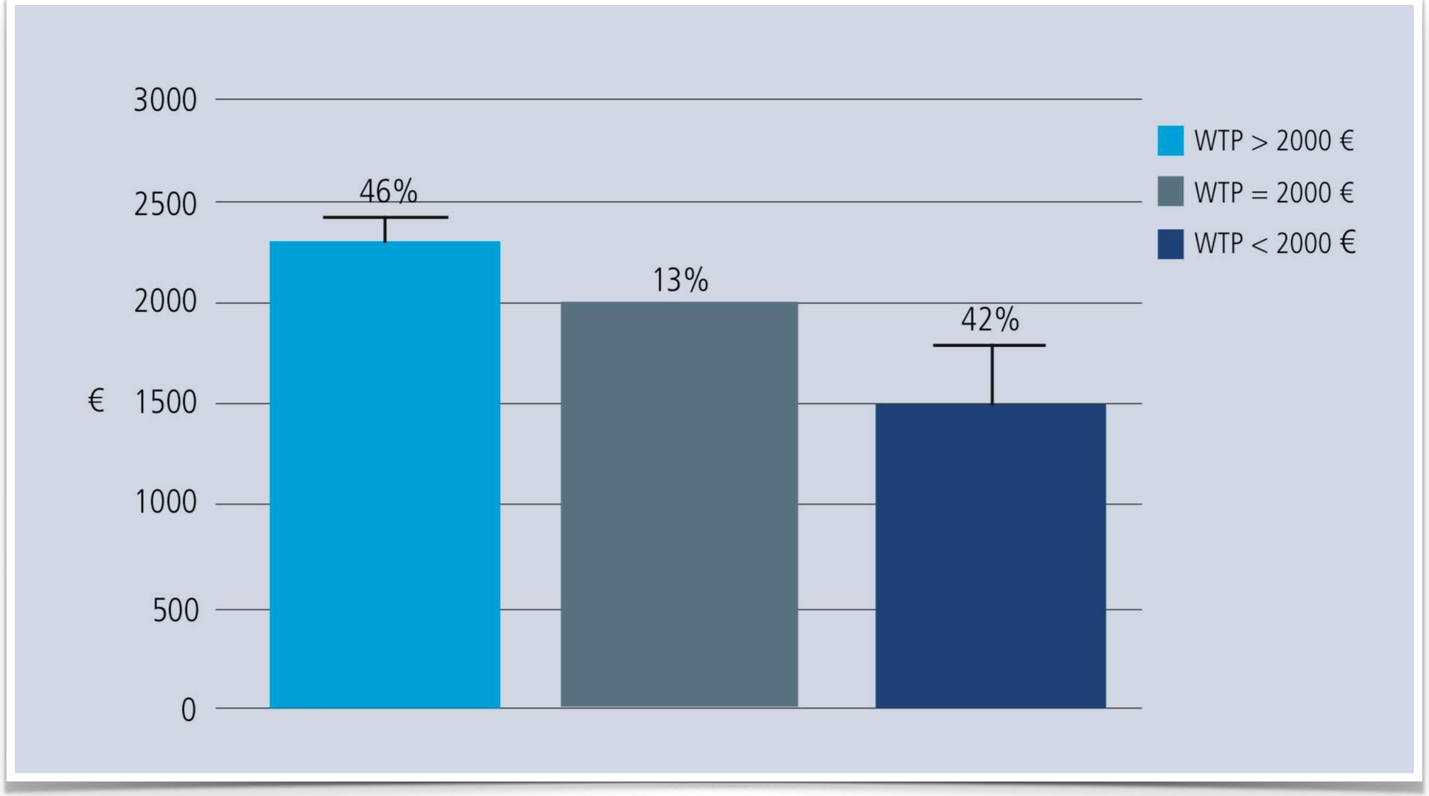
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Re D, Ceci C, Cerutti F, Del Fabbro M, Corbella S, Taschieri S

Natural tooth preservation versus extraction and implant placement: patient preferences and analysis of the willingness to pay

Brit Dent J 2017;222:467-471

Mean willingness to pay (WTP) value of patients regardless of the new treatment solution



DENTE GRAVEMENTE COMPROMESSO

Dente Recuperabile

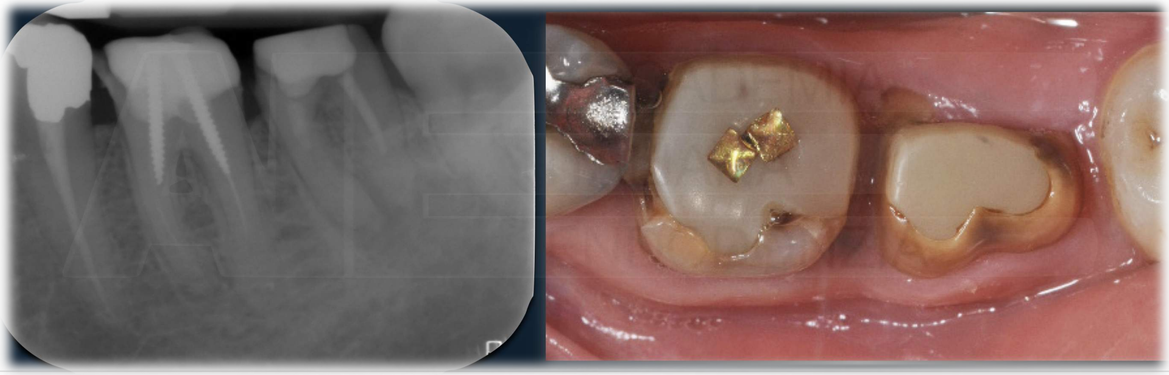
Dente Perso → **Estrazione**

DIAGNOSI
Dento-Parodontale

- Condizioni Parodontali (Salute/Malattia)
- Condizioni Dentali (Quantità struttura residua)
- Condizioni Endodontiche (Trattato / No)
- Lunghezza radice residua

Valutazione Prognostica

TERAPIA



Whilst single identifiable risks may be easy to manage clinically, the presence of multiple risks appears to jeopardize the survival of a compromised tooth

Zitzmann NU et al, Int Endod J 2009

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DENTE GRAVEMENTE COMPROMESSO



Dente Recuperabile

Dente Perso → **Estrazione**

Dx Endodontica: valutazione clinica e radiografica

- Vitalità Pulpare (Si / No)
- Qualità Terapie Pregresse
- Condizioni Periapice (Lesione Si / No)
- Condizioni Canali (calcificati Si / No)
- Alterazioni Anatomiche (Si / No)

Dx Parodontale: valutazione clinica e radiografica

- Profondità margine cervicale (dimensione biologica)
- Condizioni parodontali (PD/CAL/BOP)
- Quantità gengiva aderente (>3mm / <3mm)
- Rapporti denti vicini

2017 WORLD WORKSHOP

WILEY Journal of Clinical Periodontology

Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions

Papapanou PN et al, *2018 J Clin Periodontol*

Periodontitis is a chronic multifactorial inflammatory disease associated with dysbiotic plaque biofilms and characterized by progressive non-reversible destruction of the tooth-supporting apparatus.

Severe periodontitis is the sixth most prevalent disease of mankind and is a public health problem since it is so widely prevalent and causes disability, impaired quality of life, and social inequality

If untreated, it may lead to tooth loss, although it is preventable and treatable in the majority of cases.

PROGNOSI Parodontale

Study	Classification				
	Good	Fair	Poor	Questionable	Hopeless
Becker et al., 1984[2,4]				Teeth with more than one of the following problems: 1. Bone loss close to 50% of the root length. 2. Probing depths of 6 to 8 mm. 3. Class II furcation involvement with minimal interadicular space. 4. Presence of deep vertical groove on palatal aspect of maxillary incisors. 5. Mesial furcation involvement of maxillary first bicuspids.	Teeth with more than one of the following problems: 1. Loss >75% of the supporting bone. 2. Probing depths >8 mm. 3. Class III furcation involvement. 4. Class III mobility with tooth movement in mesial-distal and vertical directions. 5. Poor crown/root ratios. 6. Root proximity with minimal interproximal bone and evidence of horizontal bone loss. History of repeated periodontal abscess formation.
McGuire and Nunn, 1996[3]	Control of the etiologic factors and adequate periodontal support as measured clinically and radiographically to ensure the tooth would be relatively easy to maintain by the patient and clinician assuming proper maintenance.	Approximately 25% attachment loss as measured clinically and radiographically and/or Class I furcation involvement. The location and depth of the furcation would allow proper maintenance with good patient compliance.	50% attachment loss and Class II furcations. The location and depth of the furcations would allow proper maintenance, but with difficulty.	>50% attachment loss resulting in a poor crown/root ratio. Poor root form. Class II furcations not easily accessible to maintenance care, or Class III furcations. ≥2+ mobility. Significant root proximity.	Inadequate attachment to maintain the tooth in health, comfort, and function. Extraction was performed or suggested.

Tuttavia...

...da Kwok V and Caton JG, J Periodontol 2007_mod.

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??? Denti **Persi** o Denti **Estratti** ???

Un gran numero di denti estratti per ragioni parodontali, potenzialmente mantenibili

Splieth C et al 2002_*J Clin Periodontol 2002*

a marked increase in frequency of extractions in intact teeth below 70% periodontal attachment and **37%** were **extracted** at attachment levels between **50** and **69%**

Maier J et al, 2021_ *Int Dental J 2021*

The mean RPL for teeth extracted on periodontal indications was 34.9%, versus 79.6% for teeth extracted on any other indication. When considering teeth with an RPL **≥ 30%** as possible to maintain, 189 (**76%**) teeth extracted on periodontal indications could have been maintained. When RPL cut-off limits of **≥40%** or **≥50%** are applied, **93** (**37%**) and **43** (**17%**) teeth, respectively, could have been maintained

2017 WORLD WORKSHOP

WILEY Journal of Clinical Periodontology

A new classification scheme for periodontal and peri-implant diseases and conditions – Introduction and key changes from the 1999 classification

Caton JG et al, *2018 J Clin Periodontol*

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017

Periodontal Diseases and Conditions

Periodontal Health, Gingival Diseases and Conditions	Periodontitis	Other Conditions Affecting the Periodontium
Chapple, Mealey, et al. 2018 Consensus Rept link	Papapanou, Sanz et al. 2018 Consensus Rept link	Jepsen, Caton et al. 2018 Consensus Rept link
Trombelli et al. 2018 Case Definitions link	Jepsen, Caton et al. 2018 Consensus Rept link	Papapanou, Sanz et al. 2018 Consensus Rept link
	Tonetti, Greenwell, Kornman. 2018 Case Definitions link	

Periodontal Health and Gingival Health	Gingivitis: Dental Biofilm-Induced	Gingival Diseases: Non-Dental Biofilm-Induced	Necrotizing Periodontal Diseases	Periodontitis	Periodontitis as a Manifestation of Systemic Disease	Systemic diseases or conditions affecting the periodontal supporting tissues	Periodontal Abscesses and Endodontic-Periodontal Lesions	Mucogingival Deformities and Conditions	Traumatic Occlusal Forces	Tooth and Prosthesis Related Factors

2017 WORLD WORKSHOP

WILEY Journal of Clinical Periodontology

Acute periodontal lesions (periodontal abscesses and necrotizing periodontal diseases) and endo-periodontal lesions

Herrera D et al, *2018 J Clin Periodontol*

EPL .....are clinical conditions involving both the pulp and periodontal tissues and may occur in acute or chronic forms

The most common signs and symptoms associated with a tooth affected by an EPL are deep periodontal pockets reaching or close to the apex and negative or altered response to pulp vitality tests

The other signs and symptoms reported, in order of prevalence, are: bone resorption in the apical or furcation region, spontaneous pain or pain on palpation and percussion, purulent exudate, tooth mobility, sinus tract, crown, and gingival color alterations

EPL, in subjects with periodontitis, normally present slow and chronic progression without evident symptoms

2017 WORLD WORKSHOP

WILEY Journal of Clinical Periodontology

Acute periodontal lesions (periodontal abscesses and necrotizing periodontal diseases) and endo-periodontal lesions

Herrera D et al, *2018 J Clin Periodontol*

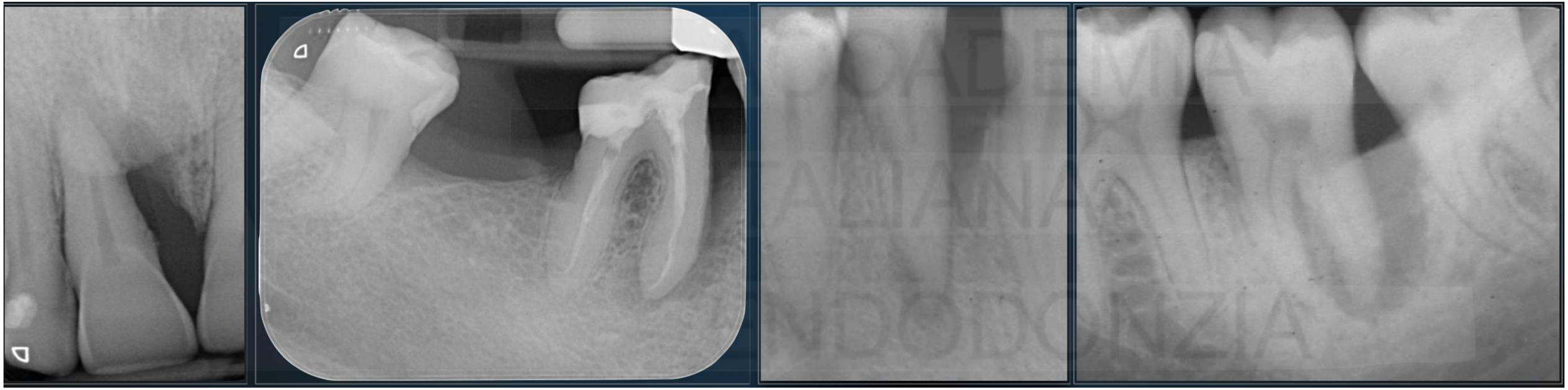
These conditions drastically impair the prognosis of the involved tooth.

Endo-periodontal lesion without root damage	Endo-periodontal lesion in periodontitis patients	*Grade 1* – narrow deep periodontal pocket in 1 tooth surface
		Grade 2 – wide deep periodontal pocket in 1 tooth surface
		Grade 3 – deep periodontal pockets in more than 1 tooth surface
	Endo-periodontal lesion in non-periodontitis patients	*Grade 1* – narrow deep periodontal pocket in 1 tooth surface
		Grade 2 – wide deep periodontal pocket in 1 tooth surface
		Grade 3 – deep periodontal pockets in more than 1 tooth surface
Endo-periodontal lesion with root damage	Root fracture or cracking	
	Root canal or pulp chamber perforation	
	External root resorption	

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The treatment of periodontal-endodontic lesions is a **challenge**! **Schmidt JC et al, *JCP 2014***

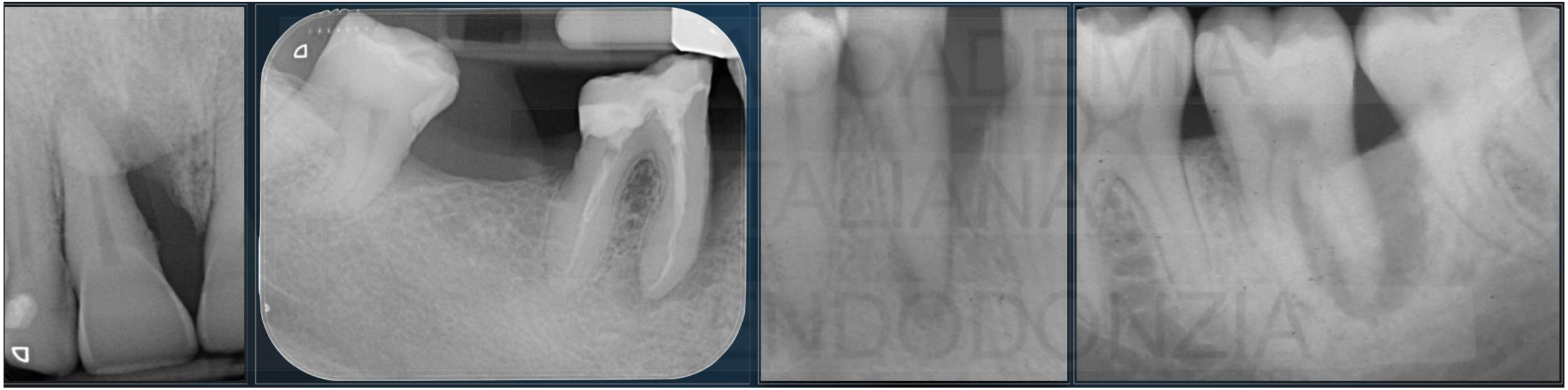
Teeth affected by true combined endodontic-periodontal lesions are usually considered by all prognosis classifications as "**hopeless**" teeth

Pico-Blanco A et al, *JOE 2016*

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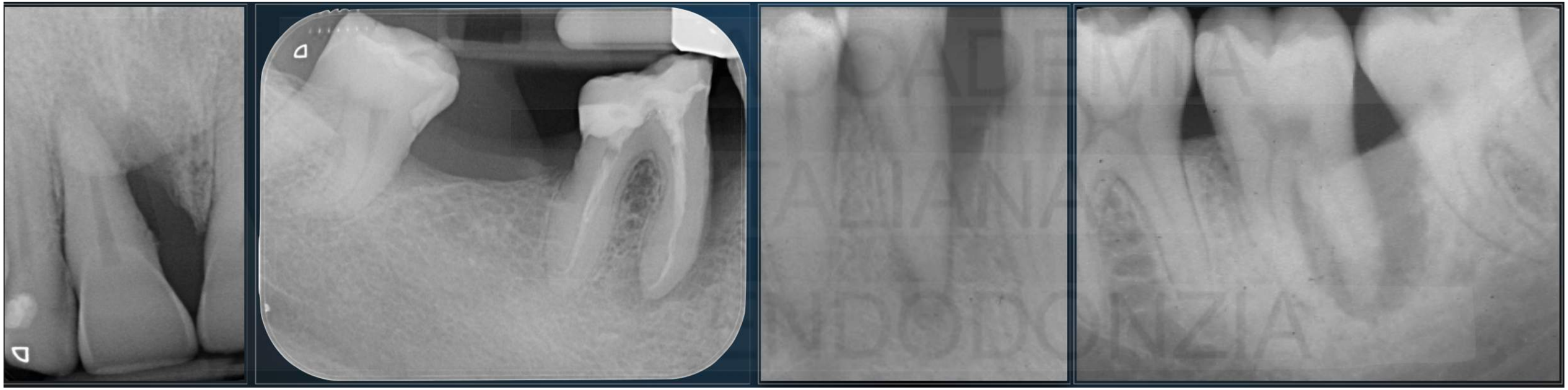


Currently, evidence-based management strategies specific to EPLs are lacking; however, current, long-term survival rates seem promising. **Multi-disciplinary management is essential for favourable outcomes**

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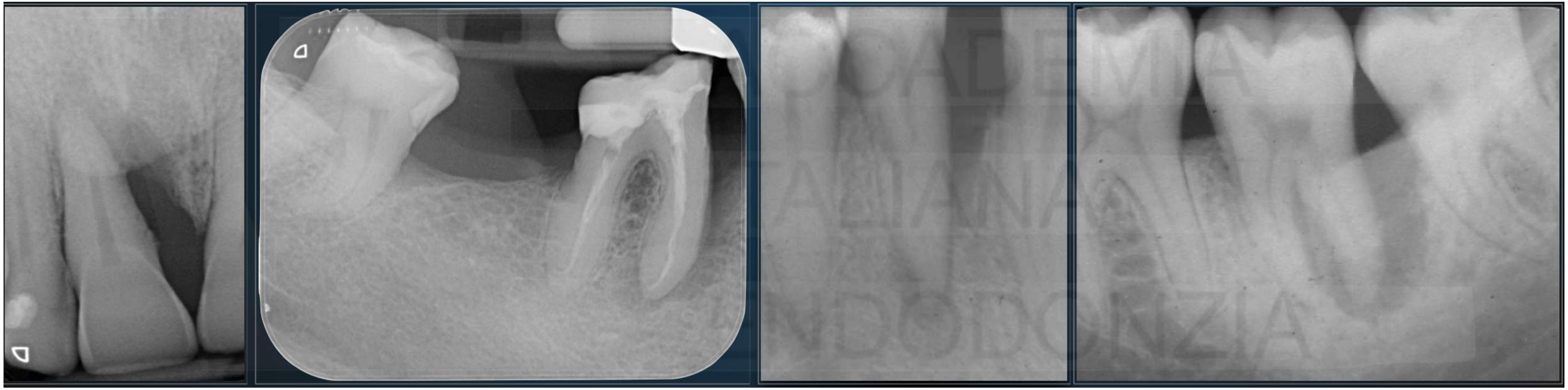


There is general agreement that when the pulpal status is confirmed as necrotic, root canal treatment (RCT) should be initiated in the first instance, unless a significant root fracture, perforation, or resorptive lesion is confirmed

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"Survival" rates for EPLs treated surgically are likely between 88.5–92% at five years, and approximately 87% at ten years .

Several retrospective and prospective cohort studies using a stricter outcome of 'success' yielded an approximately 70–80% success rate at up to 12.5 years

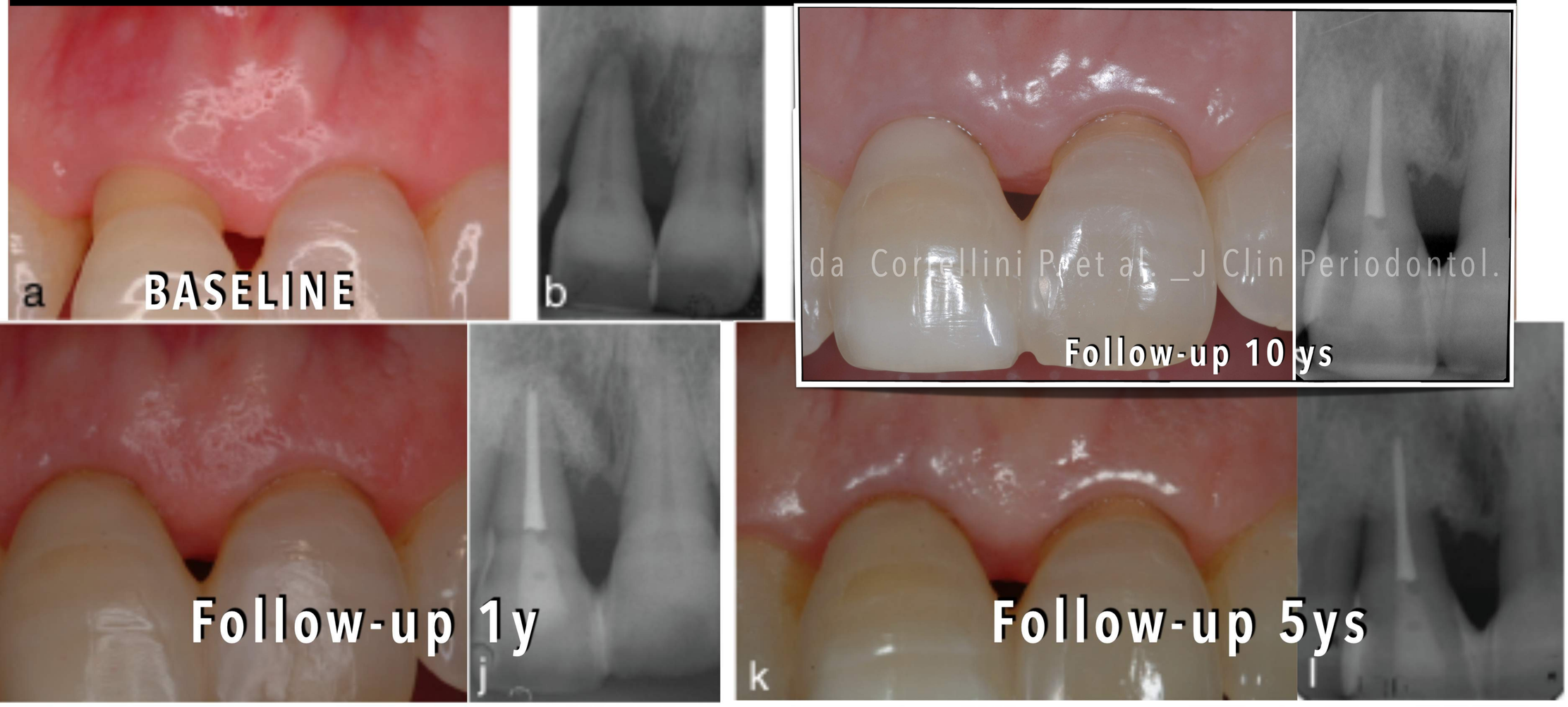
Al-Sibassi A et al, British Dental J 2025

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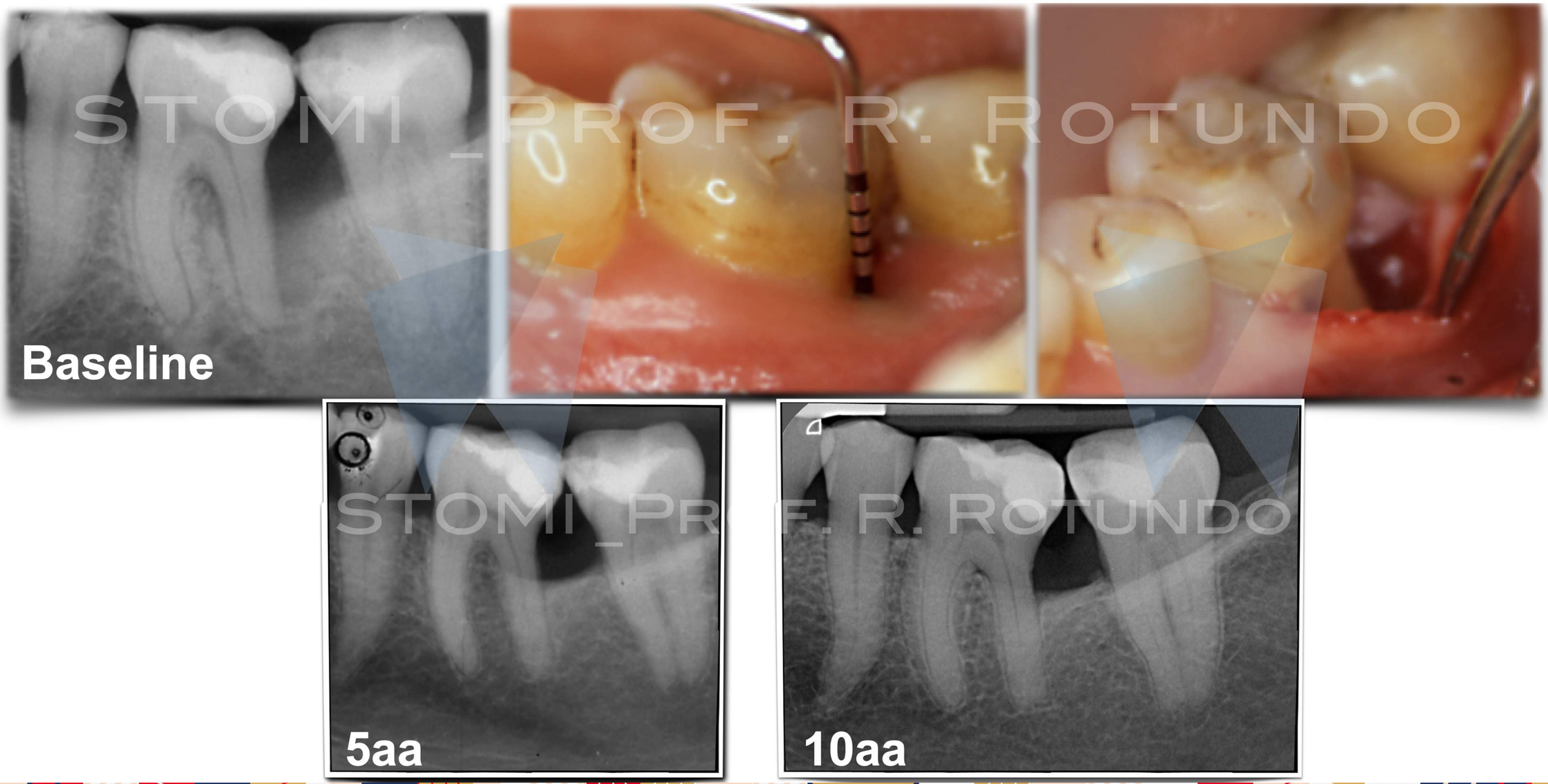
da Cortellini P. et al. _J Clin Periodontol 2011mod.



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STOMI_PROF. R. ROTUNDO

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CLINICAL PRACTICE GUIDELINE

Journal of Clinical Periodontology | WILEY

Treatment of stage I–III periodontitis—The EFP S3 level clinical practice guideline

Sanz M et al, *2020*



7.6 | Intervention: Management of furcation lesions

R3.10 | What is the adequate management of molars with Class II and III furcation involvement and residual pockets?

A We recommend that molars with Class II and III furcation involvement and residual pockets receive periodontal therapy.

B Furcation involvement is no reason for extraction.

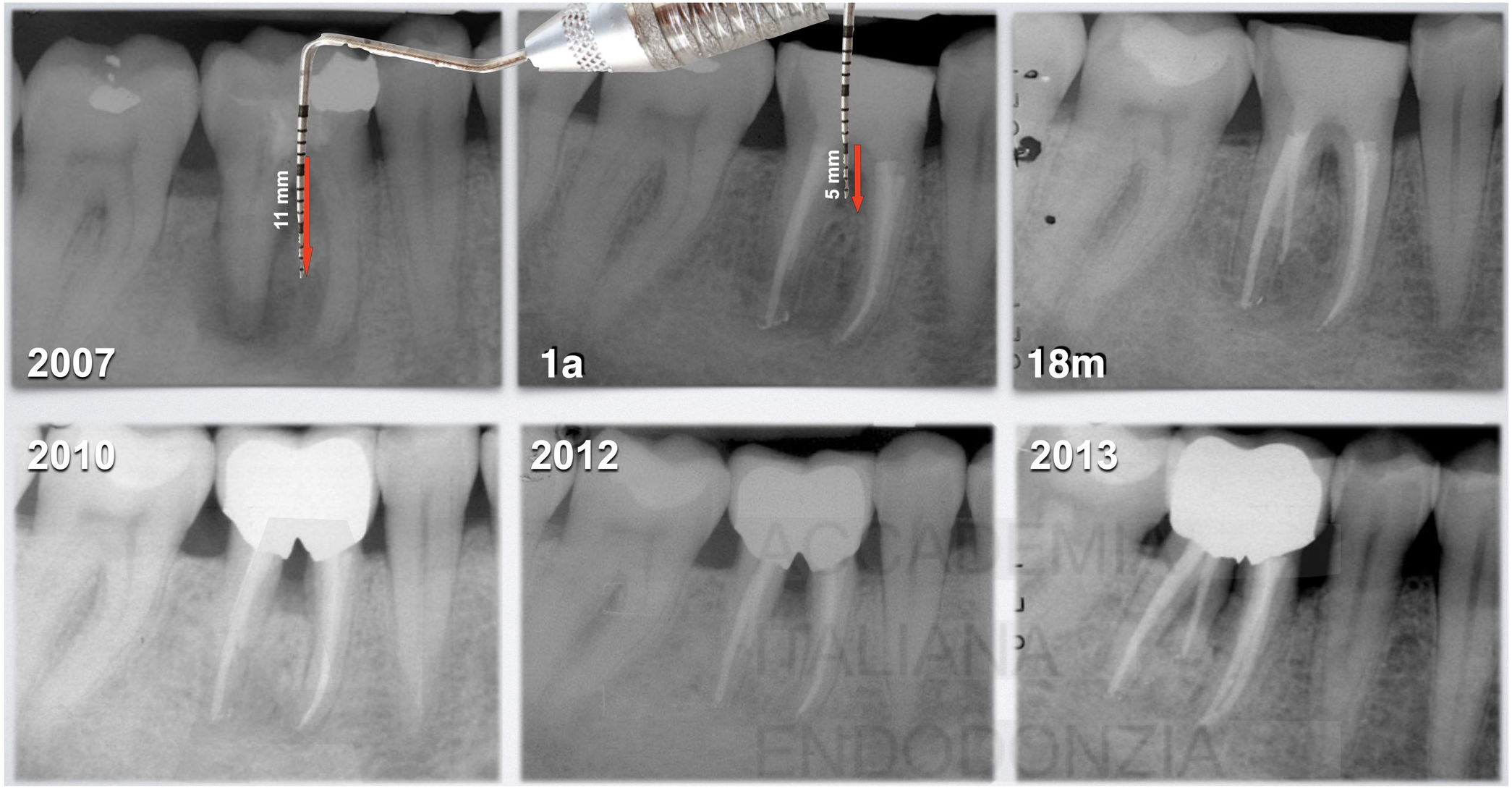
APPROCCI TERAPEUTICI

- Conservativo
- Resettivo
- Rigenerativo

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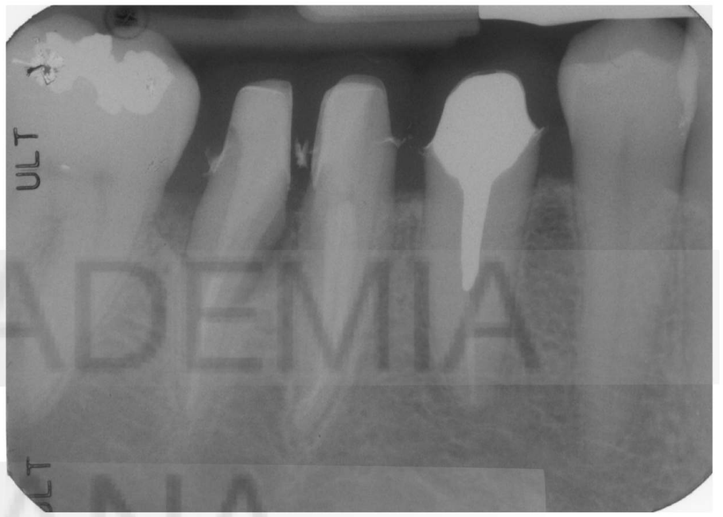
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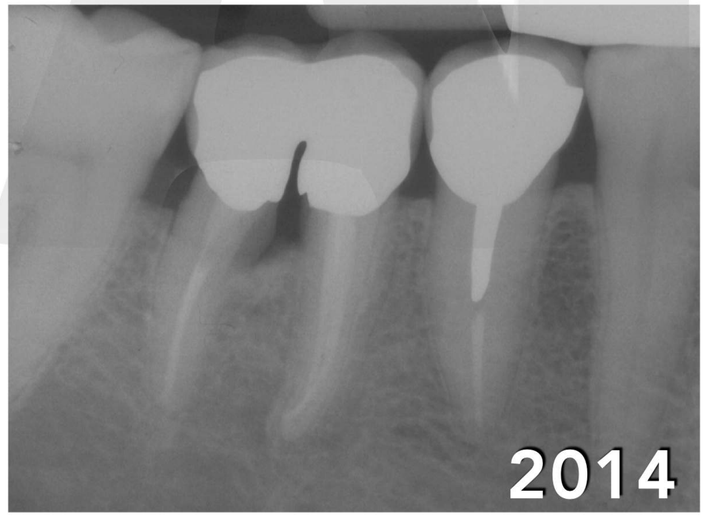
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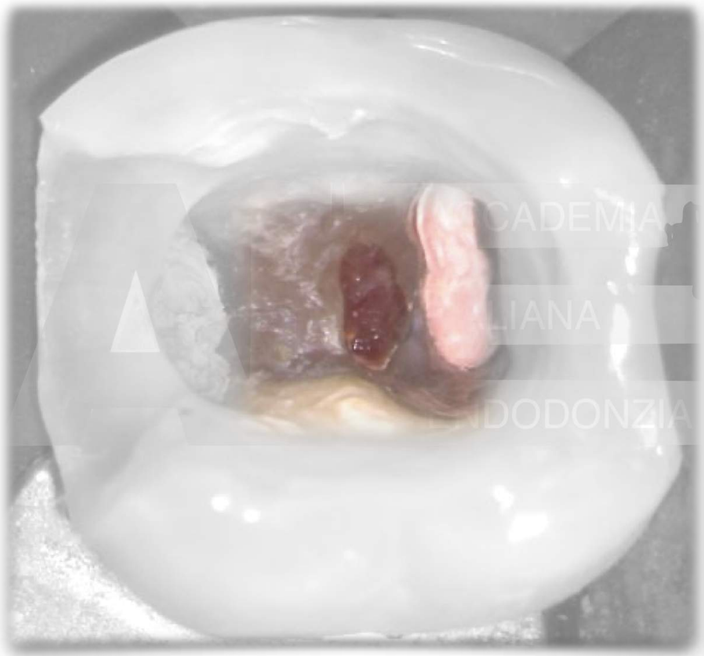


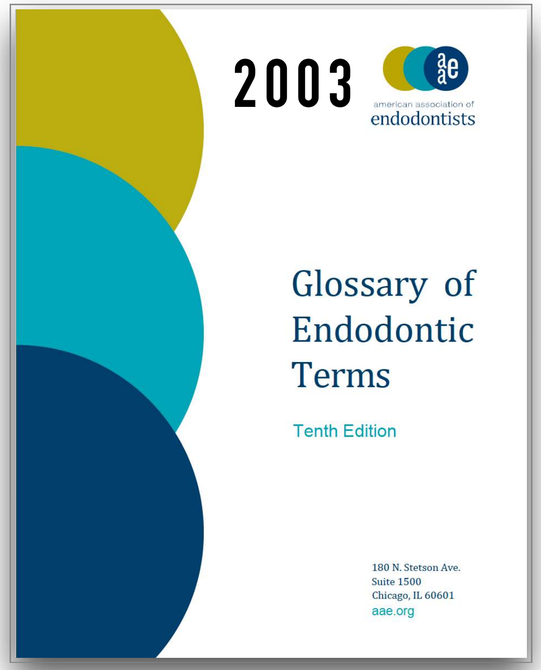






PERFORAZIONI





Mechanical or pathologic communication between the root canal system and the external tooth surface

0.7% – 10%
INCIDENZA

2.9% – 4.2%

Denti estratti per fallimenti endodontici con perforazioni

CLAUDER T, *Int Endod J. 2022*

PERFORAZIONI

- **Pre-Operative** (*carie / riassorbimenti*)
- **Intra-Operative** (*errori procedurali durante l'accesso endodontico o la strumentazione canalare*)
- **Post-Operative** (*preparazione del post-space*)

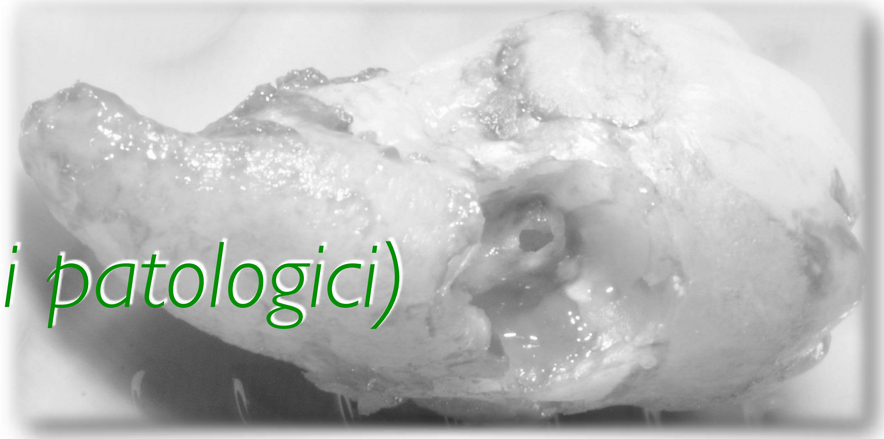
Iatrogene

53% *durante preparazione e/o inserzione di un perno*

47% *durante trattamento endodontico*

> Frequenti nell'arcata superiore , < a quella inferiore

in rapporto alla **Causa**



☞PRIMARIE *(a seguito di processi patologici)*

Carie

Riassorbimenti progressivi interni o esterni



☞SECONDARIE *(complicanze del trattamento endodontico)*

Iatrogene

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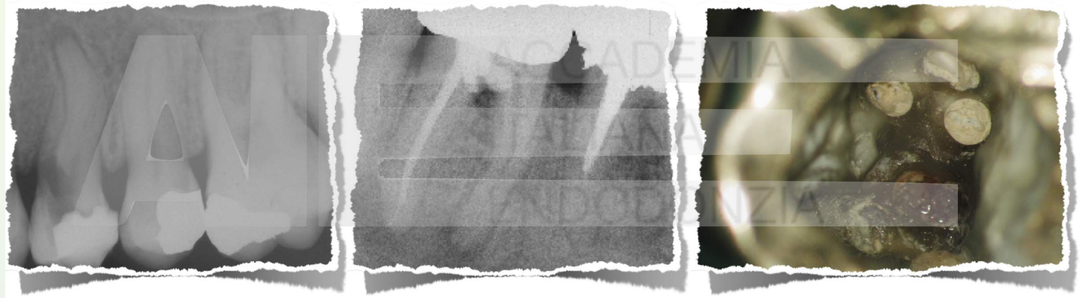
in rapporto alla **Sede**

- **Coronali e del Pavimento**
- **Radicolari cervicali**
- **Radicolari del terzo medio**
- **Radicolari del terzo apicale**

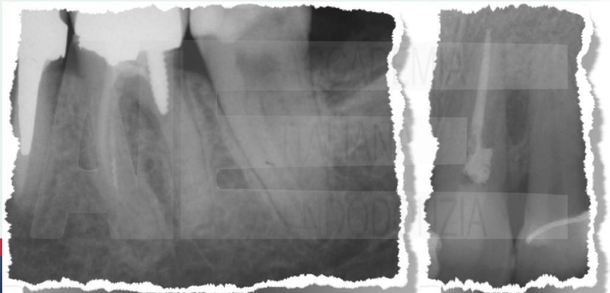
SOVRACRESTALI



CRESTALI



SOTTOCRESTALI



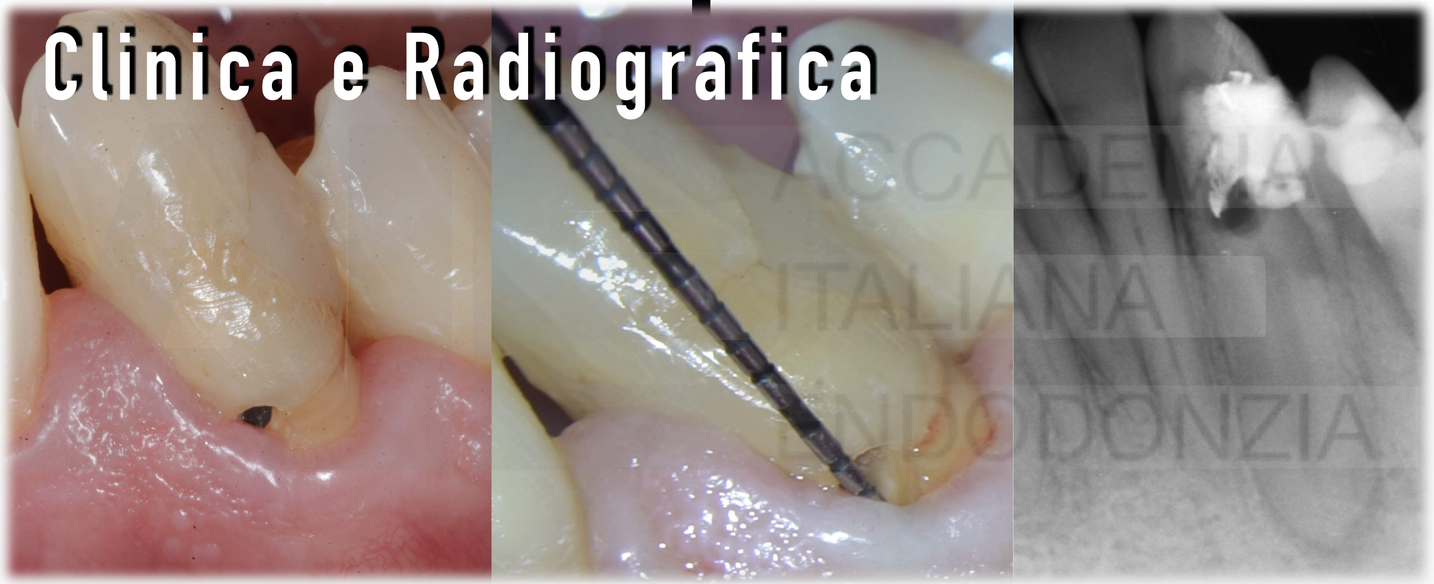
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Pre-operativa

Clinica e Radiografica



- Sondaggio
- Fistola
- Tumefazione
- Arrossamento gengivale
- Dolore acuto/sordo
- Rx Endorale / CBCT

Intra-operativa

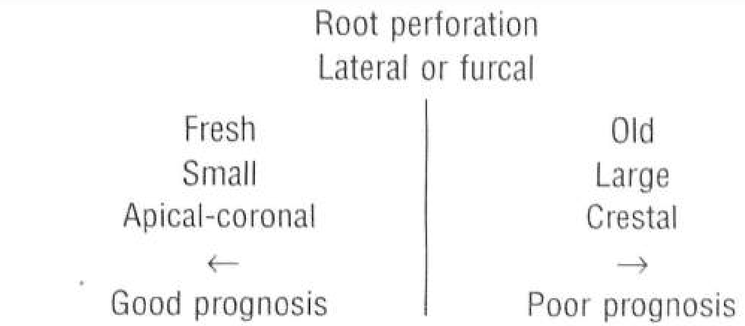
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TIPOLOGIA DI PERFORAZIONE	DESCRIZIONE
Fresh	Perforazione trattata immediatamente o in breve intervallo di tempo dall'avvenuto danneggiamento e quindi in condizioni di asepsi, in tali casi la prognosi è buona
Old	Perforazione non trattata in precedenza con conseguente contaminazione batterica: prognosi discutibile
Small	Perforazione caratterizzata da una ridotta dimensione (Pari o più piccola di uno strumento diametro 20 in punta). Questa perforazione è da considerarsi una falsa strana perché determina una nuova comunicazione con l'esterno della radice. Essendo il danneggiamento limitato può essere trattata come se fosse un canale radicolare mantenendo buona la prognosi
Large	Perforazione di altre dimensioni posizionate sul pavimento pulpare terzo medio e terzo cervicale della radice. Il danneggiamento tissutale che ne deriva non è trascurabile E la contaminazione batterica importante. Prognosi discutibile

Root perforations: classification and treatment choices based on prognostic factors

Z. Fuss, M. Trope

Endod Dental Traumatol, 1996



Coronal	Perforazione coronale rispetto al livello della cresta ossea con ridotto danneggiamento sia dell'attacco epiteliale sia dei tessuti di supporto. Grazie alla localizzazione e accesso il trattamento è semplice e la prognosi è buona
Crestal	Perforazione localizzata a livello dell'attacco connettivale della cresta ossea . Prognosi discutibile
Apical	Perforazione apicale alla cresta ossea e all'attacco epiteliale : prognosi discutibile

Alcuni studi (***Mente et al., 2014***) obiettano che questi fattori non sono così importanti come lo erano prima dell'introduzione dell'MTA, e altri autori (***Gorni et al., 2016; Krupp et al., 2013; Pontius et al., 2013***) concordano sul fatto che la dimensione della perforazione non influenza il successo del trattamento

La decisione di trattare una perforazione dipende anche dalle condizioni parodontali del difetto.

Presenza / Assenza di coinvolgimento parodontale

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Negli ultimi anni la **riparazione non chirurgica** della perforazione è indicata nella maggior parte dei casi; è stata facilitata dall'uso di un ingrandimento e di un'illuminazione migliorati, che forniscono una migliore visualizzazione e accesso al difetto, oltre che dall'introduzione di nuovi materiali (MTA e nuovi cementi idraulici).

L'**intervento chirurgico** è riservato ai casi non trattabili o che non hanno risposto al trattamento non chirurgico, o in cui è indicata la gestione concomitante del parodonto.

Siew KL et al:

J Endod 2015

Treatment Outcome of Repaired Root Perforation: A Systematic Review and Meta-analysis

17 Studi inclusi per la revisione sistematica, 12 per la meta-analisi

- Il miglioramento dei materiali da otturazione ha contribuito al miglioramento del risultato prognostico
- La % media di successo (calcolata su 10 studi con casistica eterogenea) della terapia delle perforazioni era del **72.5%**. Più del **80%** se si prendono in esame solo studi con utilizzo di MTA come materiale di riparazione
- Le perforazioni senza radiotrasparenza hanno una prognosi migliore rispetto a quelli con radiotrasparenza
- I denti mascellari presentano un potenziale maggiore di guarigione rispetto ai mandibolari

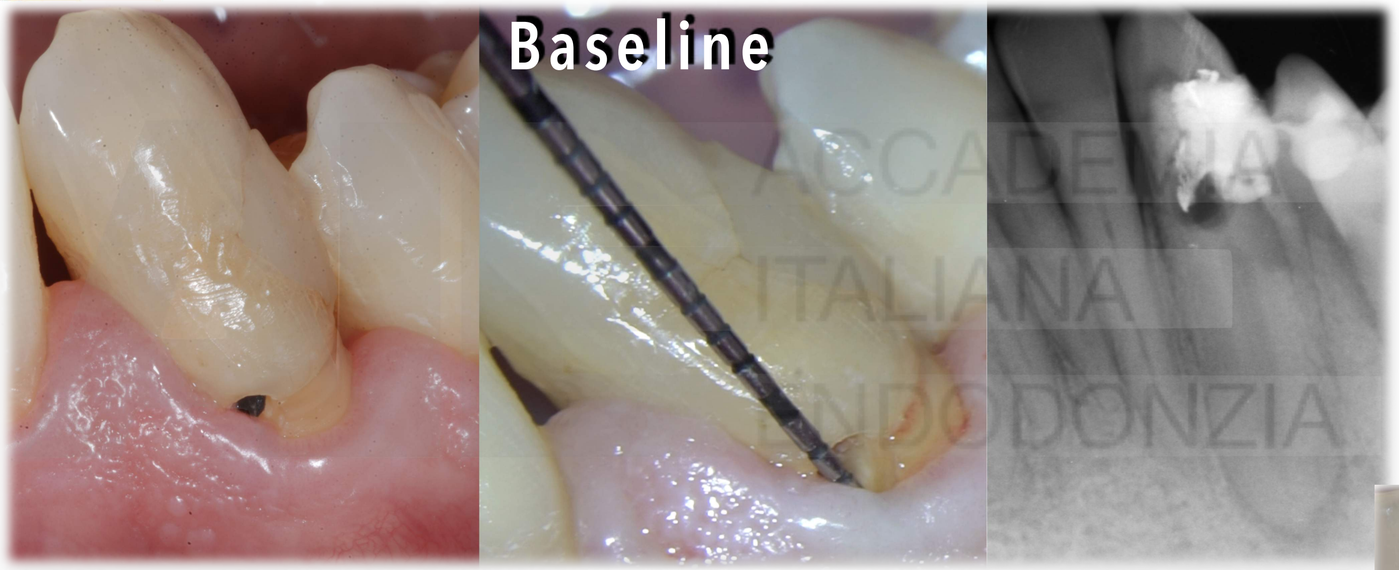
Several clinical studies on perforation repair with MTA including larger sample sizes and long-term follow-up are confirming high success rates ranging from **73.3%** to **92%** and a good long-term sealing ability

CLAUDER T, *Int Endod J. 2022*

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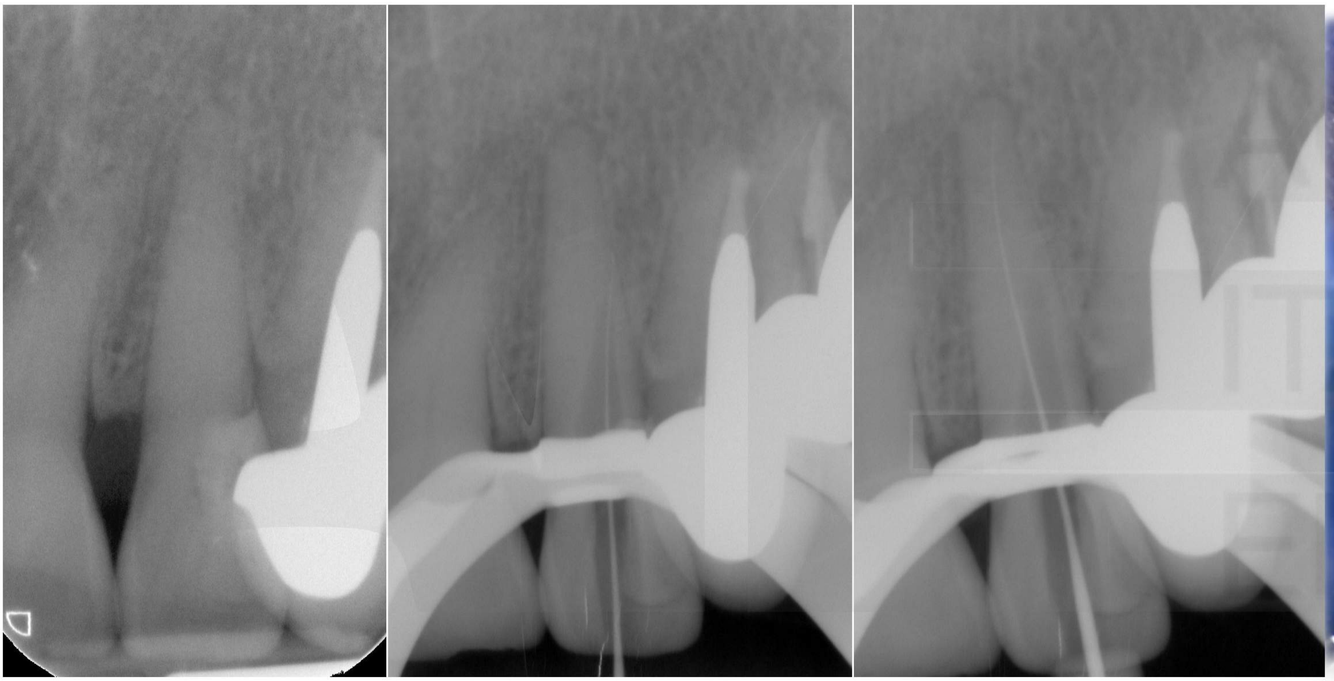


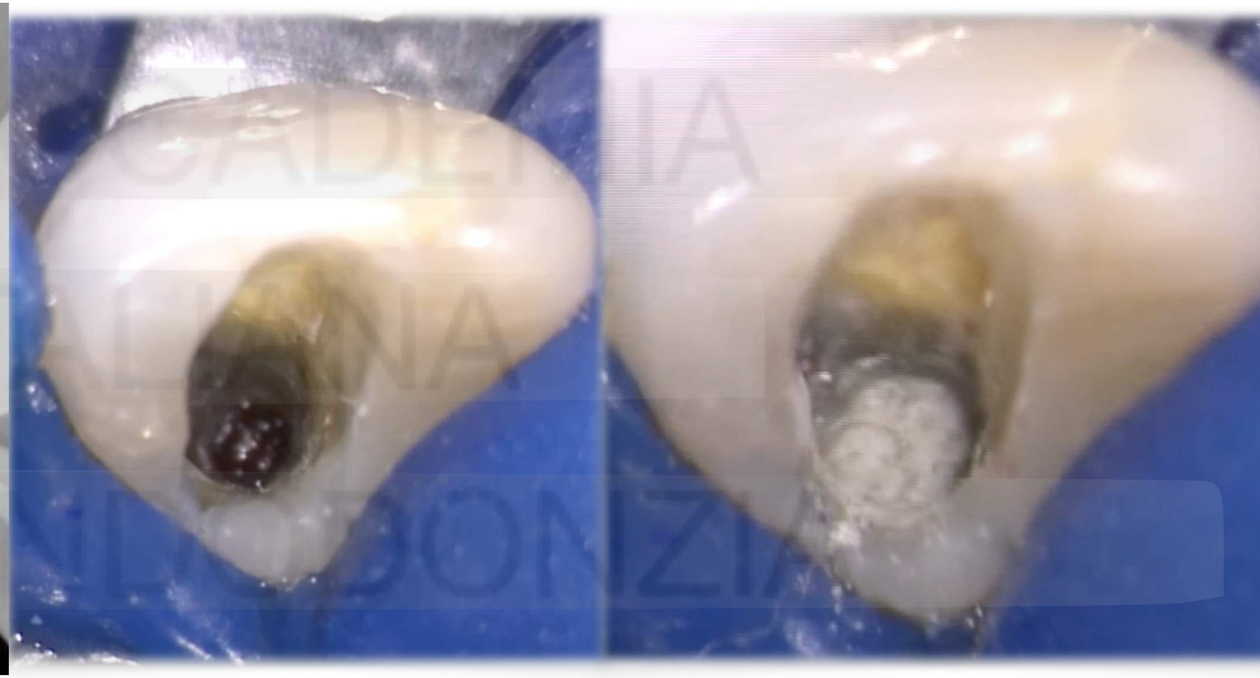


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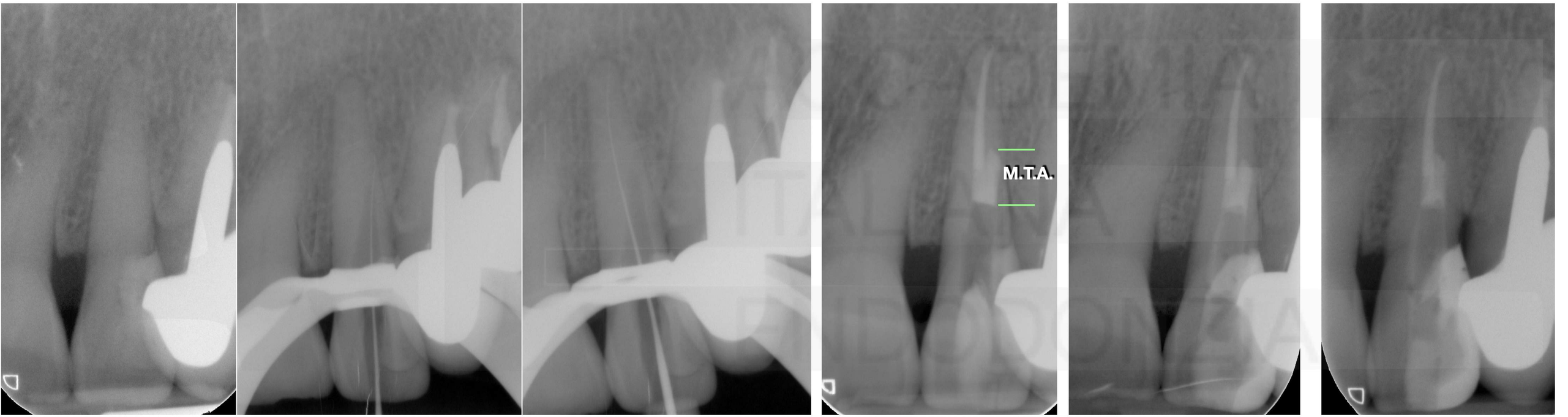




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Baseline

Follow-up 5aa

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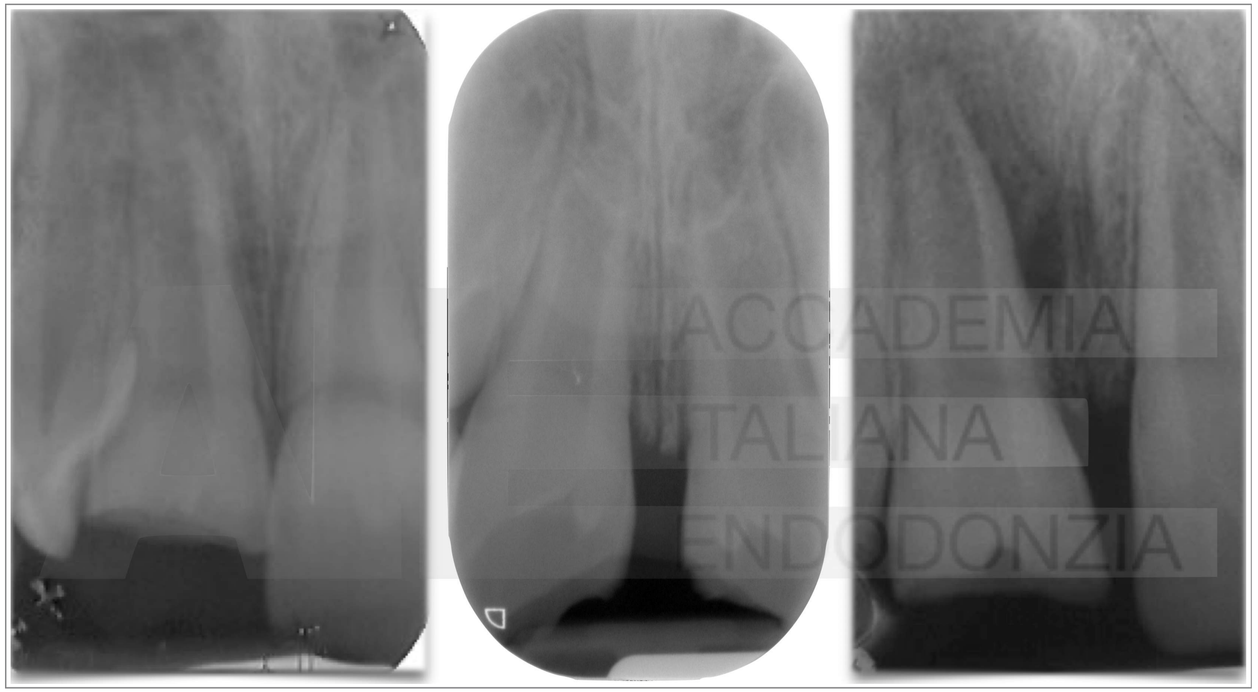






APICI BEANTI

✓ **Traumi**

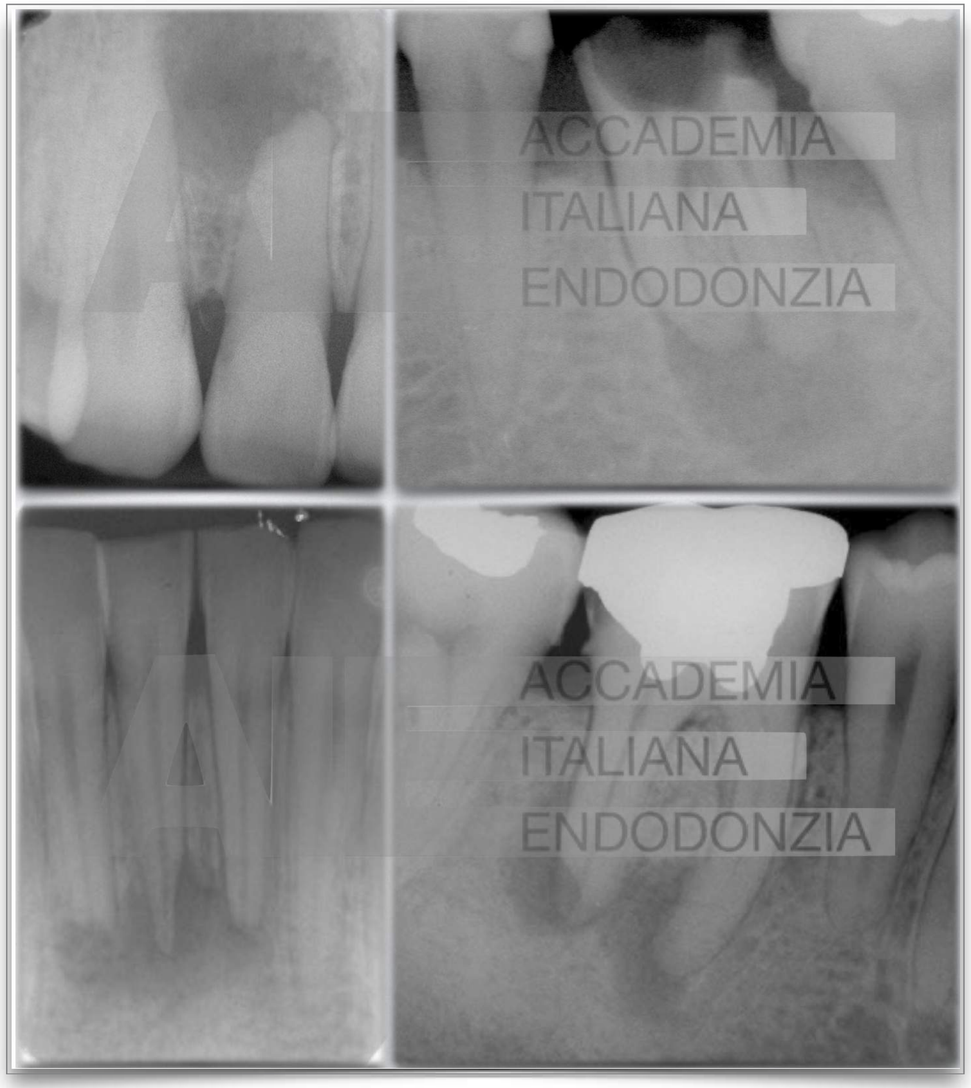


✓ **Carie**



APICI ALTERATI

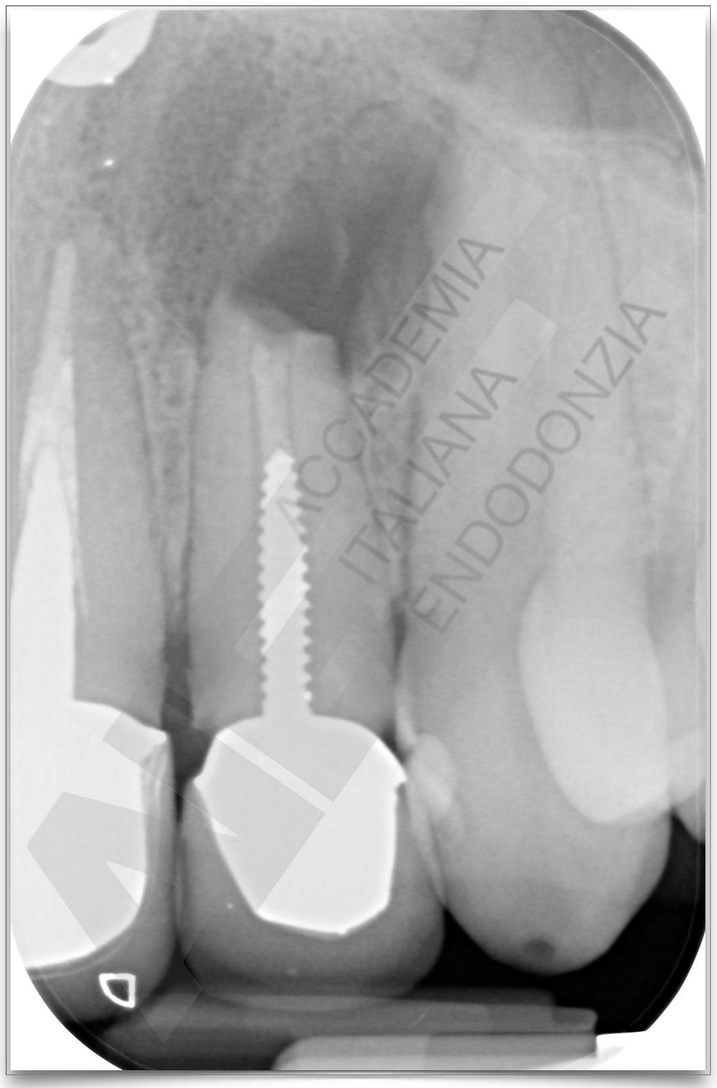
- ✓ Lesioni peri radicolari



APICI ALTERATI

✓Lesioni peri radicolari

✓**Alterazione iatrogena della porzione apicale**



APICI ALTERATI

✓Lesioni peri radicolari

✓Alterazione iatrogena della porzione apicale

✓**Altre Patologie**

(…..*Sindrome di Ehlers-Danlos*)



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APICI BEANTI / ALTERATI



Criticità Cliniche

- Anatomia apicale priva di uno stop
- Sovrastrumentazione e sovrariempimento
- Rimozione del tessuto pulpare
- Funzionamento dei localizzatori
- Rapporto corona/radice
- Pareti dentinali radicolari sottili

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APICI BEANTI / ALTERATI

Scelta Terapeutica

- Età del paziente
- Stato della polpa
- Grado di sviluppo della radice

Terapia Endodontica

Guttaperca&Sealer

Rivascolarizzazione

Induzione chiusura Apice

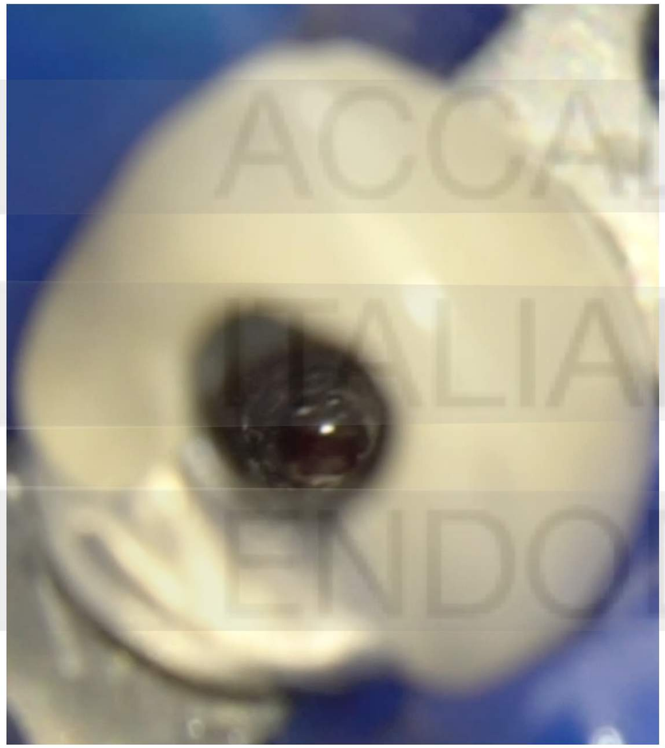
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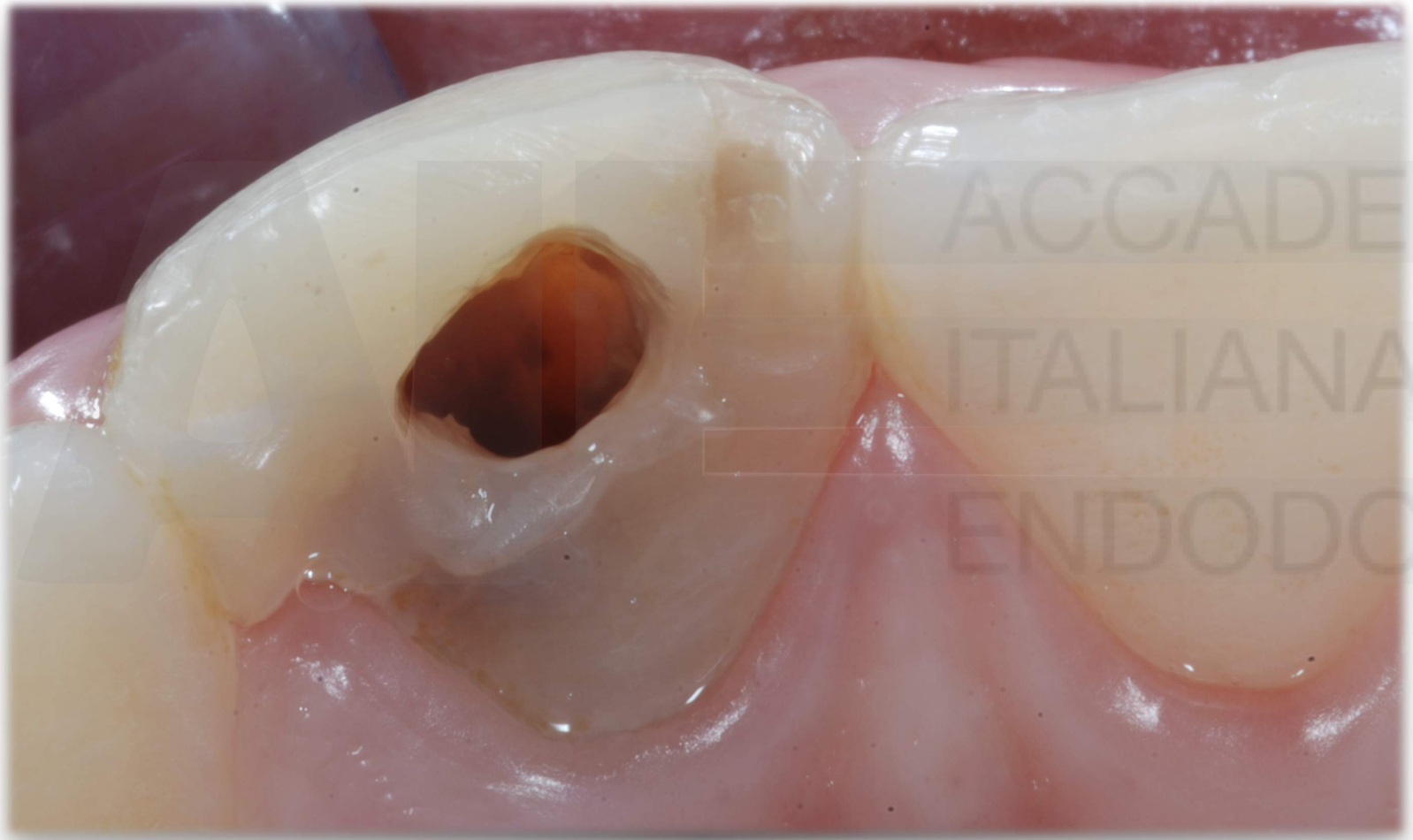
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RIASSORBIMENTI RADICOLARI

FATTORE SCATENANTE

- Trauma
- Procedure chirurgiche
- Eccessiva pressione
- Irritazione chimica
- Malattie sistemiche

Processo Progressivo

può portare alla perdita del dente

Causa perdita dello strato protettivo

Interno **Esterno**

Processo Transitorio

+

FATTORE DI STIMOLAZIONE

Infezione Pulpare o Parodontale
Pressione
Malattie Sistemiche

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RIASSORBIMENTI RADICOLARI

Received: 23 January 2023 | Accepted: 16 March 2023

DOI: 10.1111/iej.13916

INTERNATIONAL ENDODONTIC JOURNAL | WILEY

REVIEW ARTICLE

ESE position statement on root resorption

Shanon Patel[1,2] | Gabriel Krastl[3] | Roland Weiger[4] | Paul Lambrechts[5] | Leo Tjäderhane[6,7] | Gianluca Gambarini[8] | Peng-Hui Teng[1]

Root resorption – diagnosis, classification and treatment choices based on stimulation factors

Fuss Z, Tsesis I, Lin S. Root resorption – diagnosis, classification and treatment choices based on stimulation factors. Dent Traumatol 2003; 19: 175–182. © Blackwell Munksgaard, 2003.

Zvi Fuss, Igor Tsesis, Shaul Lin

Department of Endodontology, Tel Aviv University, Tel Aviv, Israel

The various types of root resorption should be identified according to the ***stimulation factors***:

- ✓ Pulpal infection root resorption
- ✓ Periodontal infection root resorption
- ✓ Orthodontic pressure root resorption
- ✓ Impacted tooth or tumor pressure root resorption
- ✓ Ankylotic root resorption

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RIASSORBIMENTO

- **Esterno** (orto, perio, trauma stimoli moderati in assenza di infezione)
- **Interno** (irritazioni pulpari, traumi moderati in assenza di infezione)

- da **Pressione** (**solo Esterno**) (da eruzione del permanente, da ottavo incluso, da cisti, da eccessiva trazione ortodontica)
- da **Infezione**
  - **Esterno** (da necrosi pulpare, da trauma, parodontale)
  - **Interno** (infiammazione cronica della polpa)

RIASSORBIMENTO da SOSTITUZIONE con ANCHILOSI

per lussazione o avulsione (estesa necrosi del legamento parodontale)

RIASSORBIMENTO INVASIVO CERVICALE

Tronstad L, Endod Dent Traumatol 1988
Castellucci A, Endodonzia_ed.Il Tridente 1993

Internal tooth resorption begins within the pulp or in the dentin of the root canal walls. It progresses outwards towards the cementum and, if not treated, it can ultimately result in communication with the PDL and surrounding bone. There are three types of internal tooth resorption–surface, inflammatory and replacement

Internal tooth resorption

1. Internal surface resorption
2. Internal inflammatory resorption
3. Internal Replacement Resorption

Abbott PV, Lin S, Dental Traumatol 2022

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Position Statement

International Federation of Endodontic Associations education committee position statement on the management of internal root resorption: Suggested clinical protocol

Özgür Ilke Atasoy Ulusoy, Elisabetta Cotti[1], Nandini Suresh[2], Velayutham Gopikrishna[3], Mehmet Baybora Kayahan[4]

Access this article online

Website:
https://journals.lww.com/eddt

DOI:
10.4103/endo.endo_287_25

Quick Response Code

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External tooth resorption commences within the cementum and/or dentin (when there is no cementum present at the site of initiation of the resorption) and progresses inwards towards the dental pulp. If not treated, it can reach the pulp, resulting in communication between the pulp and the surrounding bone. There are eight types of external tooth resorption –surface, inflammatory, replacement, invasive, pressure, orthodontic, physiologic and idiopathic

External tooth resorption
1. External surface resorption
2. External Inflammatory Resorption (a) Apical (b) Lateral
3. External Replacement Resorption (a) Transient (b) Progressive
4. External Invasive Resorption
5. External Pressure Resorption
6. Orthodontic Resorption
7. Physiological Resorption
8. Idiopathic Resorption

Abbott PV, Lin S, Dental Traumatol 2022

RIASSORBIMENTI RADICOLARI

- **Anamnesi**
  - Traumi
  - Ortodonzia
  - Abitudini viziate / Parafunzioni
  - Malattie Sistemiche
- **Valutazione Clinica** (*dentale e parodontale*)

  Test Pulpari
- **Valutazione Radiografica**

  (*radiografie endorali - CBCT*)

RIASSORBIMENTI APICALI



da Ricucci D & Bergenholtz G, *Endod Topics 2004*

Vier FV, Figueiredo JAP. Prevalence of different periapical lesions associated with human teeth and their correlation with the presence and extension of apical external root resorption. *International Endodontic Journal*, **35**, 710–719, 2002.

AIM: to evaluate the prevalence of different periapical lesions as well as to evaluate the presence and extension of apical external resorption and its association with different categories of disease.

98 Denti

104 Lesioni Apicali

104 Apici Radicolari

(- 2 persi nel corso delle preparazioni)

8,9%

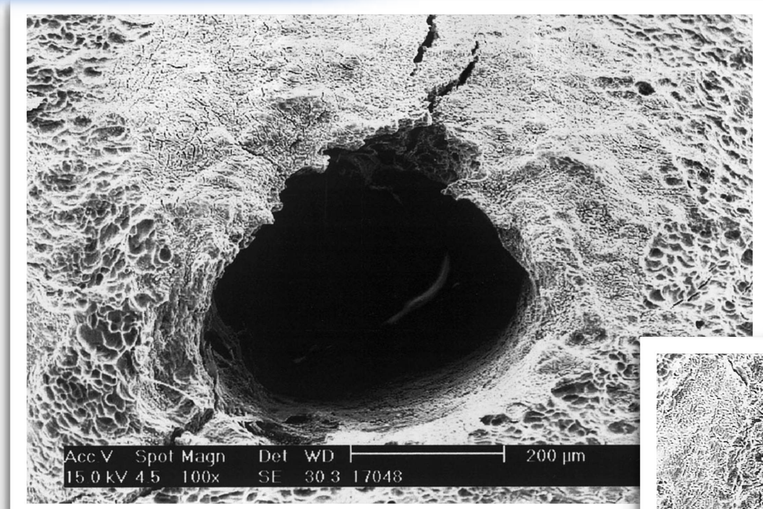
	Foraminal (FR)				
Periforaminal (PR)	0	1	2	3	Total
0	9	2	1	1	13
1	3	5	5	2	15
2	3	10	15	3	31
3	2	8	9	23	42
Total	17	25	30	29	101

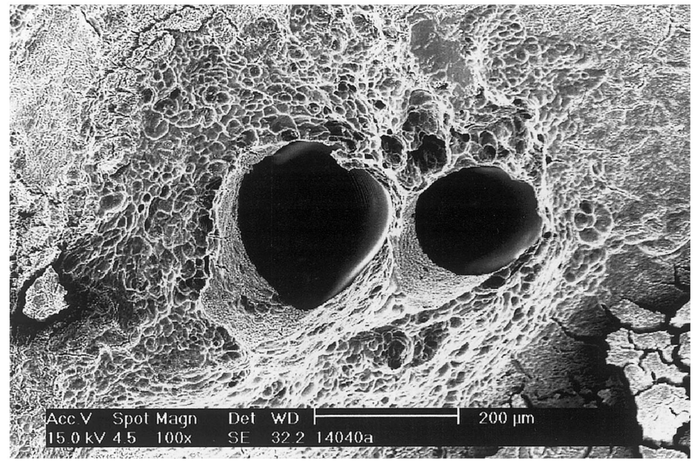
Vier FV, Figueiredo JAP. Prevalence of different periapical lesions associated with human teeth and their correlation with the presence and extension of apical external root resorption. *International Endodontic Journal*, **35**, 710–719, 2002.

Table 3 Extension degrees of periforaminal and foraminal resorption of the dental apexes

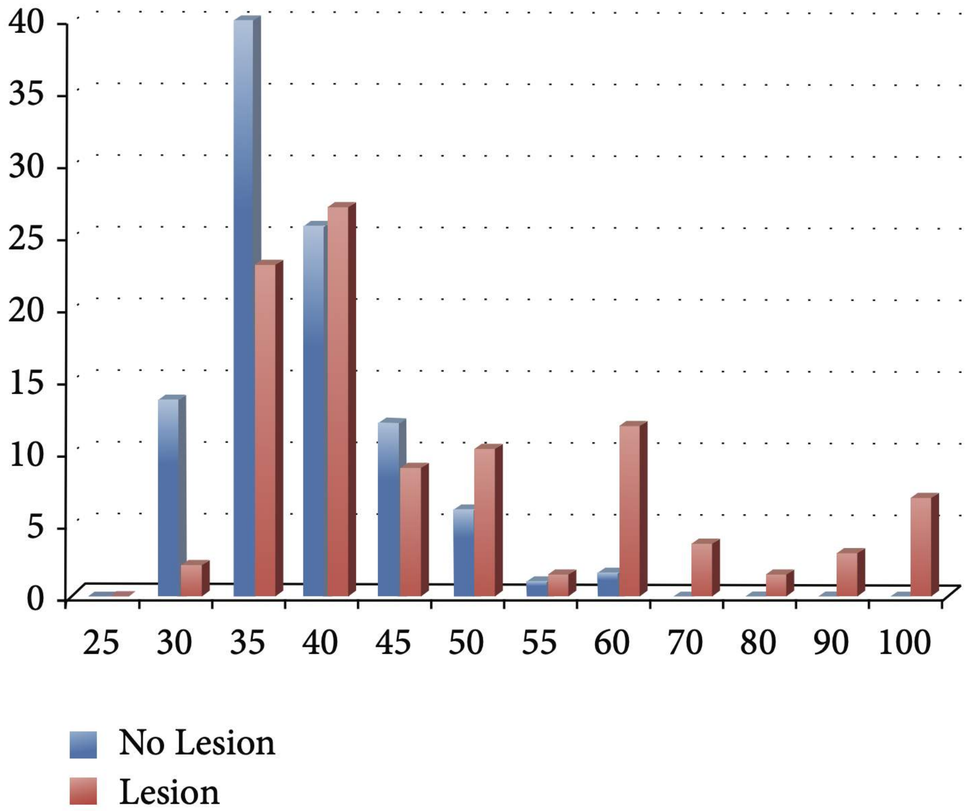
Degree of resorption	Resorption			
	Periforaminal (PR)		Foraminal (FR)	
	f	%	f	%
0	13	12.7	17	16.8
1	15	14.7	25	24.8
2	31	30.4	30	29.7
3	42	42.2	29	28.7
Total	102	100.0	101*	100.0

*In one specimen, it was not possible to perform a classification of the foraminal resorption.





Gesi A, Mareschi P, Doldo T, Ferrari M. Apical Dimension of Root Canal Clinically Assessed with and without Periapical Lesions. ***Int J Dent 2014***



Group	*N*	Median
Teeth with lesion	135	40
Teeth without lesion	257	35

The presence of a periradicular inflammatory reaction determines the presence of a larger diameter compared to cases without periapical lesions.

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RIASSORBIMENTI INVASIVI CERVICALI

INTERNATIONAL ENDODONTIC JOURNAL

doi:10.1111/iej.12942

REVIEW

External cervical resorption-part 1: histopathology, distribution and presentation

S. Patel[1,2], A. M. Mavridou[3], P. Lambrechts[3] & N. Saberi[1]

[1]Department of Endodontology, King's College London Dental Institute, London; [2]Specialist Practice, London, UK; and [3]Department of Oral Health Services, University of Leuven, Leuven, Belgium

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INTERNATIONAL ENDODONTIC JOURNAL

doi:10.1111/iej.12946

REVIEW

External cervical resorption: part 2 – management

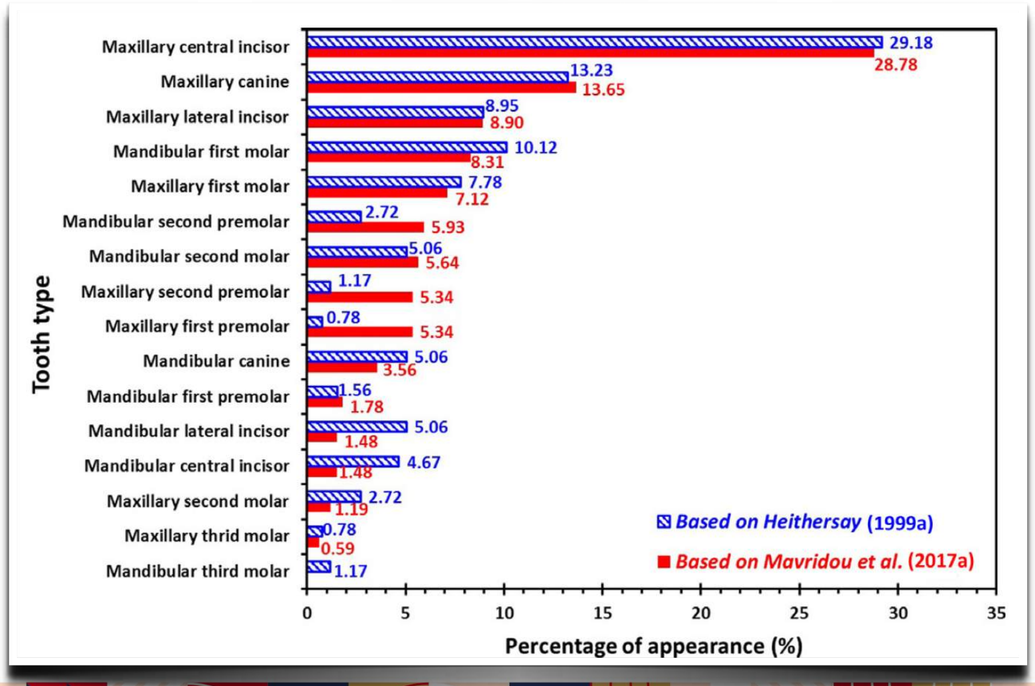
S. Patel[1,2], F. Foschi[1], R. Condon[1], T. Pimentel[1] & B. Bhuva[1]

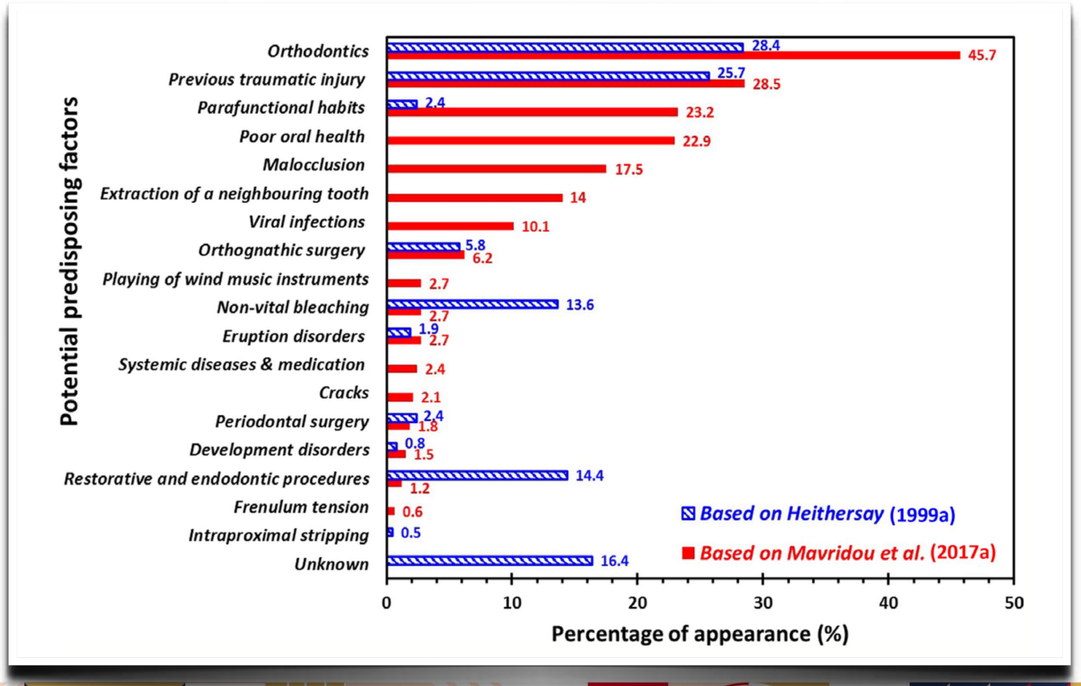
[1]Department of Endodontology, King's College London Dental Institute, London; and [2]Specialist Practice, London, UK

RIASSORBIMENTI INVASIVI CERVICALI

External cervical resorption (ECR) is an aggressive form of invasive root resorption at the enamel–cementum junction that if untreated leads to substantial loss of tooth tissue and eventually pulp, periodontal and periapical diseases that will ultimately lead to tooth loss

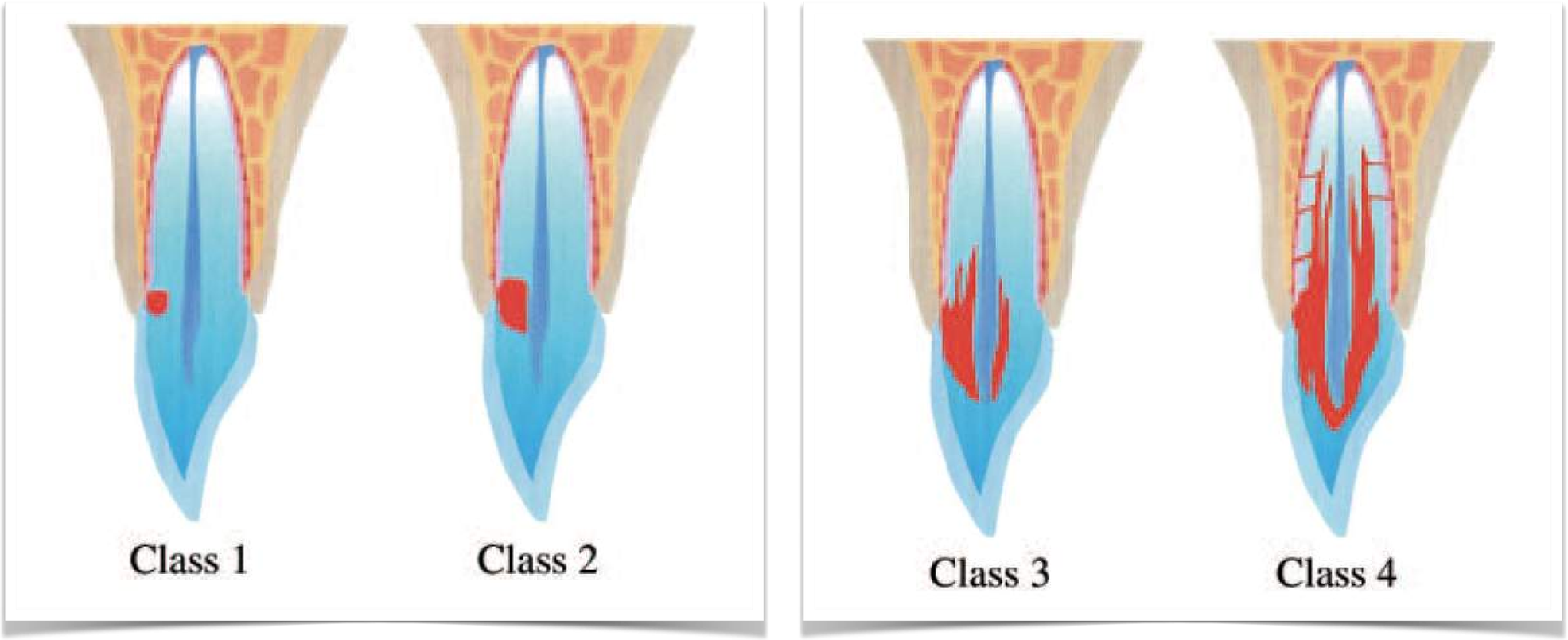
Patel S. et al_Int Endod J, 2018





RIASSORBIMENTI INVASIVI CERVICALI

Heithersay 1999 Classificazione basata su 2d imaging



RIASSORBIMENTI INVASIVI CERVICALI

Patel S et al, 2018 Classificazione basata su 2d e 3D imaging

Height	Circumferential spread	Proximity to the root canal
1: Supracrestal/CEJ level	A: ≤90°	d: Lesion confined to dentine
2. Subcrestal, extends into coronal 1/3	B: >90° to ≤180°	p: Probable pulpal involement
3. Extends into mid 1/3	C: >180° to ≤270°	
4. Extends into apical 1/3	D: >270°	

RIASSORBIMENTI INVASIVI CERVICALI

The aim of treatment for teeth diagnosed with ECR, which are considered to be restorable, is to retain them in a healthy and functional state and improve aesthetics when indicated.

The objectives of treatment for ECR are excavation of the resorptive tissue, sealing of the hard tissue defect with an aesthetic biocompatible material and prevention of recurrence of ECR

RIASSORBIMENTI INVASIVI CERVICALI

- External repair of the resorptive defect ± endodontic treatment
- Internal repair and root canal treatment
- Intentional replantation
- Periodic review (untreatable teeth)
- Extraction (untreatable teeth)

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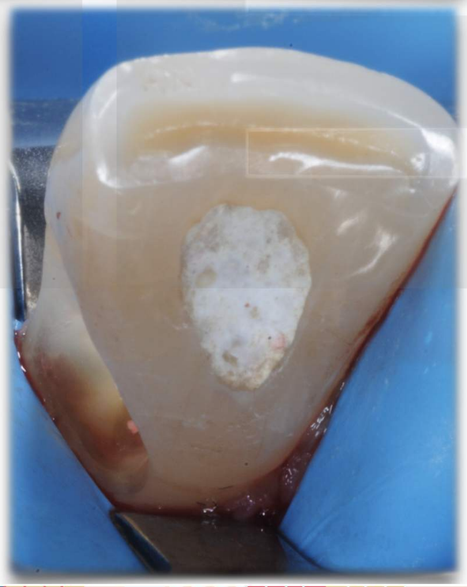
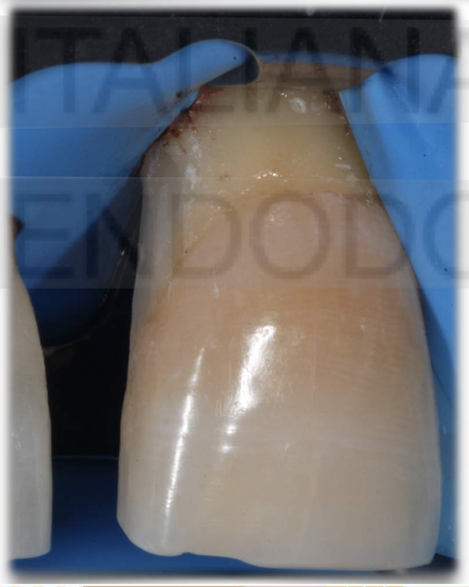
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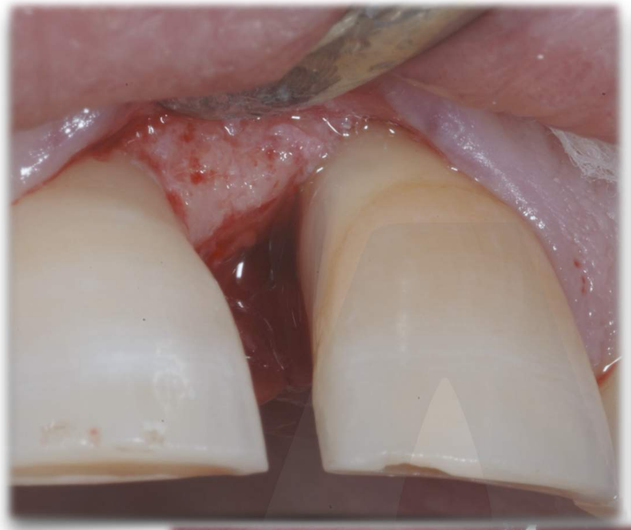



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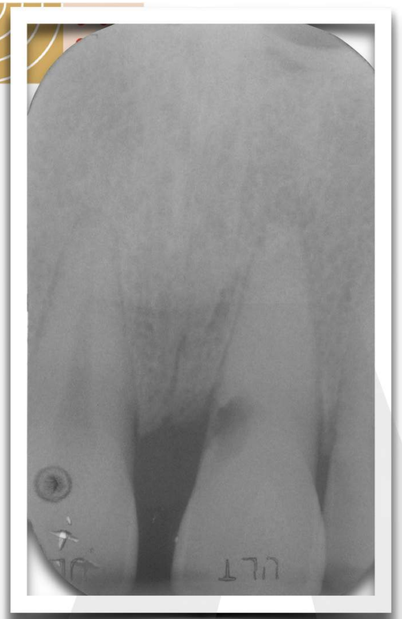





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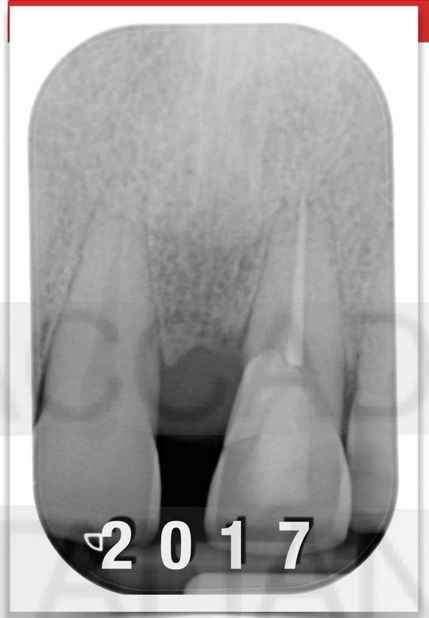
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AGENDA

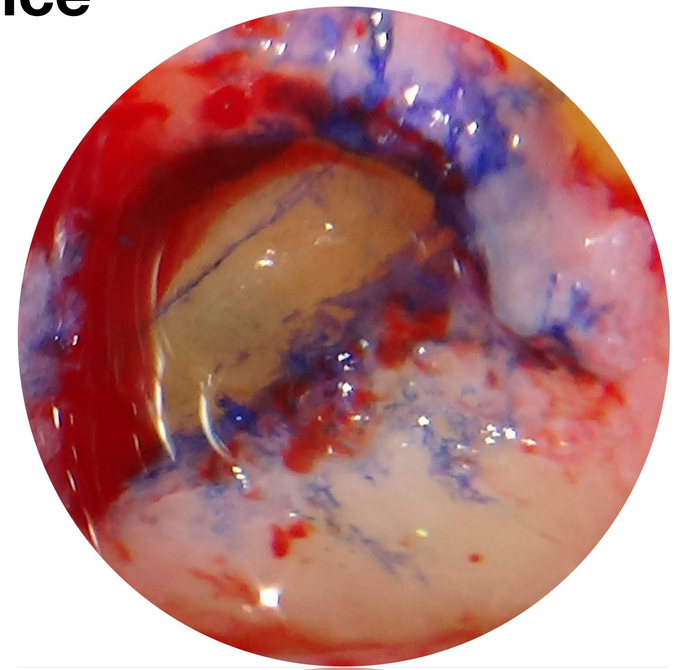


5. Criteri decisionali che portano all'estrazione:
   - Quali sono i casi veramente senza speranza?
   - Fratture radicolari (problemi diagnostici e possibilità terapeutiche)
   - Endodonzia chirurgica

Quando un elemento può essere considerato hopeless da un punto di vista endodontico ?

- Elemento con fattura verticale di radice
- Elemento non restaurabile
- Elemento con lesione Perio-Endo non trattabile
- Paziente con patologie sistemiche che controindicano un trattamento di endodonzia chirurgica

Frattura verticale di radice



- 90,6% direzione vestibolo linguale con inizio vestibolare
- 84.4% delle radici che presentano istmo
- 81.3% da coronale verso apicale
- 46.7% Fistola
- 40.6% Sondaggio puntiforme
- 60% Dolore



Swiss Dent J. 2017 Jan 12;127(1):14-23.

Vertical root fractures of endodontically treated posterior teeth: A histologic analysis with clinical and radiographic correlates.

- Si manifestano solitamente in elementi trattati endodonticamente e con assenza di copertura cuspidale
- La zona di insorgenza è quasi sempre a livello del terzo medio e poi tende a propagarsi in direzione apicale o coronale
- In caso di progressione in senso coronale della lesione, si può presentare un sondaggio tubolare stretto e profondo
- Spesso si associa a pazienti con parafunzioni
- Deve essere poste in diagnosi differenziale con le lesioni endodontico parodontali con partenza endodontica

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Elemento con sondaggio a livello del terzo medio/apicale

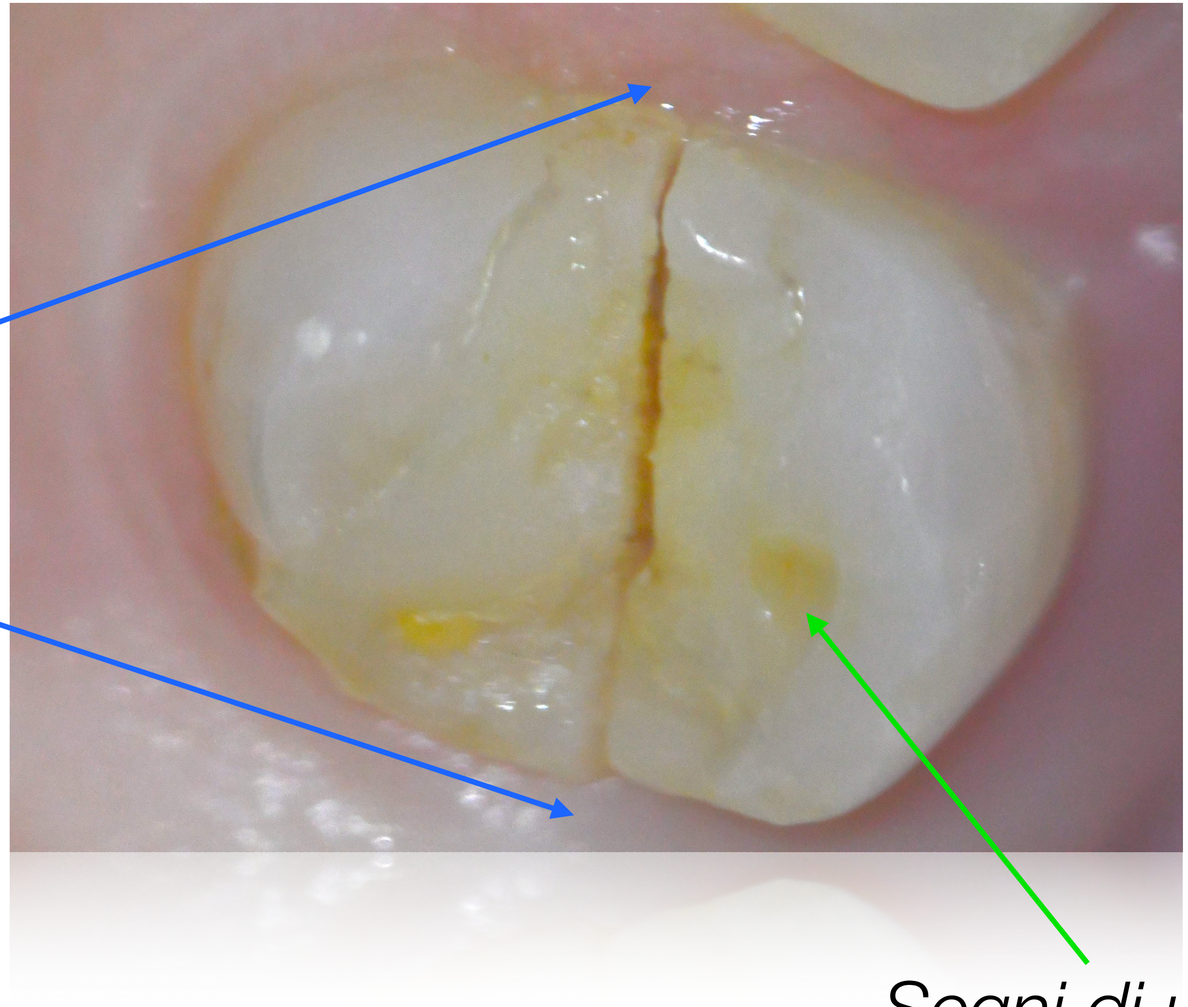


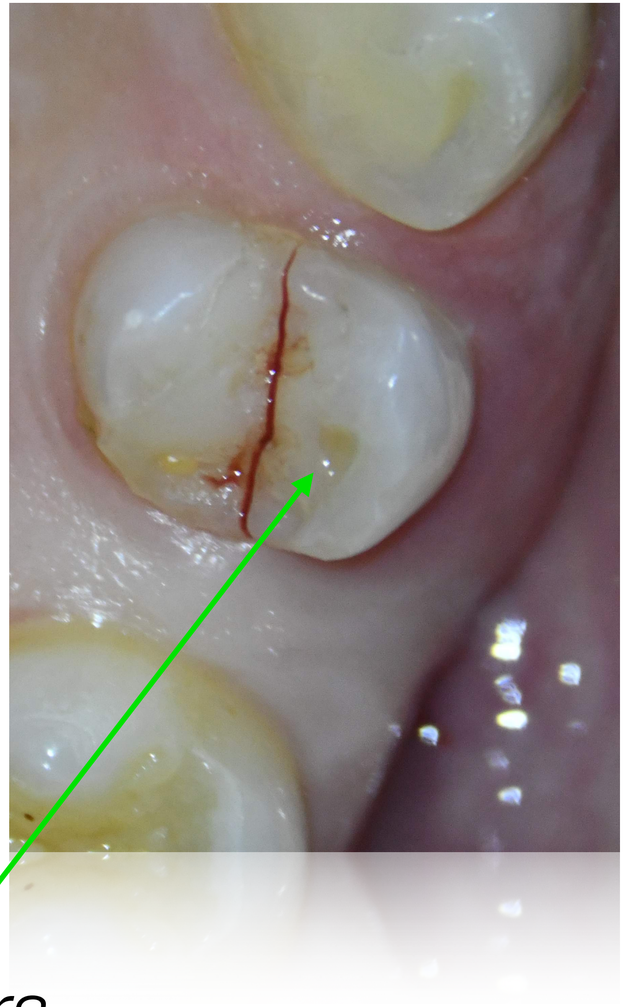
Si procede con una amputazione chirurgica della porzione fratturata



A distanza di 2 anni la frattura prosegue completandosi in direzione coronale

Assenza dei punti di contatto





Segni di usura

Diagnosi Rx: la CBCT nella identificazione delle fratture verticali

Different Representations of Vertical Root Fractures Detected by Cone-Beam Volumetric Tomography: A Case Series Report

Mohamed I. Fayad, DDS, MS, PhD, Paul J. Ashkenaz, DDS, MS,† and Bradford R. Johnson, DDS, MHPE**

Abstract

Introduction: Vertical root fractures (VRFs) pose a clinical dilemma and a challenge to clinicians. Definitive diagnosis is often complicated by the lack of consistent signs and symptoms and the low sensitivity of conventional radiographs in the detection of VRFs. New radiographic imaging systems have recently become available for use in dentistry. Among these new imaging technologies is cone-beam volumetric tomography (CBVT). CBVT technology allows the precise visualization and evaluation of teeth with VRFs. The use of CBVT has great potential as a diagnostic tool to assist in the detection of VRFs. **Methods:** Seven cases are presented to demonstrate the use of CBVT in detection of VRFs in endodontically treated teeth. **Results:** Five specific findings on CBVT exam were consistent with confirmed VRFs. **Conclusions:** As demonstrated in this case series, CBVT can provide valuable additional diagnostic information in the detection of VRFs and may help prevent unnecessary treatment. *(J Endod 2012;38:1435–1442)*

Key Words
CBVT, cone beam CT, vertical root fracture

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Vertical root fractures (VRFs) pose a clinical dilemma and a challenge to clinicians (1). Definitive diagnosis is often complicated by the lack of consistent signs and symptoms and the low sensitivity of conventional radiographs in the detection of VRFs (2). Dental history (especially previous root canal treatment), presence of localized pain or swelling, an isolated deep periodontal pocket, and the radiographic appearance of a characteristic lateral root surface radiolucency are all consistent but not pathognomonic for VRFs. Because of the difficulty in reaching an accurate diagnosis, exploratory surgery and/or extraction are often recommended treatment options.

New radiographic imaging systems have recently become available for use in dentistry. Among these new imaging technologies are medical computed tomography (CT), cone-beam volumetric tomography (CBVT), and magnetic resonance imaging (MRI). In 2000, the U.S Food and Drug Administration approved the first CBVT unit for dental use in the United States (3). As of 2007, there were at least 12 cone-beam systems specifically designed for dental use. Cone-beam technology uses a cone-shaped beam of radiation to acquire a digital volume that is used for 3-dimensional (3D) reconstruction and visualization of the target area. CBVT systems are available in different fields of view (FOVs): CBVT limited (dental) or medium and full (ortho or facial) CBVT. The limited CBVT ranges in diameter from 40–100 mm, whereas the FOV of full CBVT ranges from 100–200 mm. The voxel size is generally smaller for the limited version (0.076 mm) versus for medium and large FOVs (0.1–0.2 mm and 0.3–0.4 mm, respectively), thus offering higher resolution and potentially greater utility for endodontic applications (4–9).

CBVT technology allows the precise visualization and evaluation of teeth with VRFs. The detection of VRFs by CBVT has already been demonstrated by previous studies (10–14). CBVT has great potential to become a valuable diagnostic and treatment planning tool in the modern endodontic practice. CBVT imaging has been a routine part of our diagnostic evaluation for all retreatment and surgery consultations since approximately January 2010, unless it was possible to reach a definitive conclusion regarding the etiology and prognosis for the tooth after initial clinical exam and 2-dimensional (2D) imaging. The Kodak 9000 3D (Carestream Dental LLC, Atlanta, GA) with limited FOV was the system used in the following cases. The intent of the following case series report is to demonstrate the different typical representations of VRFs detected by CBVT.

Case 1

A 33-year-old woman was referred for consultation and treatment of tooth #30, with a chief complaint of the following: "My tooth hurts to biting. My dentist told me I might need my root canal redone." Dental history revealed that root canal therapy on tooth #30 was completed approximately 10 years ago. The patient's medical history was noncontributory. The tooth was tender to percussion, palpation, and biting. Periodontal probing depths were 2–3 mm, and there was no evidence of swelling or sinus tract. A periapical radiograph of #30 showed periradicular radiolucency in relation to the mesiobuccal (MB) root (Fig. 1*A*). A widened periodontal ligament space on the distal root was noted on the radiograph. The CBVT imaging demonstrated MB bone loss at mid-root level in the axial and coronal views and 3D reconstruction (Fig. 1*B*, *D*, and *F*). A diagnosis of previously treated tooth with symptomatic apical periodontitis was reached. A VRF of the MB root was established as the etiology of treatment failure, and the tooth was scheduled for extraction and

1. *Loss of bone in the mid-root area with intact bone coronal and apical to the defect*
2. *Absence of the entire buccal plate of bone in axial, coronal, and or 3D reconstructed view*
3. *Radiolucency around a root where a post terminates*
4. *Space between the buccal and or lingual plate of bone and root surface*
5. *Visualization of the VRF on the CBVT views*

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International Endodontic Journal

doi:10.1111/iej.12109

The detection of vertical root fractures in root filled teeth with periapical radiographs and CBCT scans

S. Patel[1], E. Brady[1], R. Wilson[2], J. Brown[3] & F. Mannocci[1]

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Abstract

Patel S, Brady E, Wilson R, Brown J, Mannocci F. The detection of vertical root fractures in root filled teeth with periapical radiographs and CBCT scans. *International Endodontic Journal.*

Aim To compare *ex vivo* the diagnostic accuracy of cone beam computed tomography (CBCT) with periapical radiography in detecting artificially prepared incomplete and complete vertical root fractures (VRFs) in the presence of a gutta-percha root filling in human teeth.

Methodology The root canals of 20 extracted human premolar and molar teeth were radiographed and scanned with CBCT before a simulated VRF was induced (group 1). These teeth were radiographed and scanned with CBCT again after an incomplete (group 2) and complete (group 3) VRFs were induced. A suitably sized gutta-percha point was inserted into the prepared root canal prior to each series of radiographs and CBCT scans being taken.

Results There was no improvement in the detection of artificially created vertical root fractures (VRF) in root filled teeth using CBCT compared with periapical radiographs. The overall area under the curve (AUC) value of incomplete and complete VRF was 0.53 for periapical radiography and 0.45 for CBCT ($P = 0.034$). The overall sensitivity of periapical radiography (0.05) was lower than CBCT (0.57) regardless of the extent of the VRF ($P = 0.027$). Periapical radiographs (0.98) had a higher overall specificity than CBCT (0.34) ($P = 0.027$).

Conclusions Under the conditions of this *ex vivo* study, periapical radiographs and CBCT were not accurate in detecting the presence and absence of simulated VRF. The imaging artefacts caused by the gutta-percha root filling within the root canal most probably resulted in the overestimation of VRF with CBCT and also the overall inaccuracy of this system.

Keywords: cone beam computed tomography, digital radiography, vertical root fracture.

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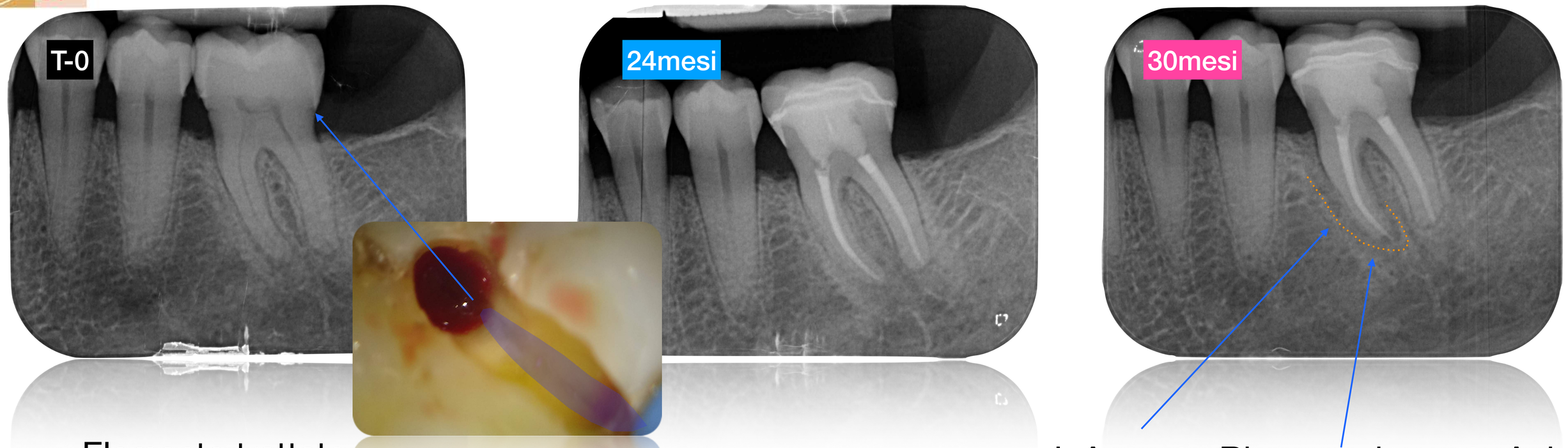
2-D → 25%-36%

3-D → 53 %

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Elemento trattato endodonticamente per una incrinatura sintomatica

J- Aspect

Rimaneggiamento Apicale

Frattura Verticale

Tamse A, Kaffe I, Lustig J, Ganor J, Fuss Z (2006) Radiographic features of vertically fractured endodontically treated mesial roots of mandibular molars. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology

Fattori Predisponenti			
Età	40aa/60aa		
Sesso	Maschile		
Cause	Presenza di perni metallici	Terapie Canalari	Cementazione di Inlay
Diagnosi	Sondaggio tubolare e stretto	CBCT/Rx	

- Testori T, Badino M et Al. Vertical root fractures in endodontically treated theet: a clinical survey of 36 cases, J endod 1993 Feb;19(2):87-91
- Tamse A . Etiology, diagnosis and radiographic features of vertical root fractures, G It Endo 1995; 1:10-17
- Fuss Z, Lustig J et Al. An Evaluation of endodontically treated vertical root fractured theet : impact of operative procedures, J Endod 2001 Jan;27(1):46-8
- Chan CP et Al. Vertical root fracture in endodontically versus non endodontically theet : a survey of 315 cases in chinese patient.Oral Surg,oral med,oral path,oral radiol endod,1999Apr;87(4):504-07
- Tamse A et Al. An evalutation of endodontically treated vertically fractured theet. J Endod , 1999 Jul; 25(7)506-8
- Fuss Z, Tamse A et Al.Prevalence of root fractures in extracted endodontically treated theet. Int J Endod, 1999Aug;32(4):283-6

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POSITION STATEMENT

Position statement on longitudinal cracks and fractures of teeth

Shanon Patel[1,2,3] | Peng-Hui Teng[4] | Wan-Chuen Liao[5] | Matthew Craig Davis[6] | Ales Fidler[7,8] | Franziska Haupt[9] | Cristiano Fabiani[10] | Ronald Ordinola Zapata[11] | Rahul Bose[2]

Ma un dente con frattura verticale è sempre “hopeless” ?

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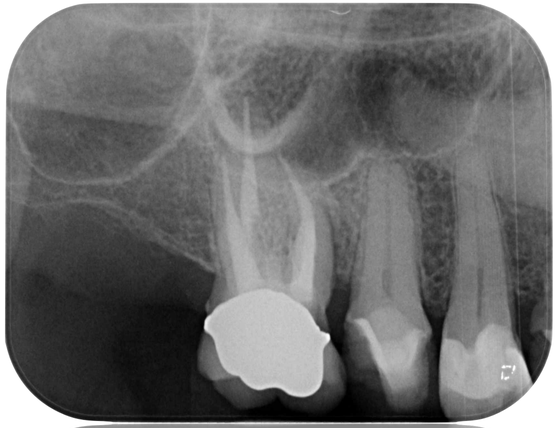


In caso di elementi pluriradicolati, si può optare per eseguire una rizectomia della radice interessata dalla frattura

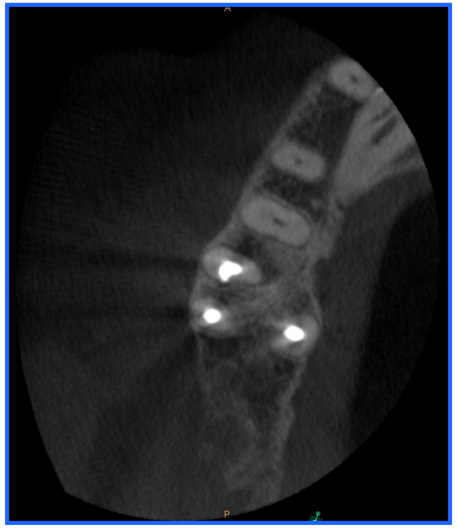


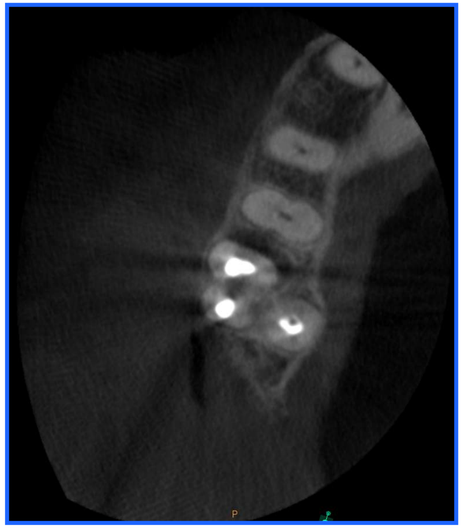


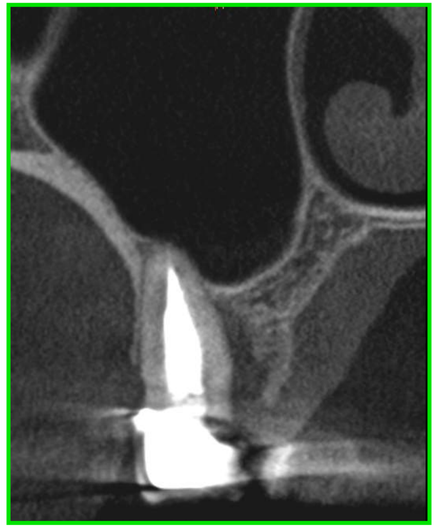
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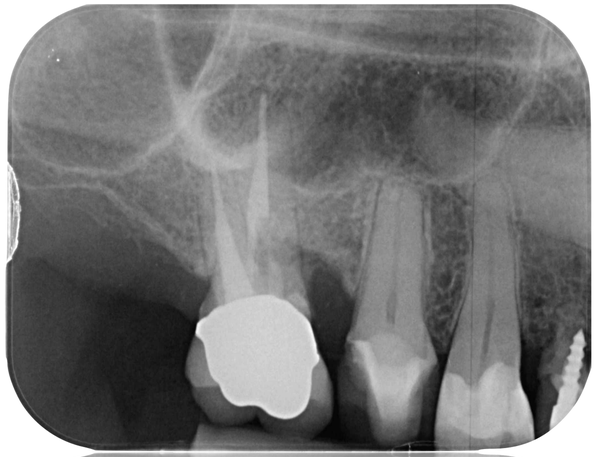
Sospetto di frattura verticale della radice MV







La CBCT conferma la presenza di una frattura verticale



Rizectomia della radice MV

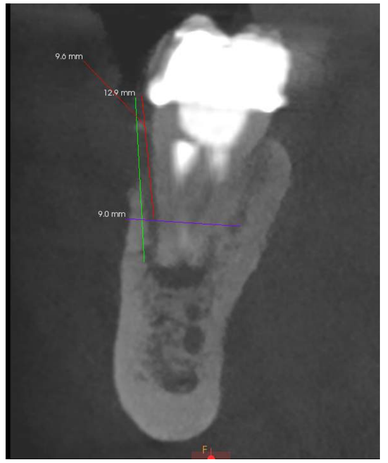
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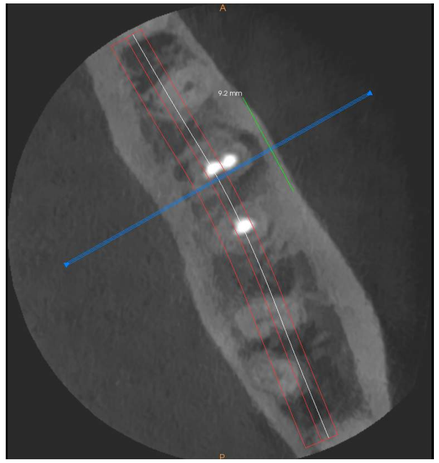
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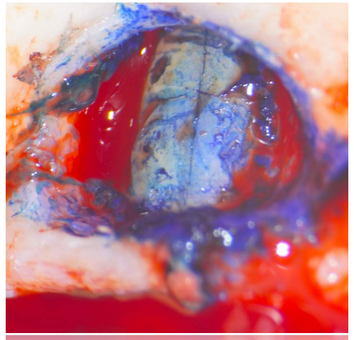
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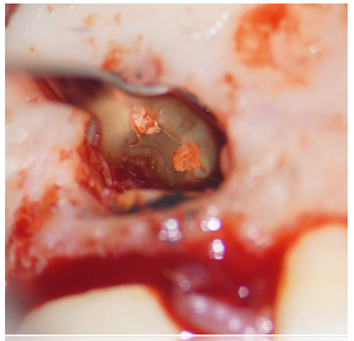
Se il margine della frattura si dirige in direzione apicale, si può eliminare la porzione coronale alla frattura aiutandosi con la colorazione con il blu di metilene

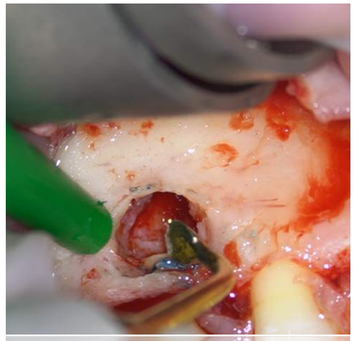


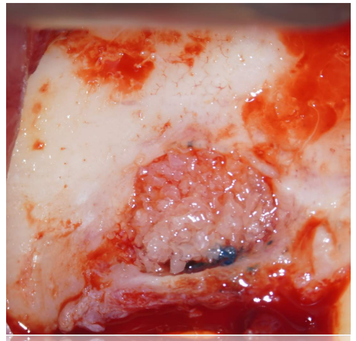


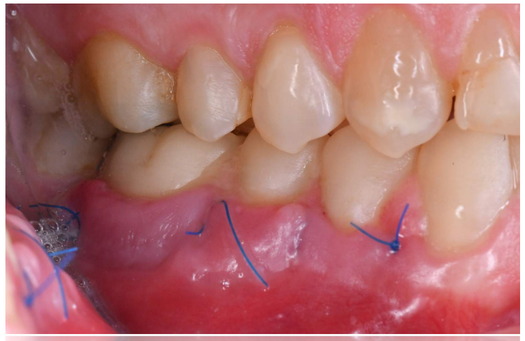












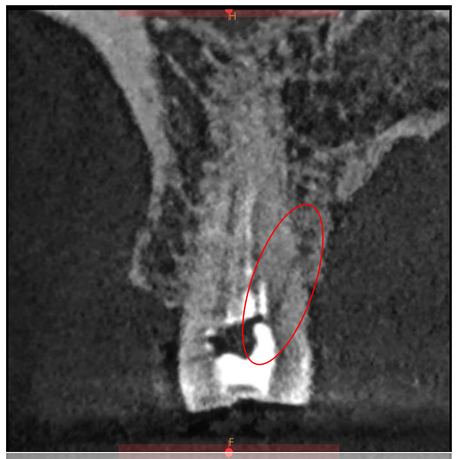


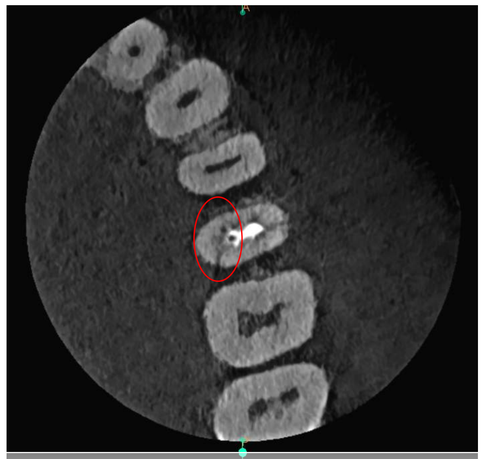
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Se la frattura ha un andamento obliquo, si può prendere in considerazione la possibilità di eseguire un trattamento di estrusione chirurgica o ortodontica















- Il sondaggio verticale non è assolutamente da considerarsi un elemento patognomonico di VRF
  - Informarsi e possibilmente vedere le vecchie RX post-Trattamento
    - Seguire nel tempo il paziente in assenza di sintomi invalidanti
      - Lembo esplorativo

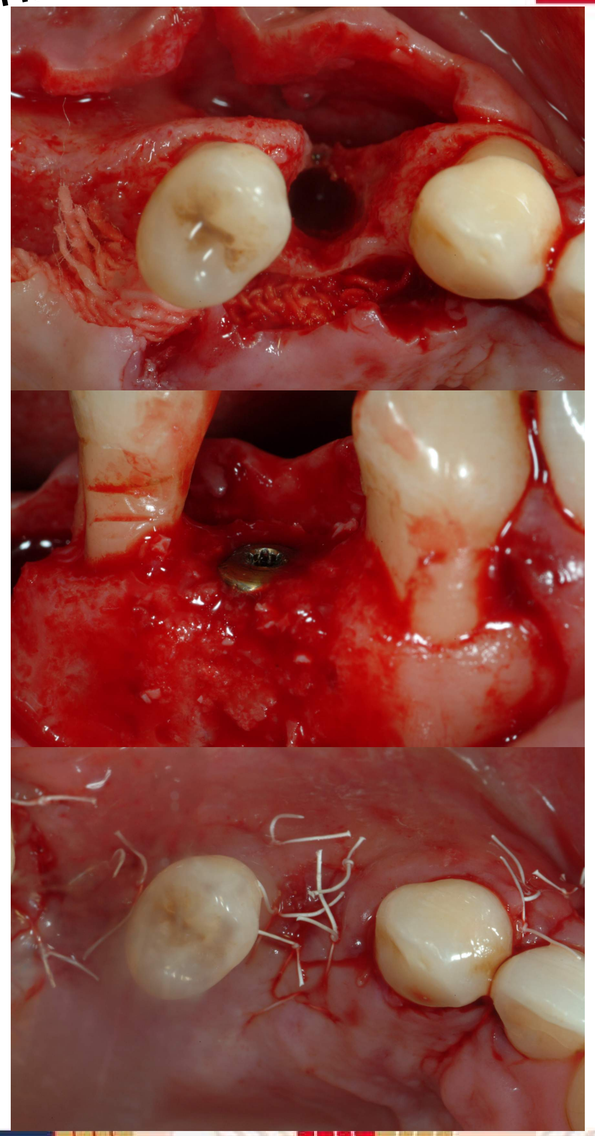
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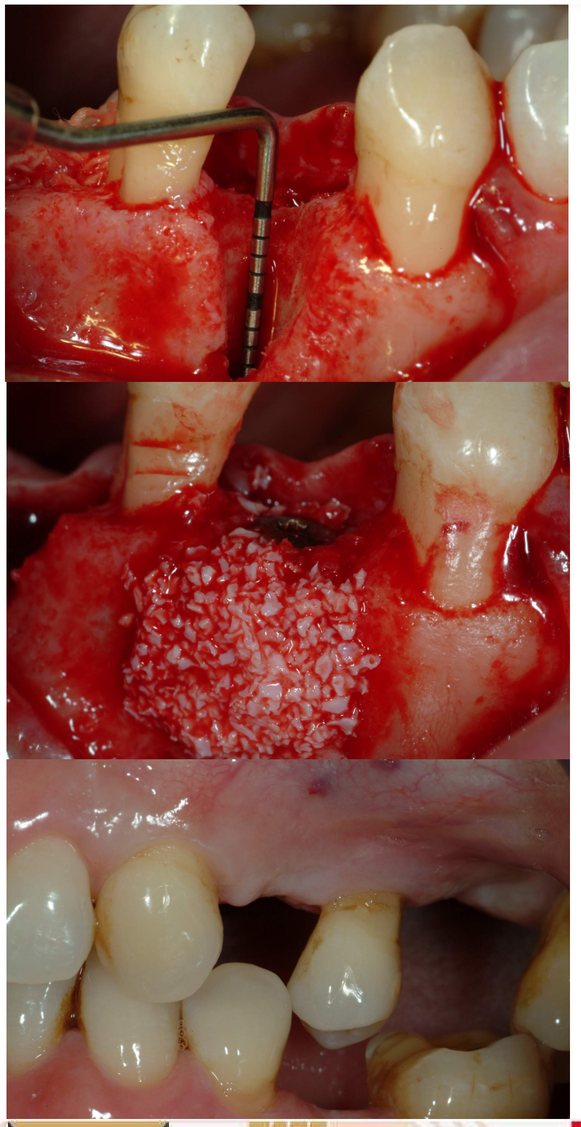
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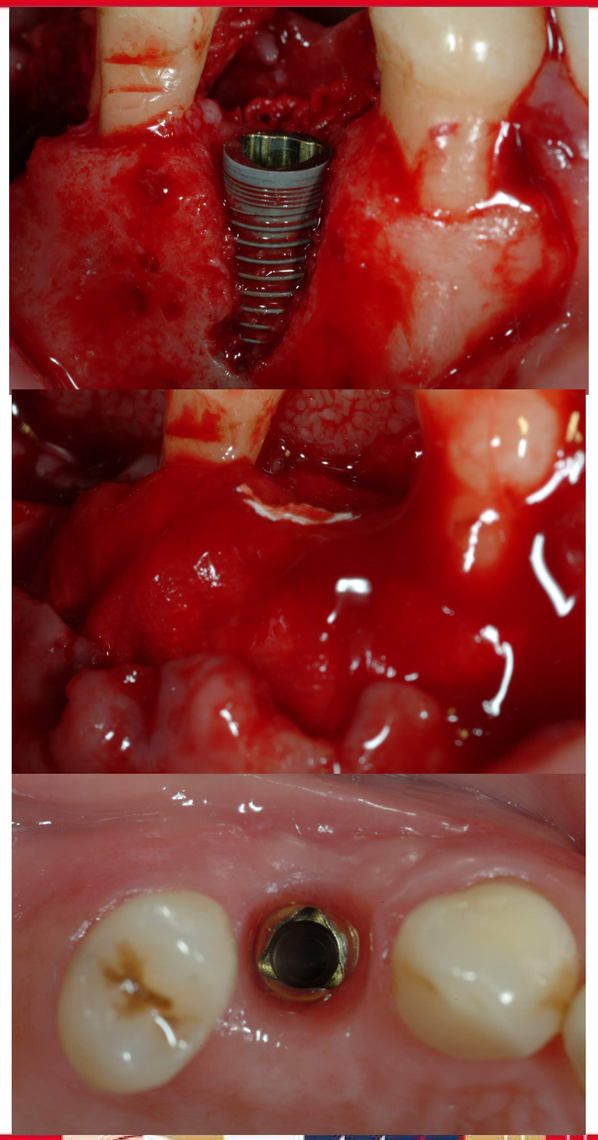
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e quando non si può fare più niente…









Elementi non restaurabili

Quando un elemento si può considerare restaurabile ?

- Presenza di un supporto parodontale sano (struttura residua non inferiore al 30%)
  Samet N, Jotkowitz A. Classification and prognosis evaluation of individual teeth–a comprehensive approach. Quintessence Int. 2009 May;40(5):377-87. PMID: 19582242

- *Impossibilità di creare un effetto ferula di stabilizzazione di 1,5-2 mm sul piano orizzontale e verticale*
  Juloski J, Radovic I, Goracci C, Vulicevic ZR, Ferrari M. Ferrule effect: a literature review. J Endod. 2012 Jan;38(1):11-9. doi: 10.1016/j.joen.2011.09.024. Epub 2011 Nov 13. PMID: 22152612.

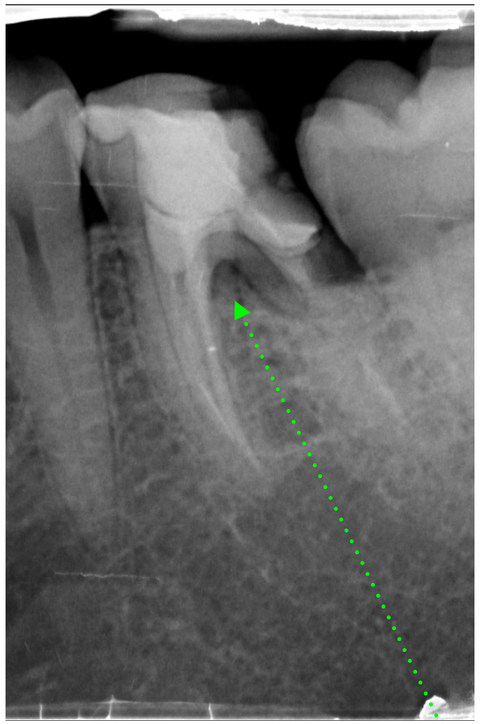
- *Calcificazioni canalari, riassorbimenti, alterazioni anatomiche, difficoltà di isolamento del campo, perforazioni o strumenti fratturati*
  Yeng T, Messer HH, Parashos P. Treatment planning the endodontic case. Aust Dent J. 2007 Mar;52(1 Suppl):S32-7. doi: 10.1111/j.1834-7819.2007.tb00523.x. PMID: 17546860.

Elementi non restaurabili

Per recuperare la restaurabilità dei margini si può ricorrere a:

- Allungamento di corona mediante lembo a posizionamento apicale con chirurgia osseo -resettiva
- Estrusione chirurgica
- Estrusione ortodontica
- Reimpianto intenzionale

Elementi non restaurabili

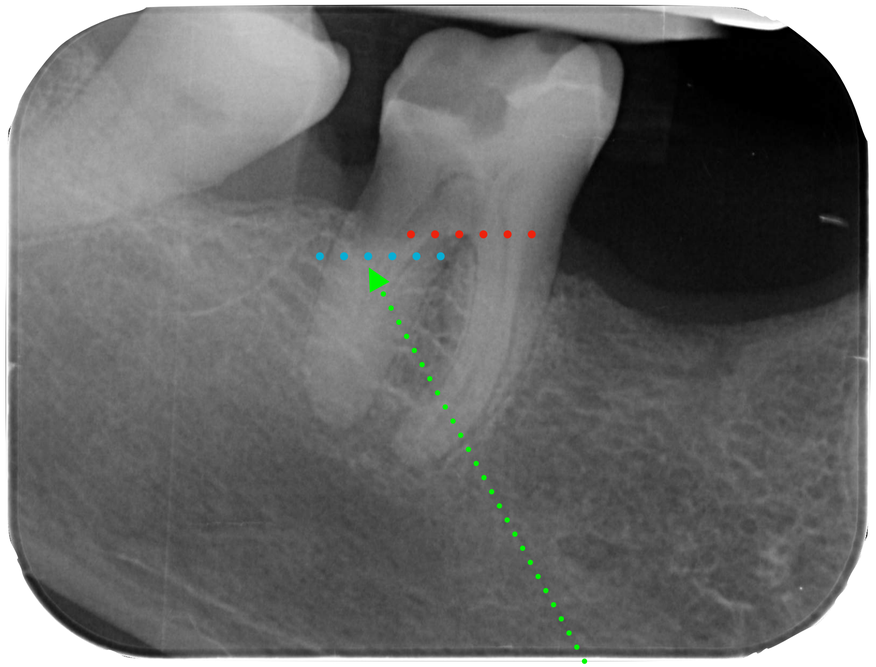


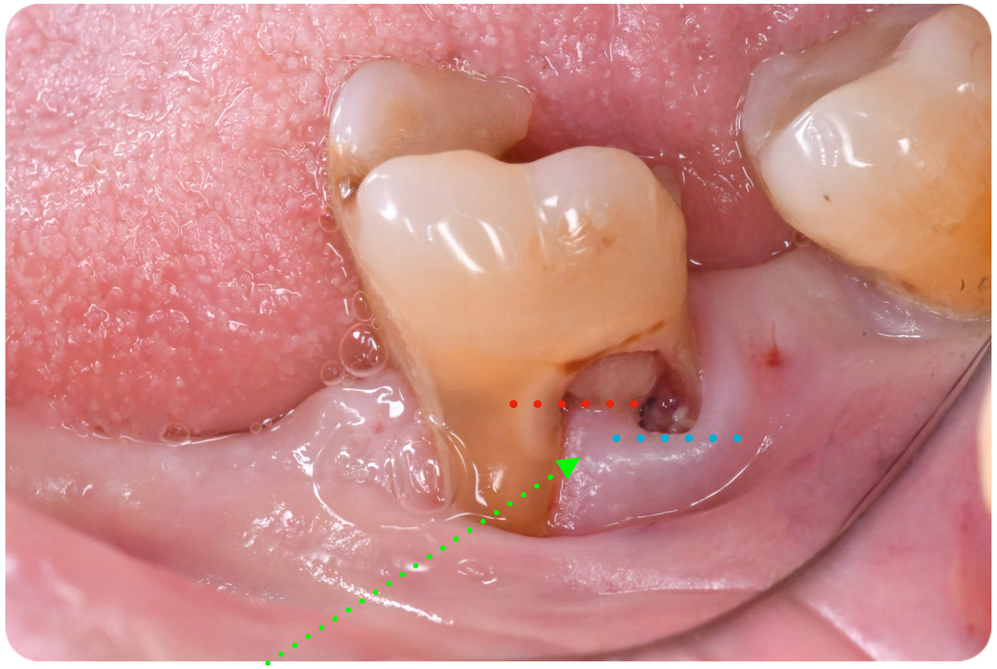




I margini da recuperare si trovano apicalmente alla forcazione controindicando un intervento di allungamento di corona

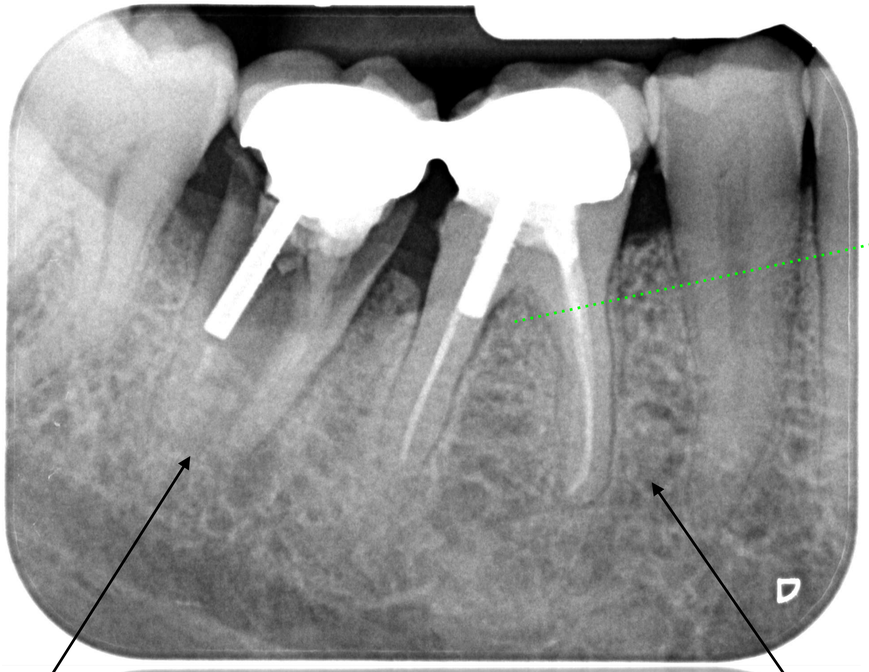
Elementi non restaurabili

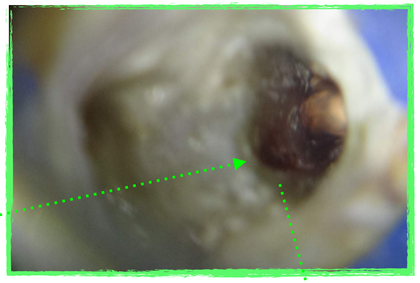




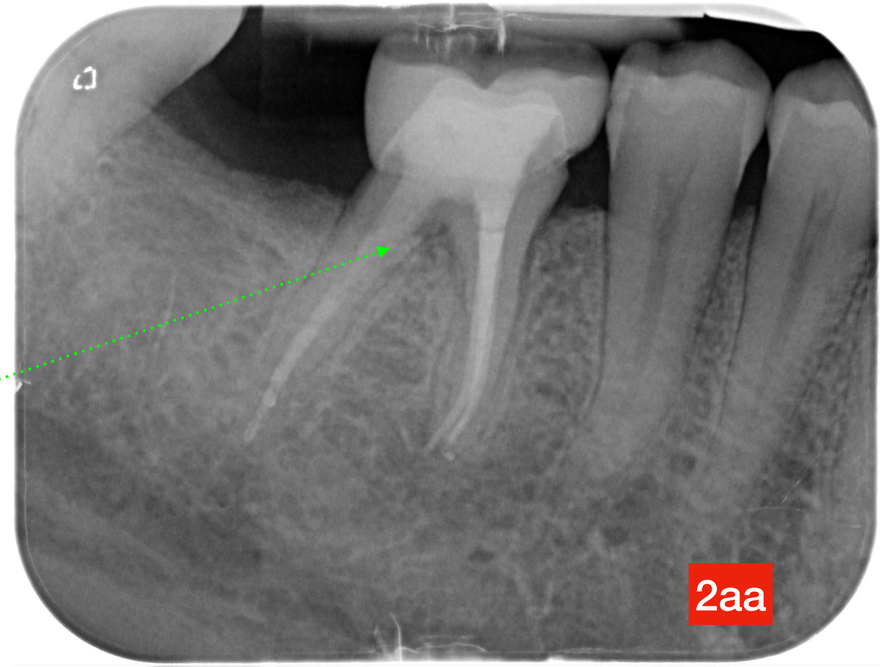
I margini da recuperare si trovano apicalmente alla forcazione controindicando un intervento di allungamento di corona

Elementi non restaurabili





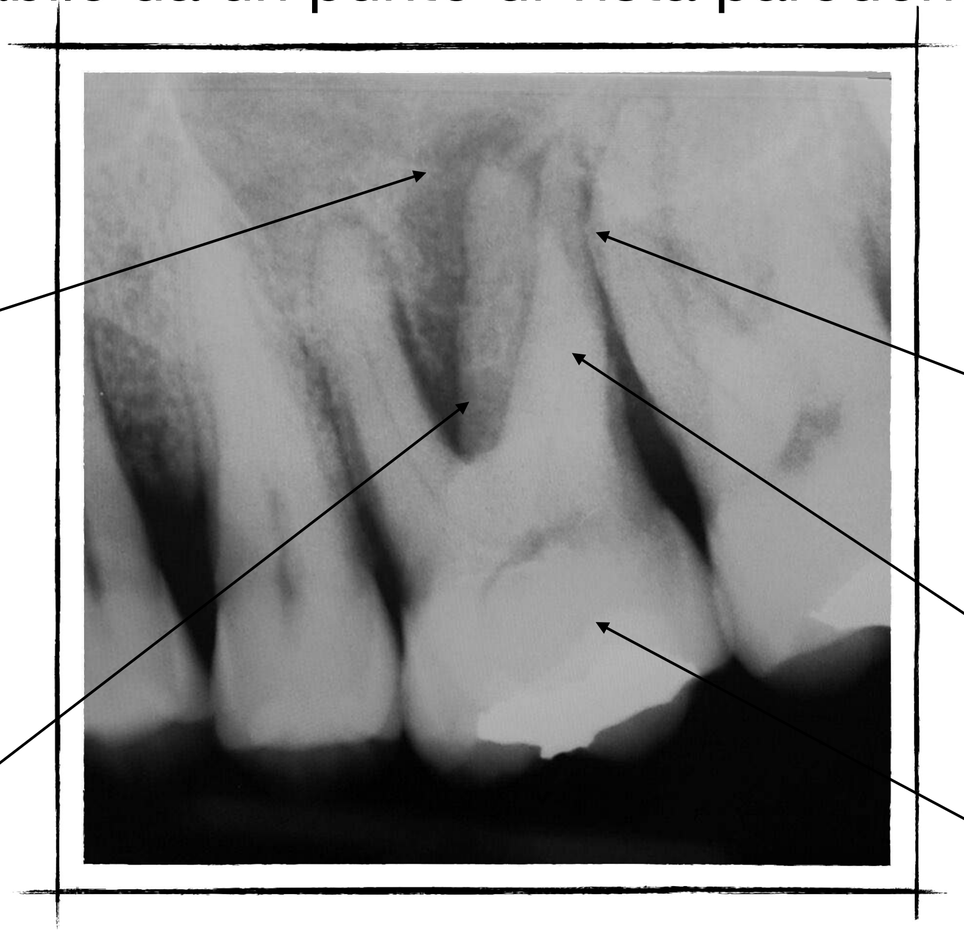




Elemento non trattabile

Elemento recuperabile

Elemento non recuperabile da un punto di vista parodontale ed endodontico



Lesione apicale palatale

Radice DV con sondaggio in apice

Atresia del canale DV

Riassorbimento radice P

Test Vitalità -

La Microchirurgia Endodontica come ulteriore possibilità?

- L'insucesso del trattamento endodontico primario può essere dipendente da diversi fattori :

  - Impossibilità di detergere e sagomare in maniera corretta l'endodonto

    G.DeDeus,C. Reis, D. Beznos, A.M. Gruetzmacher de Abranches, T. Coutinbo-Filbo, S. Paciornik : Limited *ability of three commonly used thermoplasticized guttapercha techniques in filling oval shaped canals;* **J. Ended. 2008 Nov**

  - Persistenza di lesioni periapicali dovute ad infezioni extraradicolari

    NR Nair, GSchoreder Pajarola, , HE: *Typer and incidence of human periodical lesion obtained with extracted teeth* ; **Os Om OP 1996**

  - Presenza di lesioni di origine non batterica (virus-miceti)

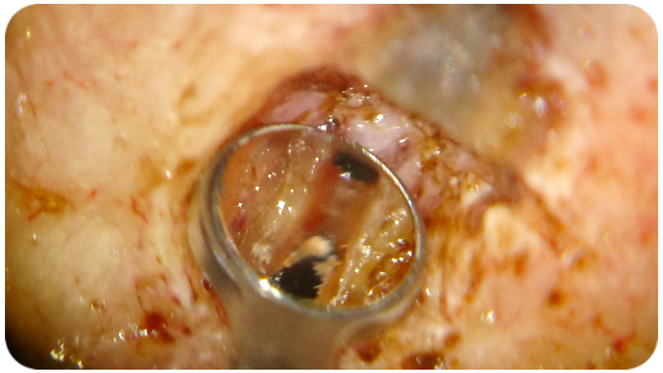
    Nair PN. *On the causes of persistent apical periodontitis*: a review. **Int Endod J. 2006 Apr;39**

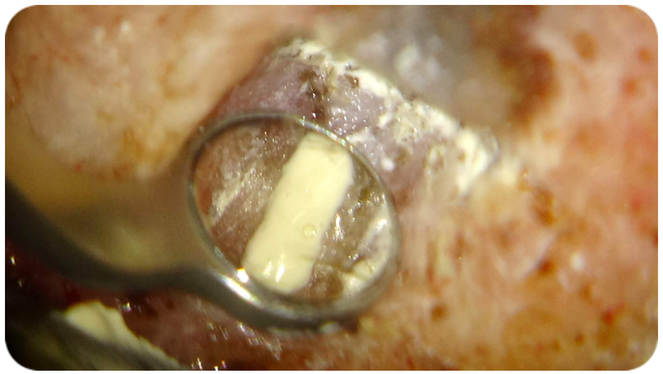
  - Alterazioni dell'anatomia canalare (calcificazioni, dens in dente, dilacerazioni ecc…)

El. 14 trattato precedentemente con sola apicectomia e non guarito , si decide di eseguire un ritrattamento chirurgico e sigillo apicale con un cemento calcio silicato putty con bassa radiopacità



T-0







Post-Op



2-aa

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Clinical Research

Retrospective Evaluation of Surgical Endodontic Treatment: Traditional versus Modern Technique

Igor Tsesis, DMD, Eyal Rosen, DMD,† Devorah Schwartz-Arad, DMD, PhD,‡ and Zvi Fuss, DMD‡*

Abstract

The aim of this retrospective study was to compare the outcome of surgical endodontic treatment preformed using the traditional versus modern techniques. There were 110 patients who were treated by surgical endodontic treatment between 2000 and 2002 and evaluated from their dental charts. The surgical endodontic treatment was preformed using a traditional or modern technique. The traditional technique included root-end resection with a 45 degrees bevel angle, and retrograde preparation using a carbide round bur. The modern technique included root-end resection with minimal or no bevel, and retrograde preparation using ultrasonic retro-tips with the aid of a dental operating microscope. The retrograde filling material for both techniques was intermediate restorative material. There were 71 patients with 88 treated teeth that were compatible with the inclusion criteria. Complete healing rate for the teeth treated with the modern technique (91.1%) was significantly higher than that for teeth treated using the traditional technique (44.2%) ($p < 0.0001$). In the traditional technique a significant ($p = 0.032$) negative influence of the tooth type was found. Modern surgical endodontic treatment using operative microscope and ultrasonic tips significantly improves the outcome of the therapy compared to the traditional technique. *(J Endod 2006;32:412–416)*

Key Words

Modern technique, surgical endodontic treatment outcome, traditional technique

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Surgical endodontic treatment is an option for teeth with apical periodontitis and may be indicated for teeth with failed previous endodontic treatment and teeth with a strong possibility of failure for nonsurgical approach, and where a biopsy is needed (1). The main goal is to prevent the invasion of bacteria and their by-products from the root canal into periradicular tissues. Traditional surgical endodontic treatment has been performed by root-end resection with a 45 degree bevel, retrograde preparation of the canal with bur and root-end filling (2), with a moderate success rate of approximately 60% (3, 4). Recently, a new technique was developed for surgical endodontic treatment that uses a dental operating microscope to allow a more precise procedure with minimal bevel of root resection and retrograde canal preparation and filling with the aid of an ultrasonic tip to the depth of 3 to 4 mm (5). The introduction of microsurgery to surgical endodontics attempted to minimize trauma and enhance surgical results (6). A success rate of over 90% has been reported (5, 7, 8).

The aim of the present study was to compare the traditional technique with the modern technique regarding the outcome of surgical endodontic treatment, and to evaluate the influence of various factors on the outcome.

Materials and Methods

There were 110 patients treated by surgical endodontic treatment between 2000 and 2002 that were evaluated from their dental charts. Three oral surgeons and three endodontists performed all treatments. Criteria for inclusion were good quality periapical radiographs, complete data in the dental charts (age, gender, operation technique, tooth type, information whether the previous root canal treatment was primary or retreatment, antibiotic therapy, clinical symptoms), first time surgery cases with follow-up of more than 6 months, and root end filling with intermediate restorative material (IRM). A traditional or modern technique was used.

Treatment Protocol: Traditional Technique

Treatment consisted of local anesthesia Lidocaine 2% with Epinephrine 1:100,000, a full mucoperiosteal flap, osteotomy with bur, curettage of soft tissues adjacent to the root, root-end resection of 2 to 3 mm with a 45 degree bevel, retrograde cavities prepared using bur, retrograde filling with IRM (Caulk Dentsply, Milford, DE), flap re-approximation, and sutures.

Treatment Protocol: Modern Technique

Treatment was performed with the help of dental operating microscope. Treatment consisted of local anesthesia Lidocaine 2% with epinephrine 1:50,000, a full mucoperiosteal flap, osteotomy with a high-speed bur, curettage of soft tissues adjacent to the root, root-end resection of 2 to 3 mm with minimal or no bevel using a high-speed bur, retrograde cavities prepared using ultrasonic retro-tips to a 3 mm depth, surgical hemostasis with cotton pellets with epinephrine, retrograde filling with IRM (Caulk Dentsply), flap re-approximated, and sutures.

Clinical Evaluation

The presence of pain, tenderness to percussion or palpation, presence of sinus tract, and signs of swelling were examined based on the medical records.

Treatment Protocol: Traditional Technique

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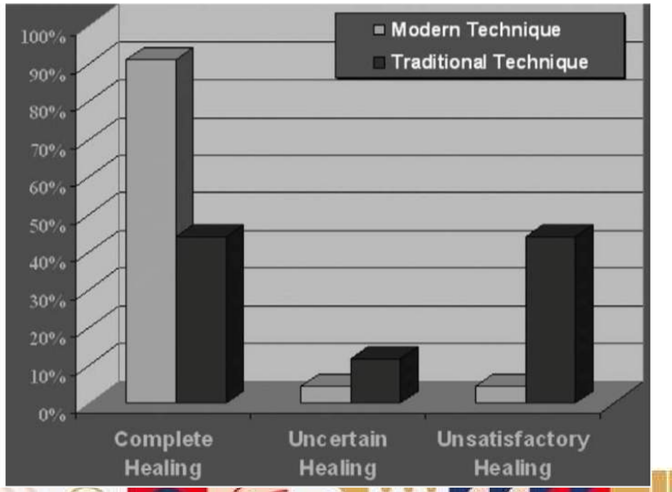
Treatment Protocol: Modern Technique

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Outcome:

TRADITIONAL 60%

MODERN >90%



L'Outcome del trattamento endodontico secondario è dell' 86,8% con un tasso di insuccesso a due anni del 13,2%

Il 13,2% dei nostri pazienti è candidato alla chirurgia endodontica

L'Outcome del trattamento chirurgico è del 91,5% a lungo termine

Questo vuol dire che il trattamento endodontico potrebbe avere una percentuale di successo del 99,58% di successo se correttamente eseguito in tutte le sue fasi!

Gorni FG, Gagliani MM. *The outcome of endodontic retreatment: a 2-yr follow-up*. **J Endodon 2004;30:1-4.**

Rubinstein RA, Kim S. *Long-term follow-up of cases considered healed one year after apical microsurgery*. **J Endod 2002;28:378-83**

Controindicazioni all'intervento di Microchirurgia endodontica

Controindicazioni di tipo infettivo

- Paz che assumono **immunosoppressori**
- Paz a rischio di **endocardite batterica**
- **Diabetici** >207 mg/dl moderato >230 mg/dl severo
- HIV+
- Pazienti in cura con **soppressore del TNF-Alpha**

HeiseER, Diseases associated with immunosuppresio. *Environ Health Prospect 1982:43:9-19*

Guggenheimer J et al; Dental management the solid organ trasplant patient. *OS-OM-OP-OR Ended. 2003;95:383-389*

Controindicazioni relative a rischio emorragico

- Controindicazioni **Assolute**: paz che assumono più di un farmaco anticoagulante o hanno gravi patologie sistemiche legate alla coagulazione
- Controindicazioni **Relative**: Paz che assumono Antiaggreganti/ Anticoagulanti (INR >3,5)
- Nuovi Anticoagulanti: rapido tempo di azione/ emivita breve (5-13h)

Nishimura et AL; Guideline for the Management of Patients with valvular hearth disease: A report of the American College of Cardiology/American Hearth Association Task Force on clinical practice guidelines: *Circulation 2017*

Lillis. Ert AL ; Safety of dental extractions during uninterrupted single or dual anti platelet treatment. *Am J. Cardiol 2011 Oct1:2011 Oct1;108(7);964-7*

Controindicazioni relative al rischio di osteonecrosi

- Pazienti sottoposti a radioterapia (>35 GY)
- Pazienti che assumono bifosfonati o farmaci antiangiogenici

Assunzione di Bifosfonati/Antiangiogenici per terapie oncologiche : Rischio molto elevato già dalla prima iniezione -> Chirurgia controindicata

Assunzione di Bifosfonati Orali >4 aa: Rischio presente rispetto al paziente sano ma inferiore di 100 volte rispetto all'assunzione per via endovenosa. Se lo stato di salute lo permette sospendere il farmaco 2 mesi prima del trattamento

Assunzione di Bifosfonati Orali + Coticosteroidi/Antiangiogenici < 4 aa: Rischio elevato

Assunzione di Bifosfonati Orali < 4 aa per Osteoporosi senza altri fattori di rischio: Possibilità di eseguire la chirurgia sospendendo il farmaco due mesi prima e eseguendo una copertura antibiotica profilattica

American Association of Oral and Maxillofacial Surgeons: *Medication Related Osteonecrosis of the Jaw 2014*

Lo JC, O'RyansFS, Gordon NP, et al: Prevalence of osteonecrosis of the jaw in patients with oral biphosfonateExposure. *J.Oral Maxillofacial Sure. 68(2):243.2010*

Damm DD, Jones DM: Biphosfonate-related osteonecrosis of the jaws: a potential alternative to drugs holidays: *Gen Dentistry 2013;61:33*

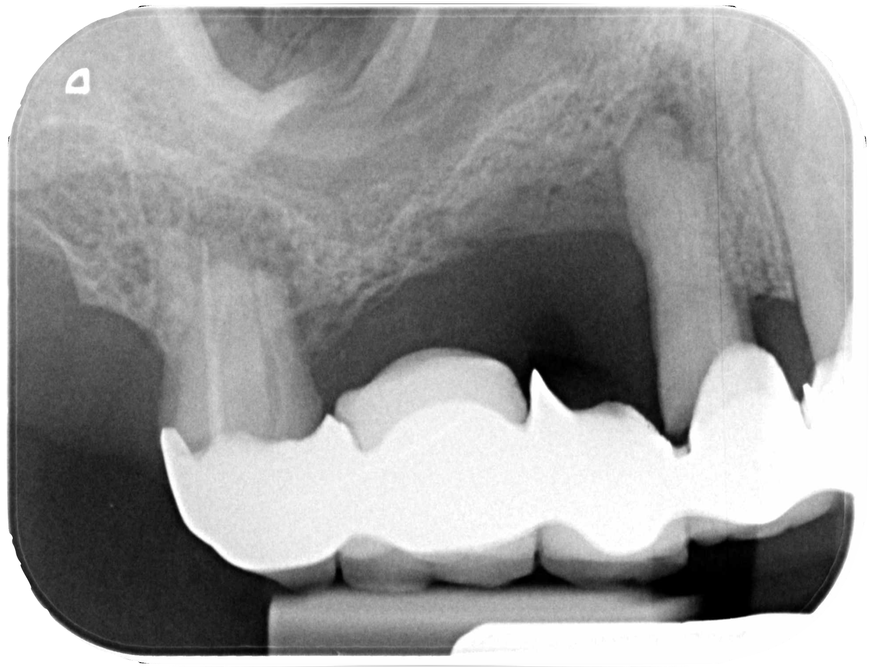
Quando è giustificabile il trattamento endodontico di un elemento non recuperabile da un punto di vista restaurativo-parodontale ?

- Pazienti in cura con Bifosfonati in infusione endovenosa ad alto rischio di osteonecrosi
- Pazienti in condizioni sistemiche che controindicano una estrazione
- Situazioni in cui, attraverso il trattamento endodontico, si può guadagnare tessuto osseo ai fini di una seguente estrazione e posizionamento impiantare

Possiamo usare l'endodonzia per realizzare una GBR lì dove gli elementi non sono restaurabili







El. 17 non restaurabile per un processo carioso circumferenziale con lesione periapicale. Si decide di trattare l'elemento al fine di ottenere un tessuto osseo dalla guarigione,che consenta l'estrazione e il posizionamento di un impianto immediato

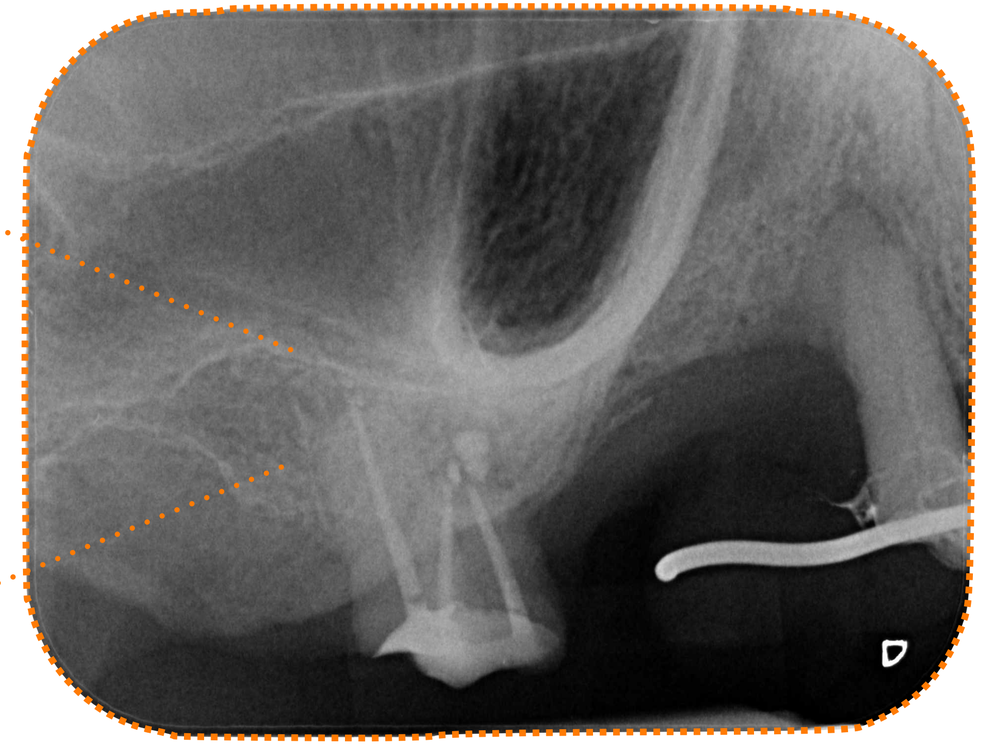
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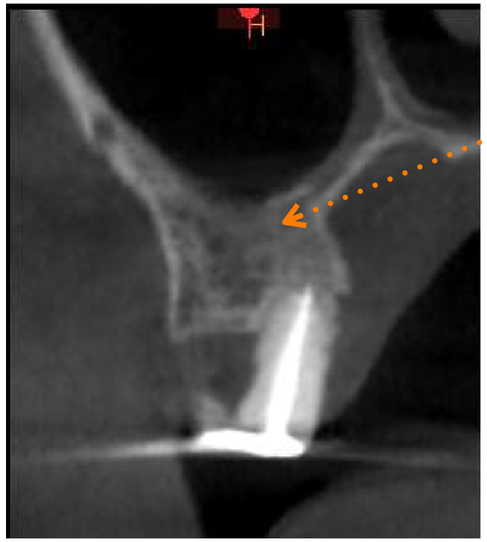


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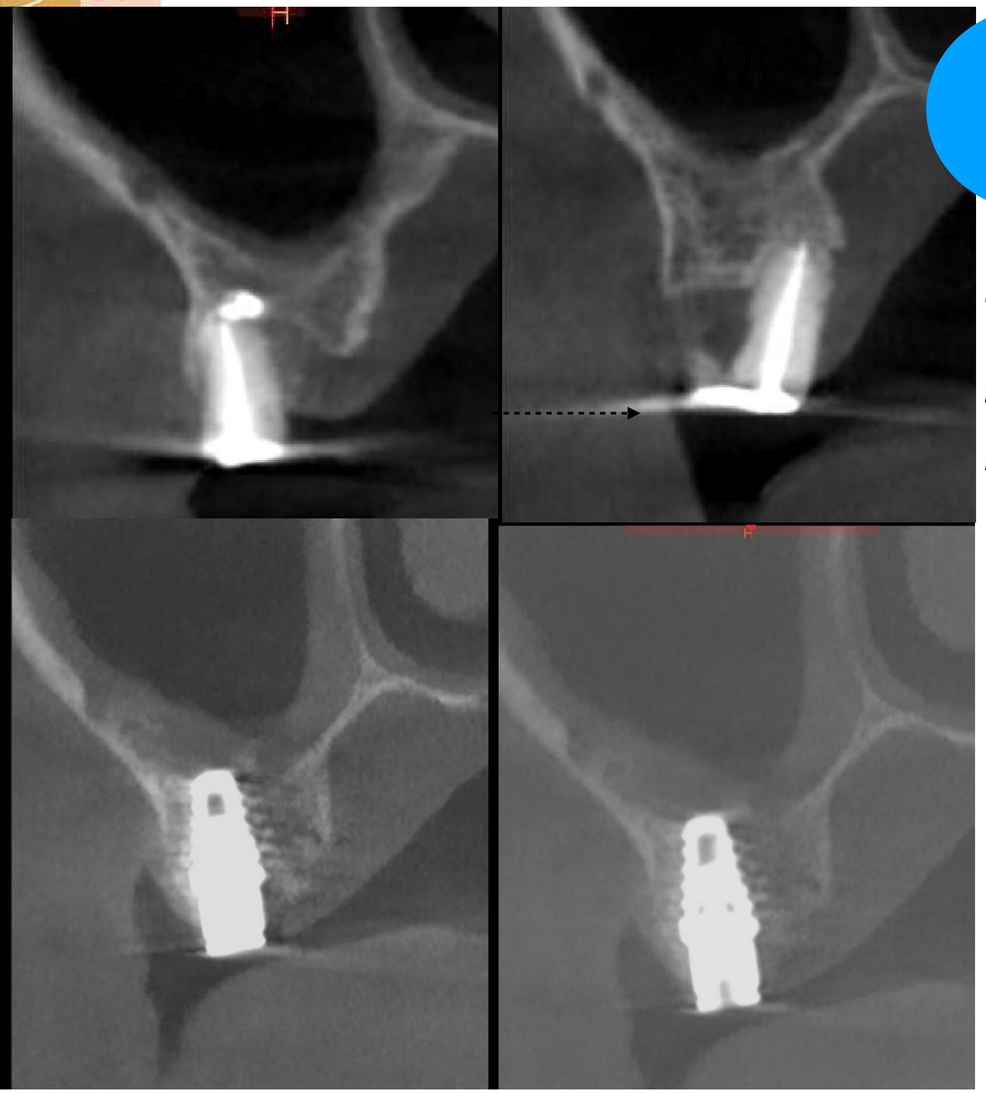




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RTC

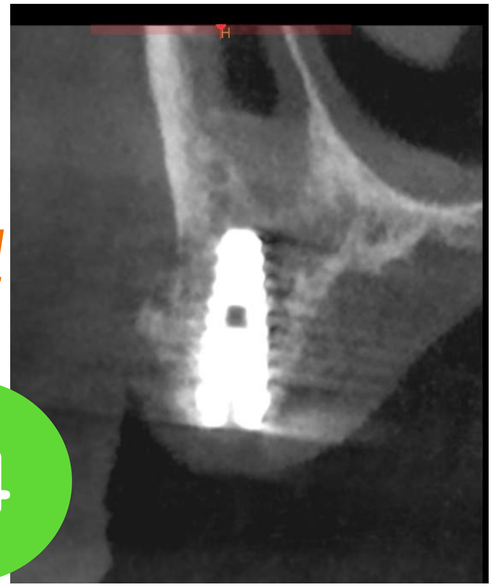
Endo Socket Regeneration





Cortical Lamina

14



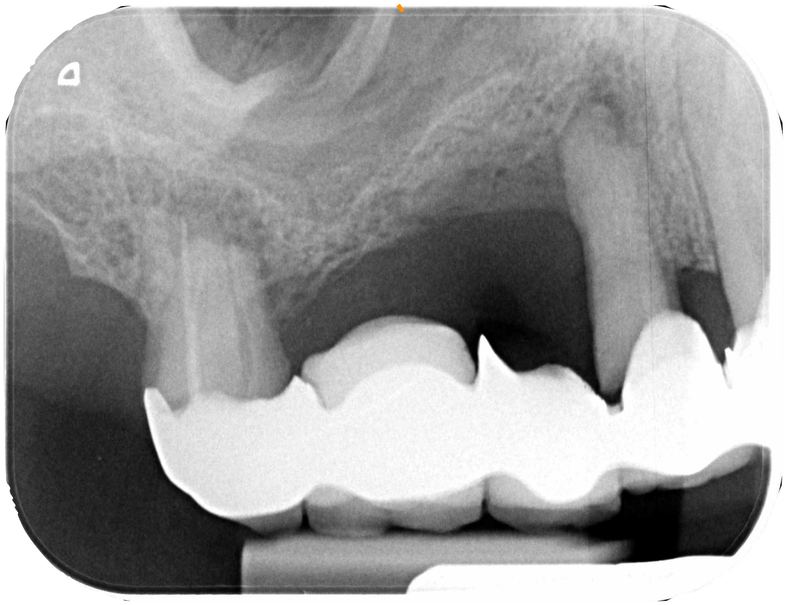


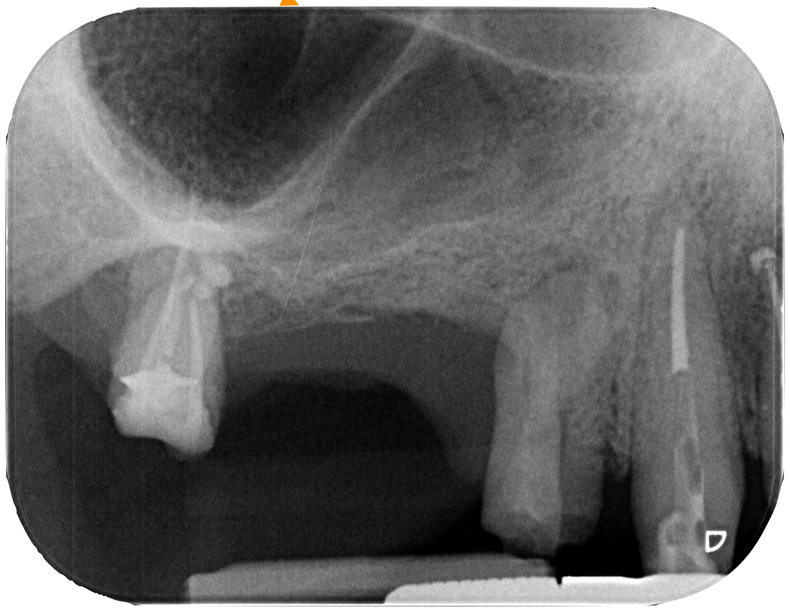
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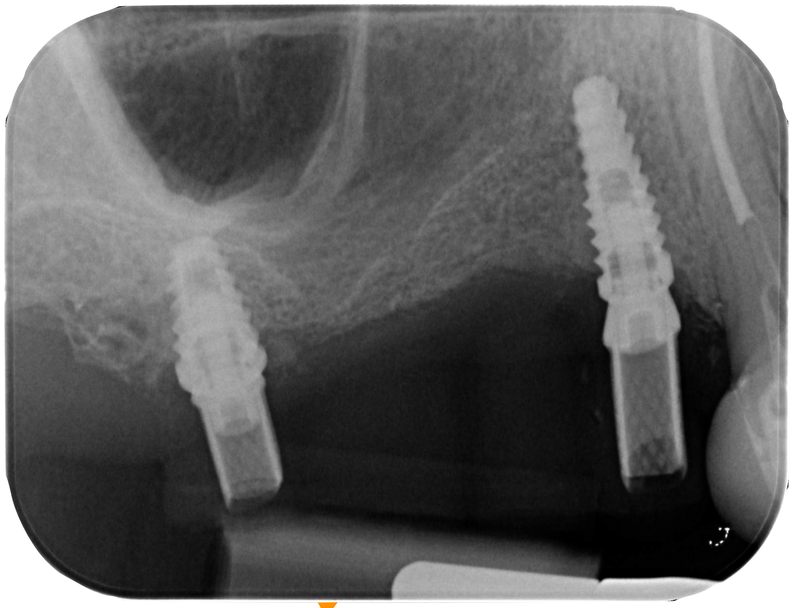
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Post-Ex implant & Lamina

AGENDA

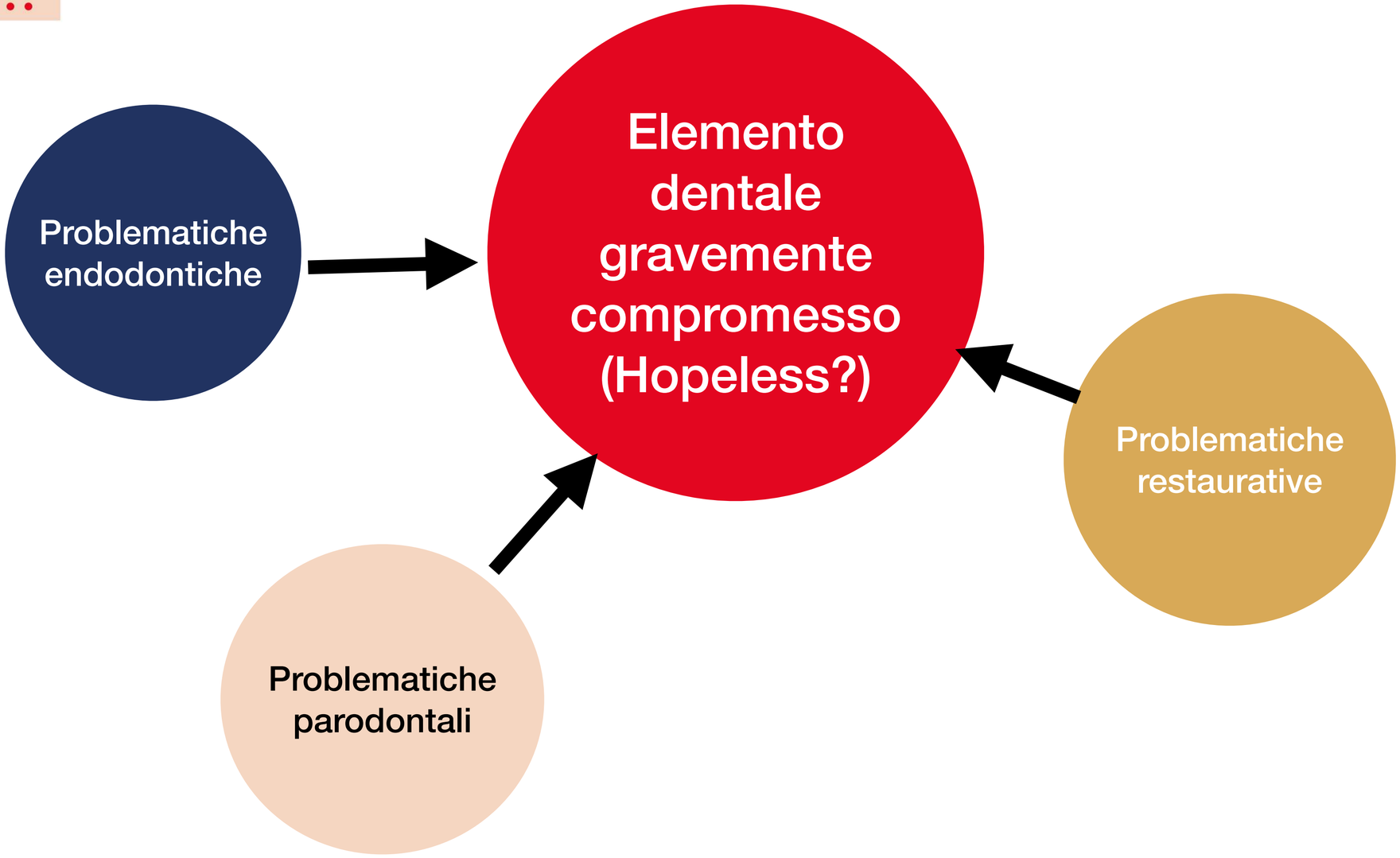


6. Recupero endo-restaurativo:
    - Estrusione ortodontica, estrusione chirurgica, chirurgia parodontale

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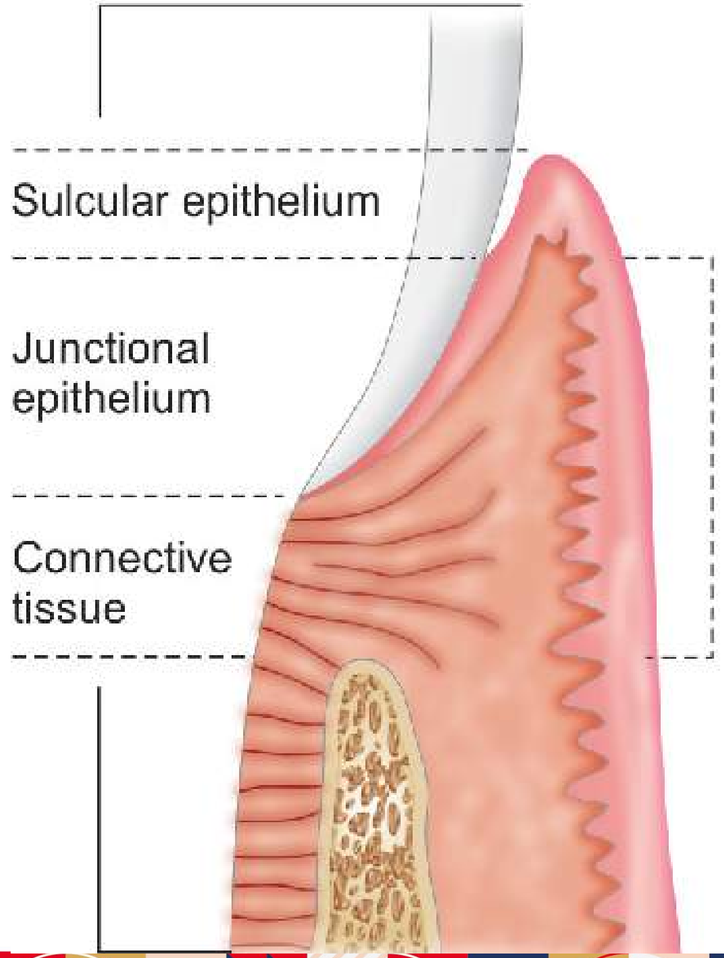
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- Scarso effetto Ferula
- Ridotti spessori radicolari
- Rapporti parodontali

Rapporti Parodontali



Biologic width

Garguilo et al (1961)

JE = 0.97 mm
CT = 1.07 mm
2.04

Vacek et al (1994)

JE = 1.14 mm
CT = 0.77 mm
1.91

Ampiezza Biologica

2017

Tessuto di Attacco Sopracrestale (SCAT)

Rapporti Parodontali

Ogni violazione permanente del tessuto di attacco parodontale (es. posizionamento del margine del restauro) risulta in un processo infiammatorio e di riassorbimento di osso crestale volto al ristabilimento dell’ampiezza minima necessaria ad ospitare tutte le componenti del SCAT.

Gestione dei margini sottogengivali

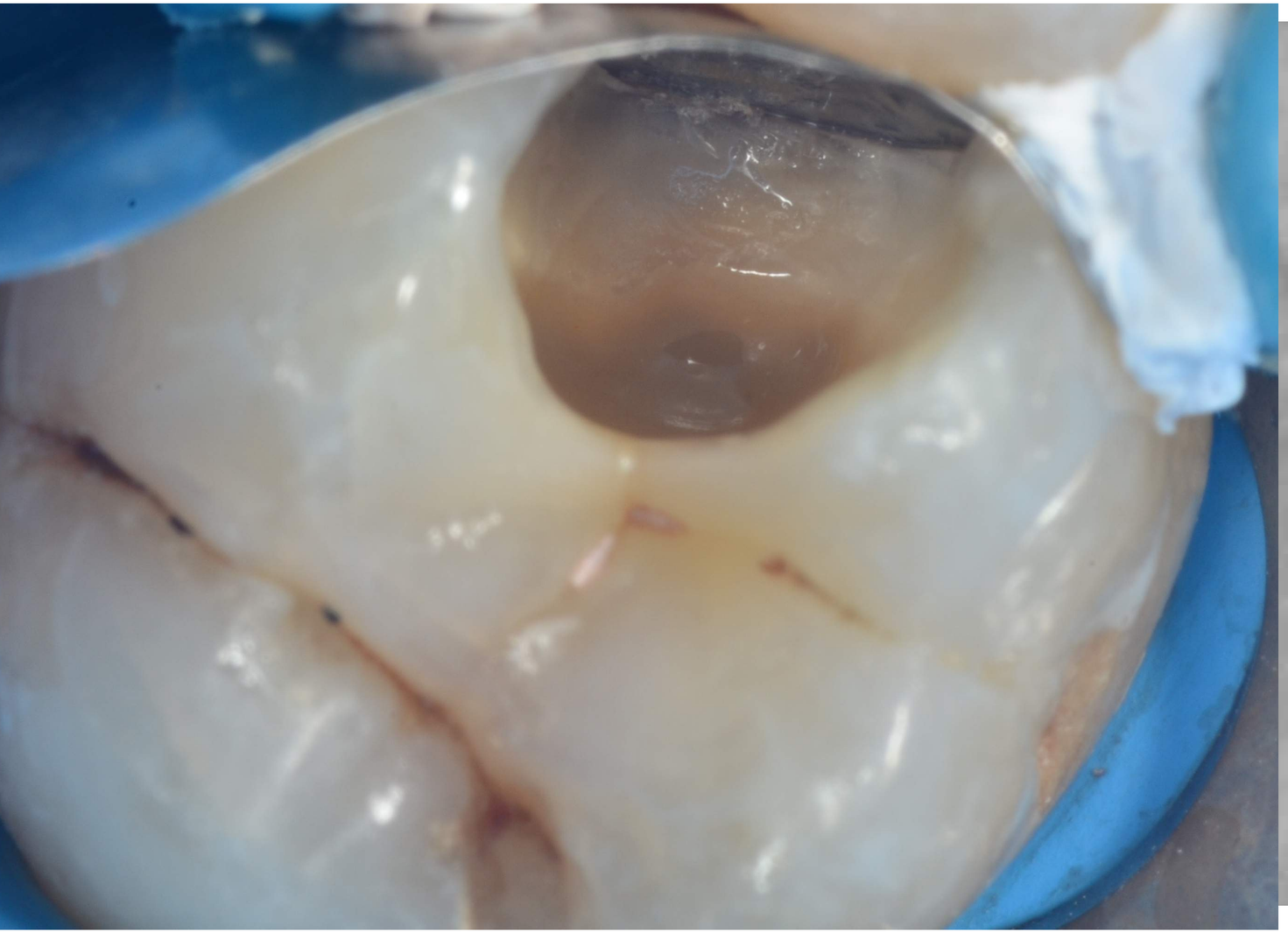
No Violazione del SCAT → Criticità Operative — No Criticità Biologiche

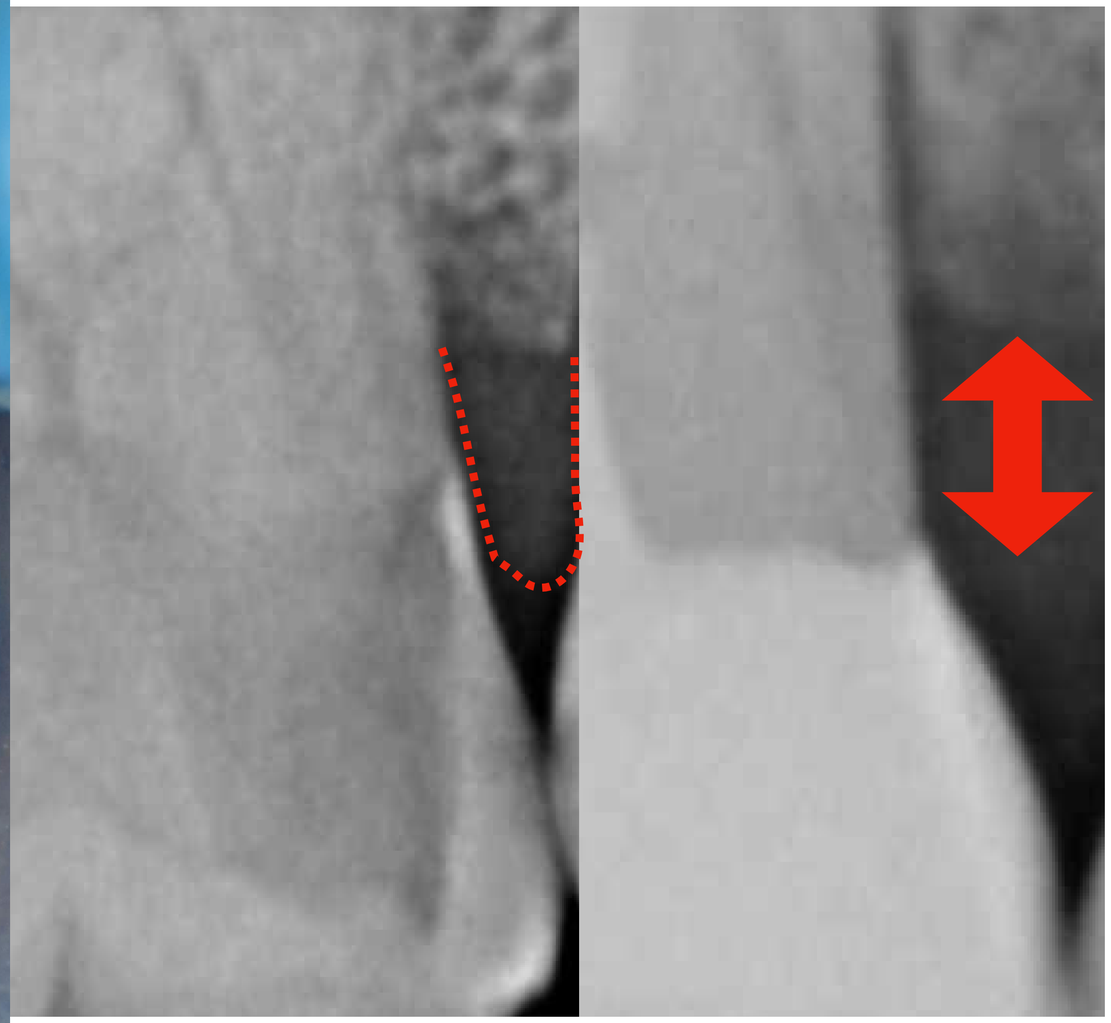
- Accesso alla lesione (Isolamento, gengivectomia, lembo di accesso)
- Restauro sottogengivale
- Deep Margin elevation
- Preparazione sottogengivale

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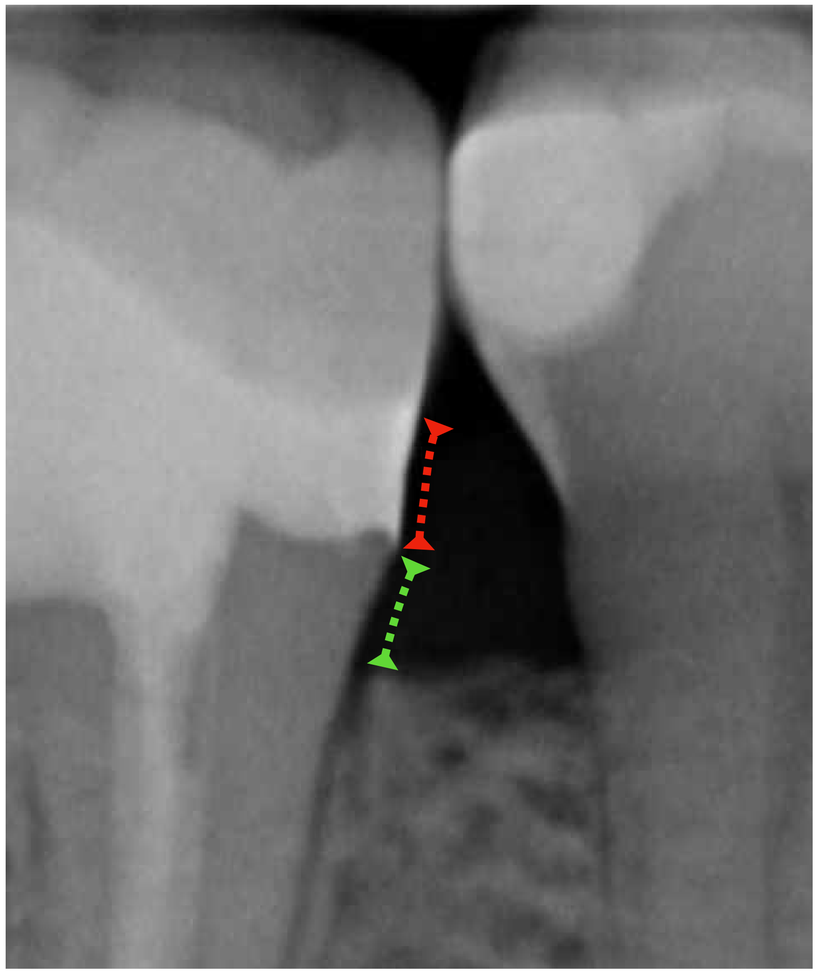
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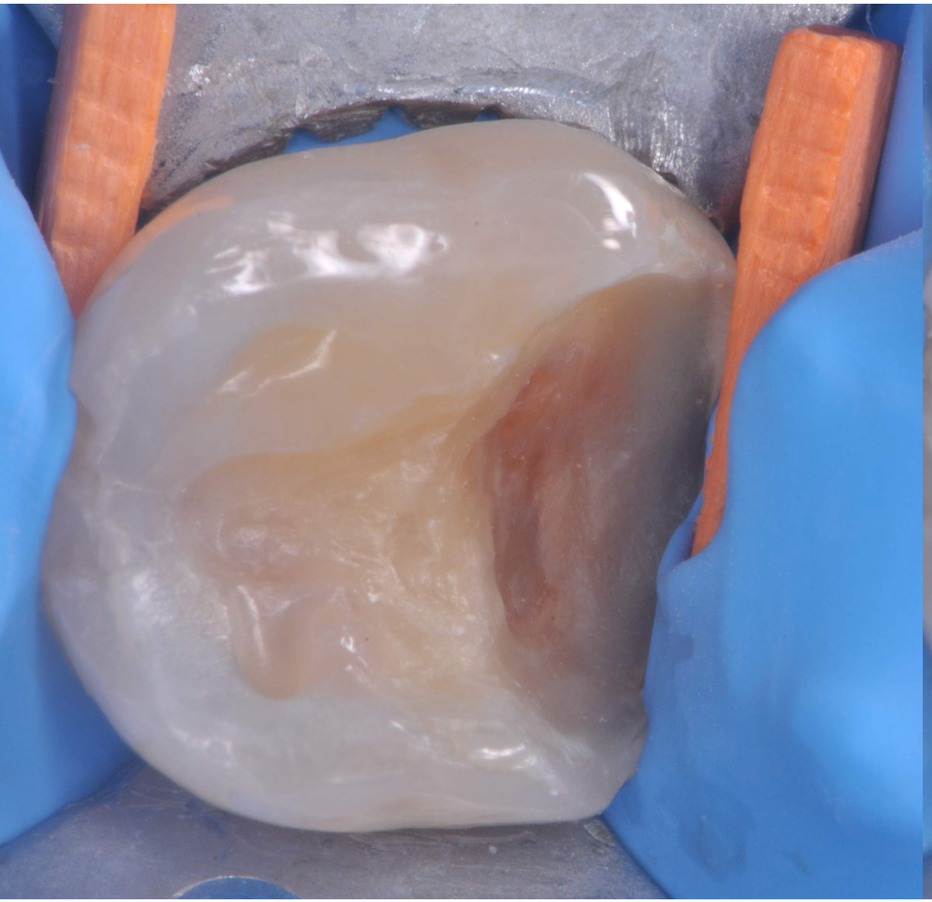


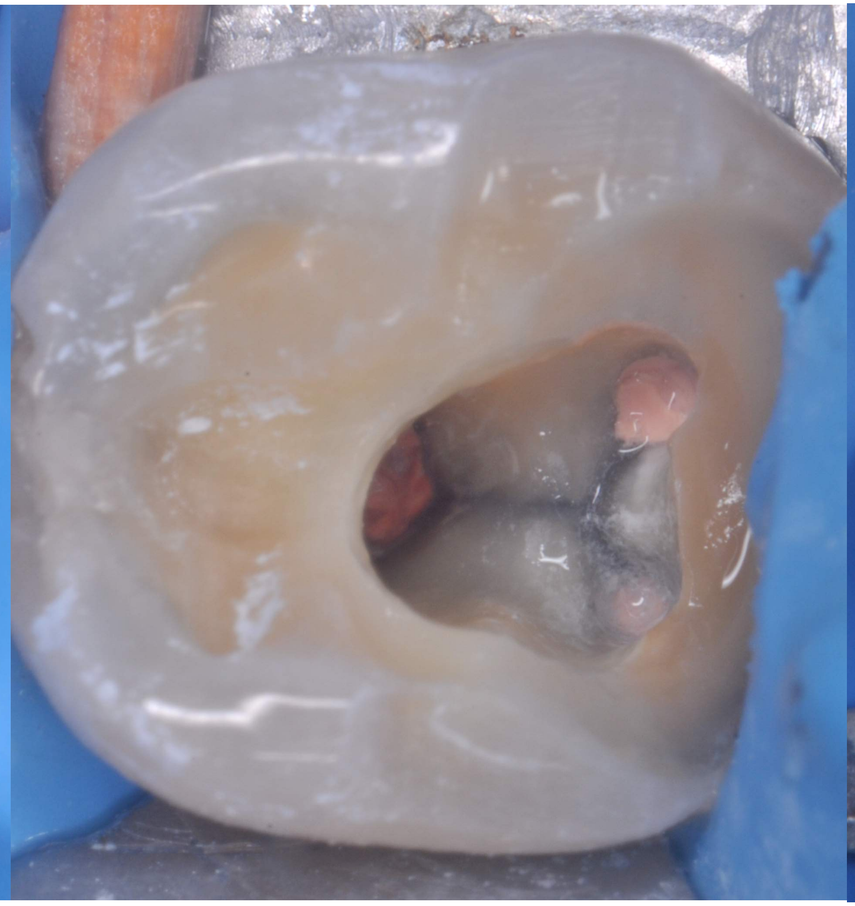


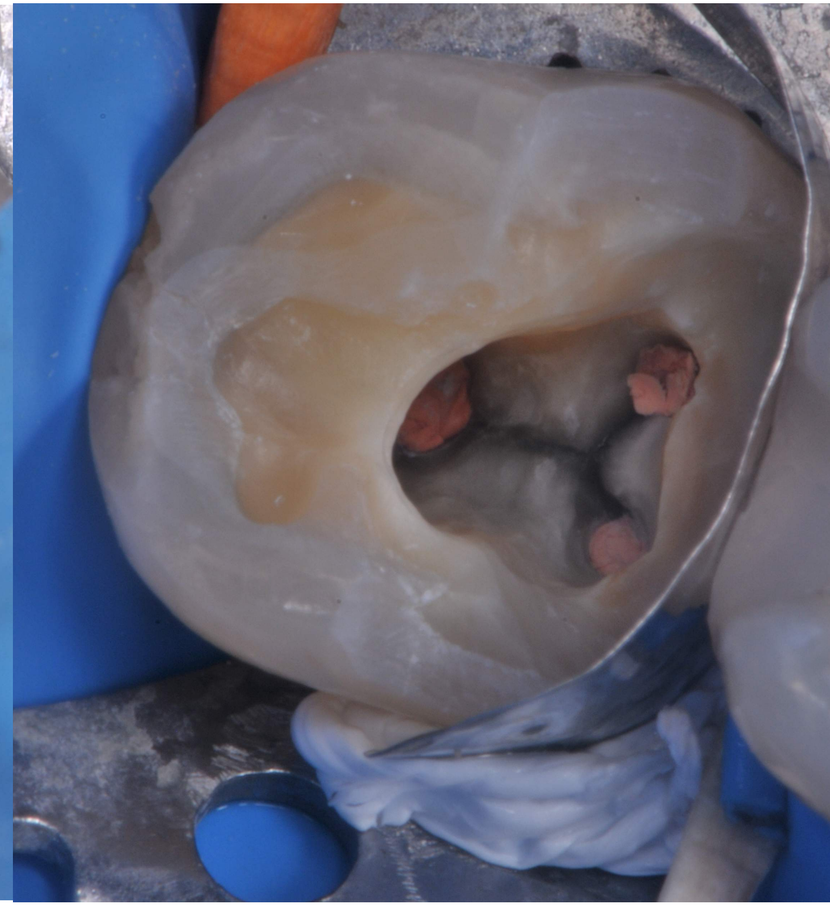
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Gestione dei margini sottogengivali

Violazione del SCAT

- Allungamento di corona clinica
- Estrusione Ortodontica
- Estrusione Chirurgica

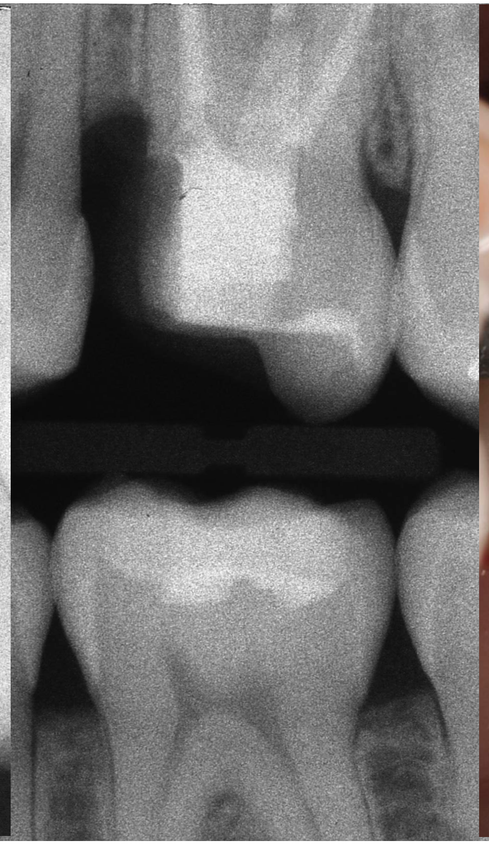
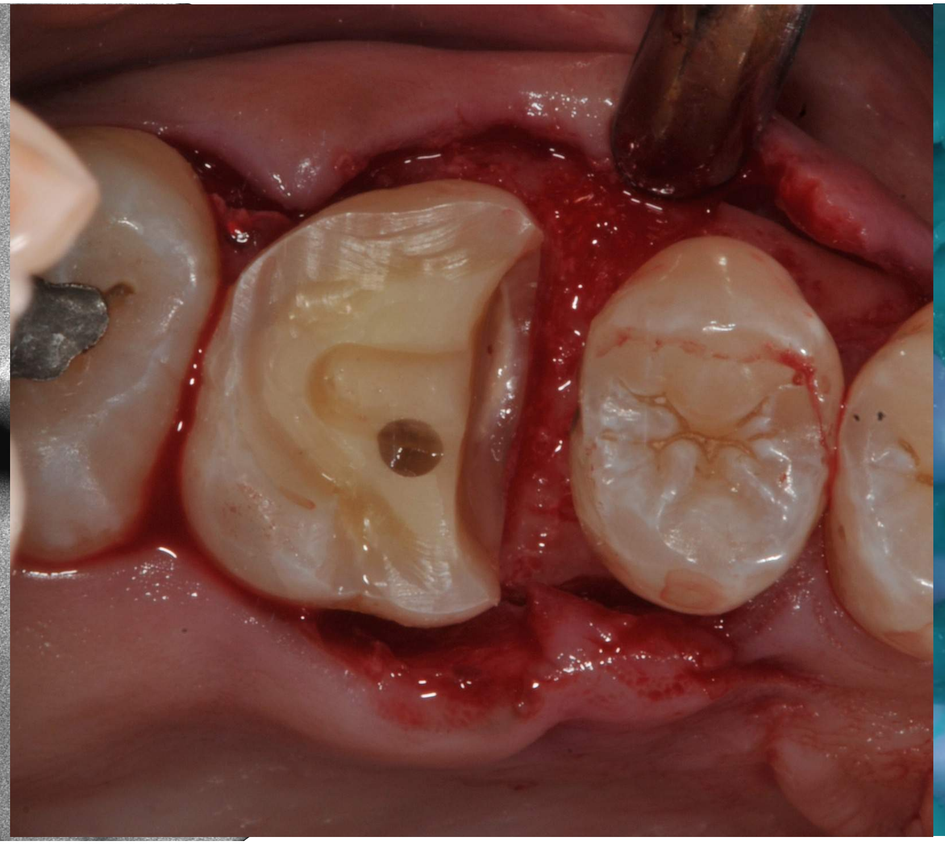
Allungamento di corona clinica

Intervento di chirurgia parodontale resettiva volto al ristabilimento dello spazio necessario al SCAT e della ferula (là dove necessaria) attraverso il sollevamento di un un lembo d’accesso, osteotomia ed osteoplastica.

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Principali svantaggi

- Coinvolgimento dei denti adiacenti
- Non accettabile in area estetica
- Rischio di interessamento delle forcazioni
- Aumento rapporto corona radice
- Perdita ossea

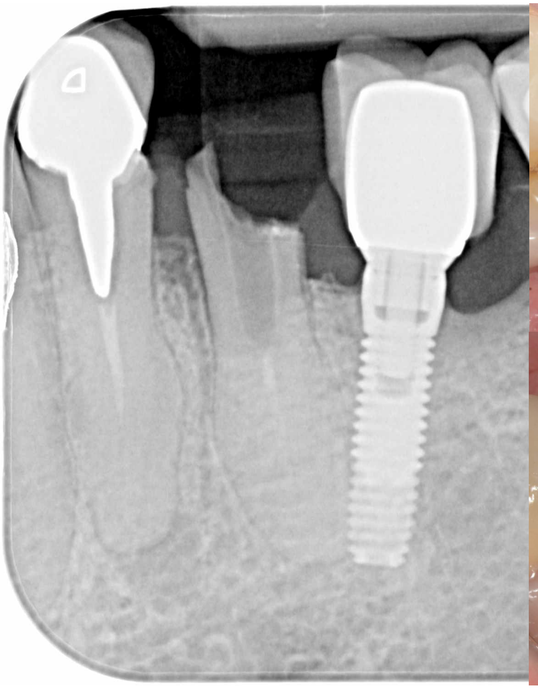
Estrusione Ortodontica

Realizzazione di movimento ortodontico estrusivo con fibrotomia (per ridurre la coronalizzazione dei tessuti parodontali) o seguito da allungamento di corona clinica.

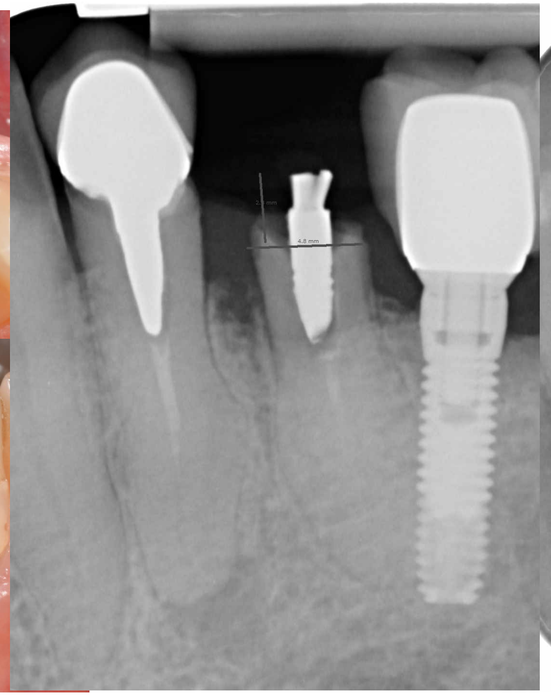
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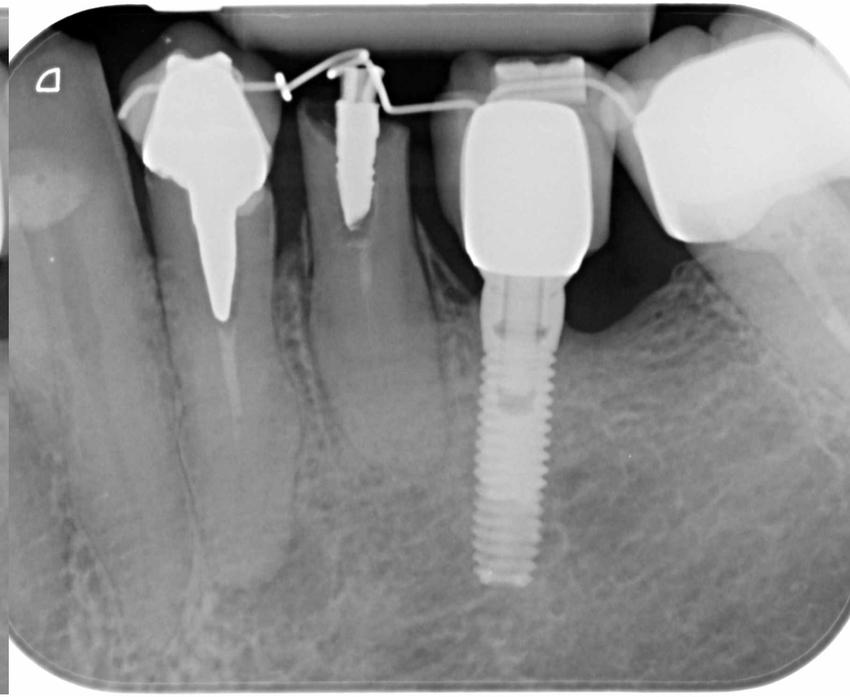
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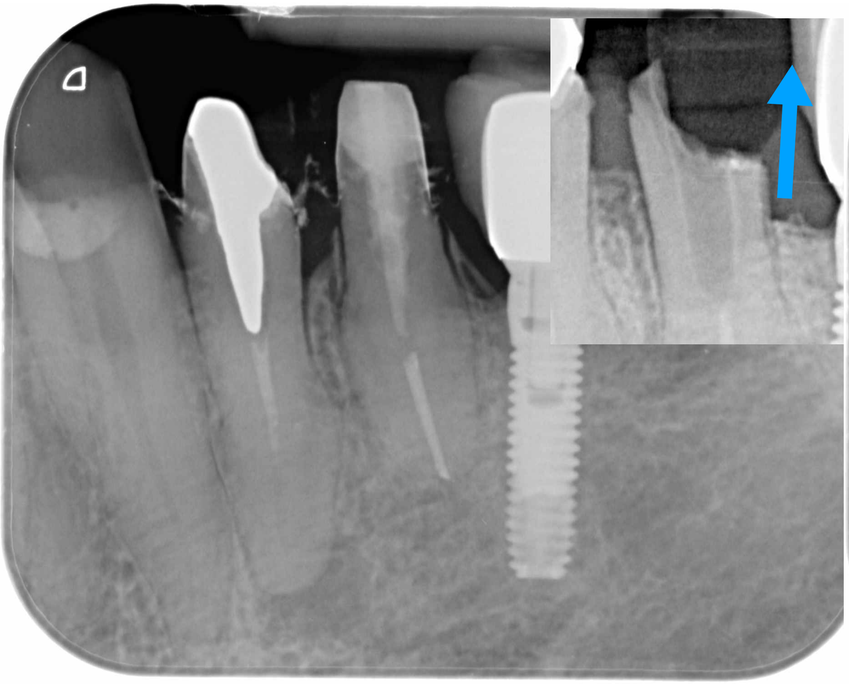


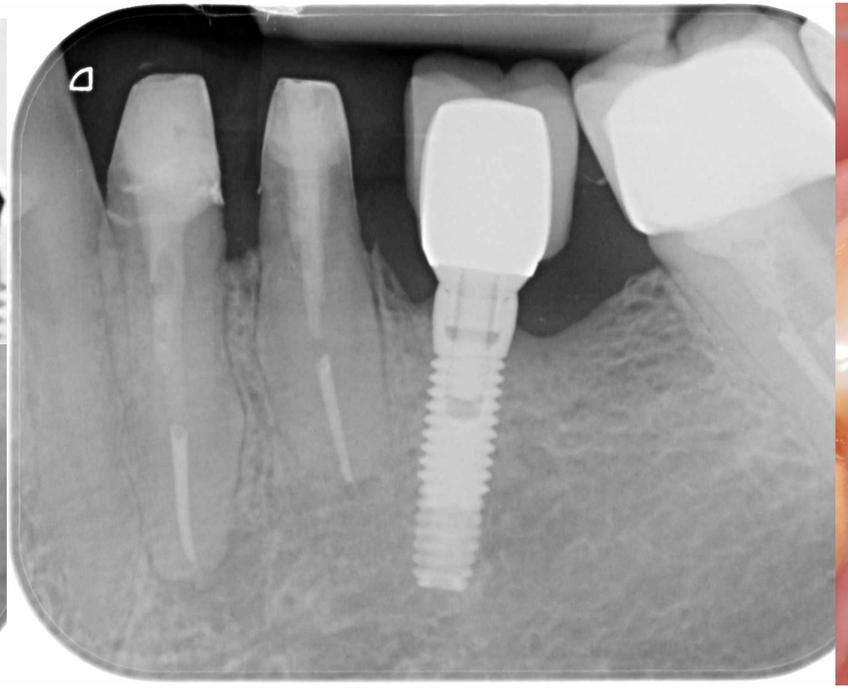


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5 YEARS





Principali svantaggi

- Presenza di dispositivo ortodontico
- Tempi
- Necessità di gestione dei tessuti

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International Journal of
Environmental Research and Public Health

MDPI

Review

Orthodontic Extrusion vs. Surgical Extrusion to Rehabilitate Severely Damaged Teeth: A Literature Review

Martina Cordaro [1,2,3], Edoardo Staderini [1,2,*], Ferruccio Torsello [1,2], Nicola Maria Grande [1,3], Matteo Turchi [1,2] and Massimo Cordaro [1,2]

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Abstract: The need to rehabilitate severely compromised teeth is frequent in daily clinical practice. Tooth extraction and replacement with dental implant represents a common treatment choice. However, the survival rate for implants is inferior to teeth, even if severely damaged but properly treated. In order to reestablish a physiological supracrestal tissue attachment of damaged teeth and to arrange an efficient ferrule effect, three options can be considered: crown lengthening, orthodontic extrusion and surgical extrusion. Crown lengthening is considered an invasive technique that causes the removal of part of the bony support, while both orthodontic and surgical extrusion can avoid this inconvenience and can be used successfully in the treatment of severely damaged teeth. The aim of the present narrative review is to compare advantages, disadvantages, time of therapy required, contraindications and complications of both techniques.

check for updates

Citation: Cordaro, M.; Staderini, E.;

Estrusione Chirurgica

Lussazione ed avulsione atraumatica (completa o incompleta) dell'elemento dentario che viene riposizionato all'interno del suo alveolo in posizione più coronale e fissato mediante splintaggio semirigido in attesa di rigenerazione dei tessuti parodontali.

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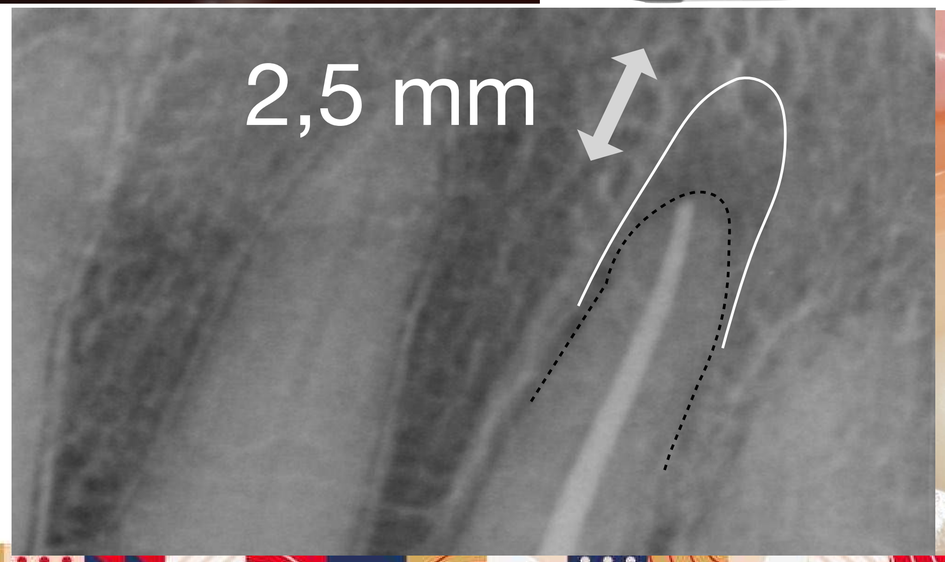


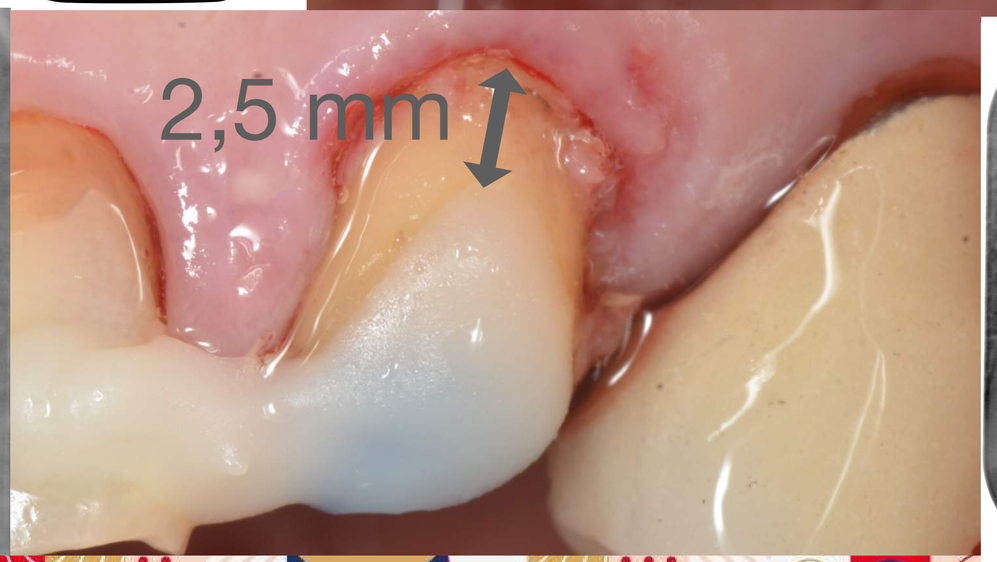














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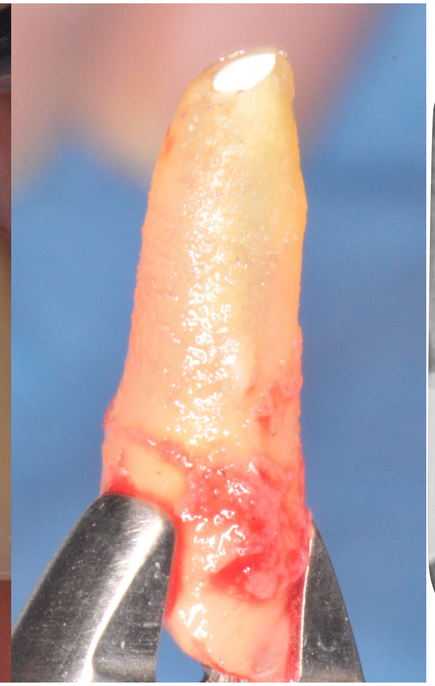
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REIMPIANTO CON ESTRUSIONE



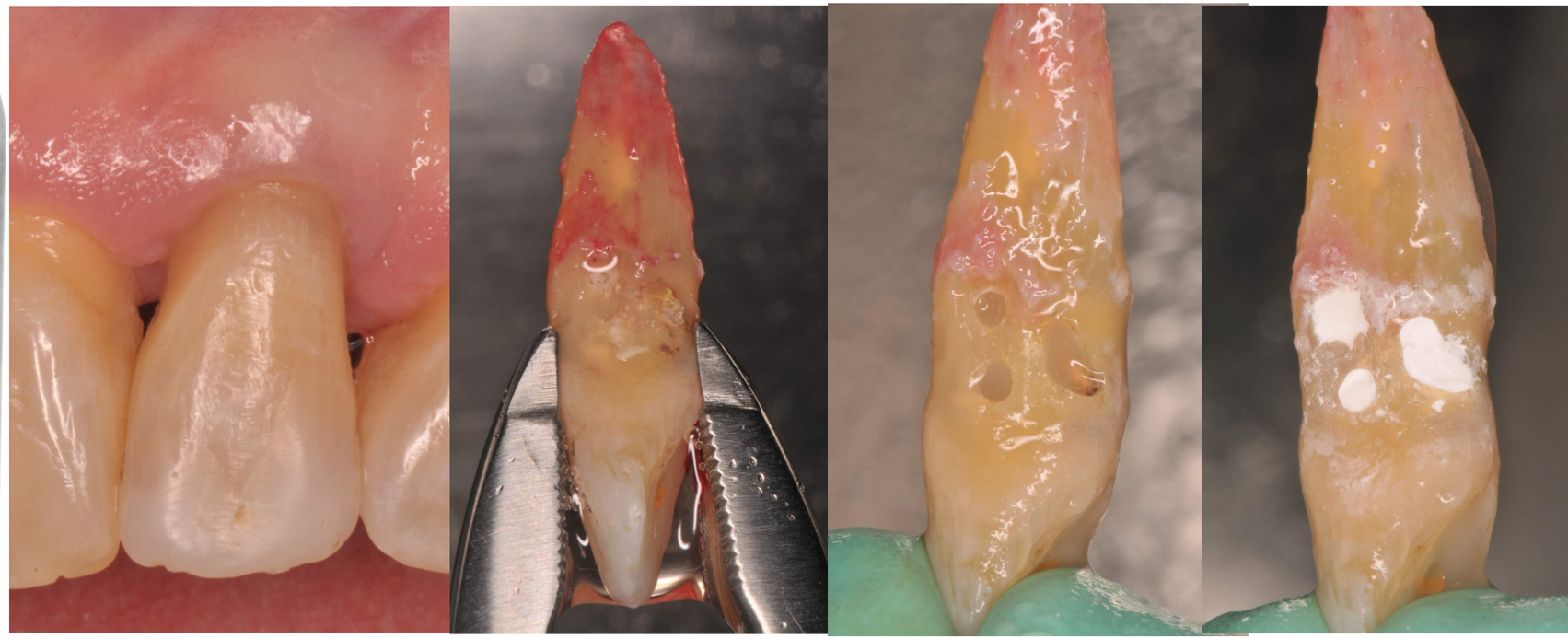
REIMPIANTO CON ESTRUSIONE





REIMPIANTO SENZA ESTRUSIONE





REIMPIANTO SENZA ESTRUSIONE








Principali svantaggi

- Rischio di danneggiamento o frattura della radice
- Rischio di riassorbimento radicolare esterno

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INTERNATIONAL ENDODONTIC JOURNAL

doi:10.1111/iej.13396

REVIEW

Clinical procedures and outcome of surgical extrusion, intentional replantation and tooth autotransplantation – a narrative review

G. Plotino[1], F. Abella Sans[2], M. S. Duggal[3], N. M. Grande[4], G. Krastl[5], V. Nagendrababu[6] & G. Gambarini[1]

[1]Department of Endodontics, "Sapienza" – University of Rome, Rome, Italy; [2]Department of Endodontics, Universitat Internacional de Catalunya, Barcelona, Spain; [3]Faculty of Dentistry, National University Health System, Singapore City, Singapore; [4]Department of Endodontics, Catholic University of Sacred Heart, Rome, Italy; [5]Department of Conservative Dentistry and Periodontology and Center of Dental Traumatology, University Hospital of Würzburg, Würzburg, Germany; and [6]Division of Clinical Dentistry, School of Dentistry, International Medical University, Kuala Lumpur, Malaysia

Abstract

Plotino G, Abella Sans F, Duggal MS, Grande NM, Krastl G, Nagendrababu V, Gambarini G. Clinical procedures and outcome of surgical extrusion, intentional replantation and tooth autotransplantation – a narrative review. *International Endodontic Journal*, **53**, 1636–1652, 2020.

Surgical extrusion is defined as the procedure in which the remaining tooth structure is repositioned at a more coronal/supragingival position in the same socket in which the tooth was located originally. Intentional replantation is defined as the deliberate extraction of a tooth and after evaluation of root surfaces, endodontic manipulation and repair, placement of the tooth back into its original position. Tooth autotransplantation is defined as the transplantation of an unerupted or erupted tooth in the same individual, from one site to another extraction site or a new surgically prepared socket. The advent of titanium implant rehabilitation has reduced the use of these treatments in day-by-day clinical practice; however, the re-emerging trend to conserve and preserve natural sound tissues has led to a rediscovery of these treatments. All three distinct surgical methods are closely related, as they act to treat teeth that cannot be predictably treated using other more conventional procedures in endodontics, periodontics and restorative dentistry. Furthermore, these procedures share the same treatment approach and include the atraumatic extraction of a tooth, visual inspection of the tooth/root and its subsequent replantation. The clinical procedures for surgical extrusion, intentional replantation and tooth autotransplantation treatment have undergone several changes in recent years, and currently, there are no clear clinical treatment protocols/guidelines available. The clinician should be aware of the outcome of these treatments. Hence, the aim of this narrative review is to provide the background, clinical procedures and outcomes of surgical extrusion, intentional replantation and tooth autotransplantation.

Keywords: intentional replantation, review, surgical extrusion, tooth autotransplantation.

Received 24 September 2019; accepted 24 August 2020

Correspondence: Gianluca Plotino, Department of Endodontics, "Sapienza" – University of Rome, Via Calabria 25, 00187, Rome, Italy (e-mail: endo@gianlucaplotino.com).

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INTERNATIONAL ENDODONTIC JOURNAL

doi:10.1111/iej.13456

European Society of Endodontology position statement: Surgical extrusion, intentional replantation and tooth autotransplantation

European Society of Endodontology

European Society of Endodontology developed by:

G. Plotino[1], F. Abella Sans[2], M. S. Duggal[3], N. M. Grande[4], G. Krastl[5], V. Nagendrababu[6] & G. Gambarini[1]

[1]Department of Endodontics, "Sapienza" - University of Rome, Rome, Italy; [2]Department of Endodontics, Universitat Internacional de Catalunya, Barcelona, Spain; [3]Faculty of Dentistry, National University Health System, Singapore; [4]Department of Endodontics, Catholic University of Sacred Heart, Rome, Italy; [5]Department of Conservative Dentistry and Periodontology and Center of Dental Traumatology, University Hospital of Würzburg, Würzburg, Germany; and [6]Department of Preventive and Restorative Dentistry, College of Dental Medicine, University of Sharjah, Sharjah, UAE

Abstract

Plotino G, Abella Sans F, Duggal MS, Grande NM, Krastl G, Nagendrababu V, Gambarini G. European Society of Endodontology position statement: Surgical extrusion, intentional replantation and tooth autotransplantation. *International Endodontic Journal*, **54**, 655–659, 2021.

This European Society of Endodontology (ESE) position statement on surgical extrusion, intentional replantation and tooth autotransplantation represents the consensus of an expert committee, convened by the ESE. A narrative review (Plotino *et al.* 2020, international Endodontic Journal, 53, 1636–52) formed the basis for the position statement. The review provided detailed information on the background, clinical procedures and the outcome of surgical extrusion, intentional replantation and tooth autotransplantation techniques. The aim of the current statement is to summarize the best available evidence on these clinical techniques to provide appropriate clinical guidance to undergraduate and postgraduate students, dental practitioners, clinical teachers and researchers. The current position statement will be updated by the ESE periodically to reflect new evidence as it becomes available to provide the most current treatment guidance for clinical practice.

Keywords: intentional replantation, surgical extrusion, tooth autotransplantation.

Received 27 November 2020; accepted 30 November 2020

Introduction

Teeth considered nonrestorable by conventional treatments, such as those with unmanageable endodontic disease, subgingival caries or fractures, are candidates for management by surgical extrusion, intentional replantation or tooth autotransplantation. These related procedures have a similar approach involving the atraumatic detachment of a tooth from its alveolus. In surgical extrusion, the tooth is surgically shifted within the socket to a more favourable position so that the remaining tooth structure is more

Further additions, comments and consensus by ESE Executive Board members: Dummer PMH, Duncan HF, Franco V, Galler K, Kirkevang L-L, Whitworth J.

Correspondence: Paul M. H. Dummer, CEO of the European Society of Endodontology, Postboks 1237 Vika, 0110 Oslo, Norway (e-mail: ceo@e-s-e.eu).

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Received: 1 November 2021 | Accepted: 4 March 2022

DOI: 10.1111/iej.13723

INTERNATIONAL ENDODONTIC JOURNAL | WILEY

ORIGINAL ARTICLE

Present status and future directions: Surgical extrusion, intentional replantation and tooth autotransplantation

Gianluca Plotino[1] | **Francesc Abella Sans**[2] | **Monty S. Duggal**[3] | **Nicola M. Grande**[4] | **Gabriel Krastl**[5] | **Venkateshbabu Nagendrababu**[6] | **Gianluca Gambarini**[1]

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[6]Department of Preventive and Restorative Dentistry, University of Sharjah, Sharjah, UAE

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Email: endo@gianlucaplotino.com

Abstract

Surgical extrusion, intentional replantation and tooth autotransplantation procedures are important treatment options that clinicians may consider performing in their day-to-day clinical practice. Despite compromised teeth are generally considered for extraction, clinicians must be aware that these cases could be suitable for management by these alternative predictable treatment options. Surgical extrusion, intentional replantation or tooth autotransplantation have similar treatment protocols which includes atraumatic tooth extraction, visualisation of the root portion and replantation. Surgical extrusion is defined as the 'procedure in which the remaining tooth structure is repositioned at a more coronal/supragingival position in the same socket in which the tooth was located originally'. Intentional replantation is defined as the 'deliberate extraction of a tooth and after evaluation of root surfaces, endodontic manipulation and repair, placement of the tooth back into its original position'. Tooth autotransplantation is defined as the 'transplantation of an unerupted or erupted tooth in the same individual, from one site to another extraction site or a new surgically prepared socket'. The same team previously published a narrative review (*International Endodontic Journal*. 2020, 53, 1636) and European Society of Endodontology position statement (*International Endodontic Journal*. 2020, 54, 655) on this topic in *International Endodontic Journal*. The aim of the current updated review was to provide the reader a complete overview and background on these procedures, to established clear clinical protocols and step-by-step for technically perform these therapies in their clinical practice and to establish future directions on the topics. The clinicians must periodically update their knowledge about these three procedures to achieve success.

KEYWORDS

intentional replantation, review, root canal, surgical extrusion, tooth transplantation

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DOI: 10.1111/iej.13727

INTERNATIONAL ENDODONTIC JOURNAL | WILEY

REVIEW ARTICLE

Effectiveness of intentional replantation in managing teeth with apical periodontitis: A systematic review

Gianluca Plotino[1] | **Francesc Abella Sans**[2] | **Juliana Vilela Bastos**[3] | **Venkateshbabu Nagendrababu**[4]

[1]Private Practice, Rome, Italy
[2]Department of Endodontics, Universitat Internacional de Catalunya, Barcelona, Spain
[3]Department of Restorative Dentistry, Federal University of Minas Gerais, Belo Horizonte, Brazil
[4]Department of Preventive and Restorative Dentistry, University of Sharjah, Sharjah, UAE

Correspondence
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Email: endo@gianlucaplotino.com

Abstract

Background: Intentional replantation (IR) to treat disease of endodontic origin remains controversial. While IR has been advocated by some clinicians as another valid treatment option, others consider it as a treatment procedure of last resort.

Objective: To systematically review and critically evaluate the effectiveness of IR compared with nonsurgical root canal treatment/retreatment or apical surgery in terms of clinical and patient-related outcomes in managing permanent teeth with apical periodontitis (AP).

Methods: A literature search of five databases (PubMed, Embase, Scopus, Web of Science and Cochrane Central register of Controlled Trials), and the grey literature (Networked Digital Library of Theses and Dissertations, Open Access Theses and Dissertations, DART-Europe E-theses Portal, British Library E-Theses Online Service), from inception to November 2021, was conducted. Randomised clinical trials, comparative clinical trials (CCTs), nonrandomised, retrospective, and prospective comparative cohort and case–control two arm studies which evaluated clinical and/or patient-related outcomes of permanent teeth with AP treated with IR compared with nonsurgical root canal treatment/retreatment or apical surgery were identified. The quality of the studies was appraised using the Cochrane risk of bias tool for randomized trials (RoB 2.0), the Robins-I for nonrandomized controlled clinical trials and the Newcastle-Ottawa scale for observational studies. Two independent reviewers were involved in the literature selection, performed the data extraction and the appraisal of the studies identified; disagreements were resolved in conjunction with a third reviewer.

Results: No comparative study was identified from the literature search. Four longitudinal studies (one prospective and three retrospective) were identified during the screening of titles and abstracts but were excluded after reading the full text, because only IR was evaluated (single arm studies).

Discussion: The available evidence on IR is mainly based on observational studies, which reported high overall mid- to long-term survival, and low complication rates. The results suggest that IR may represent an alternative treatment procedure to solve problems of endodontic origin. However, in the absence of high-quality evidence

Registration: PROSPERO database (CRD42021261613)

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AGENDA



7. La gestione dei traumi dentali:
   - Fratture coronali, sublussazione, lussazione, fratture radicolari, fratture corono-radicolari, avulsioni traumatiche.

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Traumi Dentali

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Check for updates

Received: 28 April 2021 | Accepted: 28 April 2021

DOI: 10.1111/iej.13543

INTERNATIONAL ENDODONTIC JOURNAL | WILEY

REVIEW

European Society of Endodontology position statement: endodontic management of traumatized permanent teeth

ese

European Society of Endodontology (ESE) developed by:

G. Krastl[1] | R. Weiger[2,3] | A. Filippi[4,3] | H. Van Waes[5] | K. Ebeleseder[6] | M. Ree[7] | T. Connert[2,3] | M. Widbiller[8] | L. Tjäderhane[9,10] | P. M. H. Dummer[11] | K. Galler[8]

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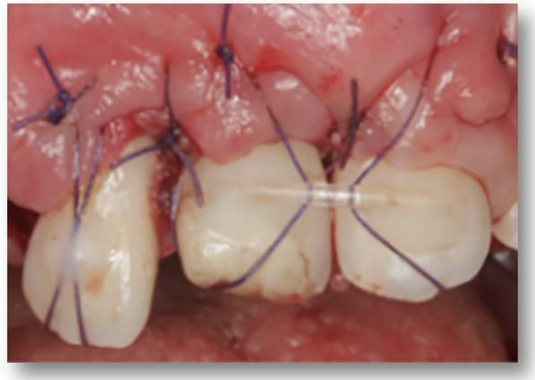
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IADT International Association of Dental Traumatology

2020 IADT Guidelines for the Evaluation and Management of Traumatic Dental Injuries

The IADT provides free access to the 2020 IADT Dental Traumatology Guidelines for the benefit of practitioners around the globe and an improved quality of life for patients.

General Introduction



Fractures and Luxations



Avulsion of Permanent Teeth



Injuries in the Primary Dentition



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2020 IADT Guidelines for the Evaluation and Management of Traumatic Dental Injuries

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Google Play

Apple Store



ToothSOS
Mobile App

FRATTURE CORONALI

Procedure d’urgenza per il mantenimento dell’integrità pulpare





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dopo 3 giorni… 🥲

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incollaggio del frammento

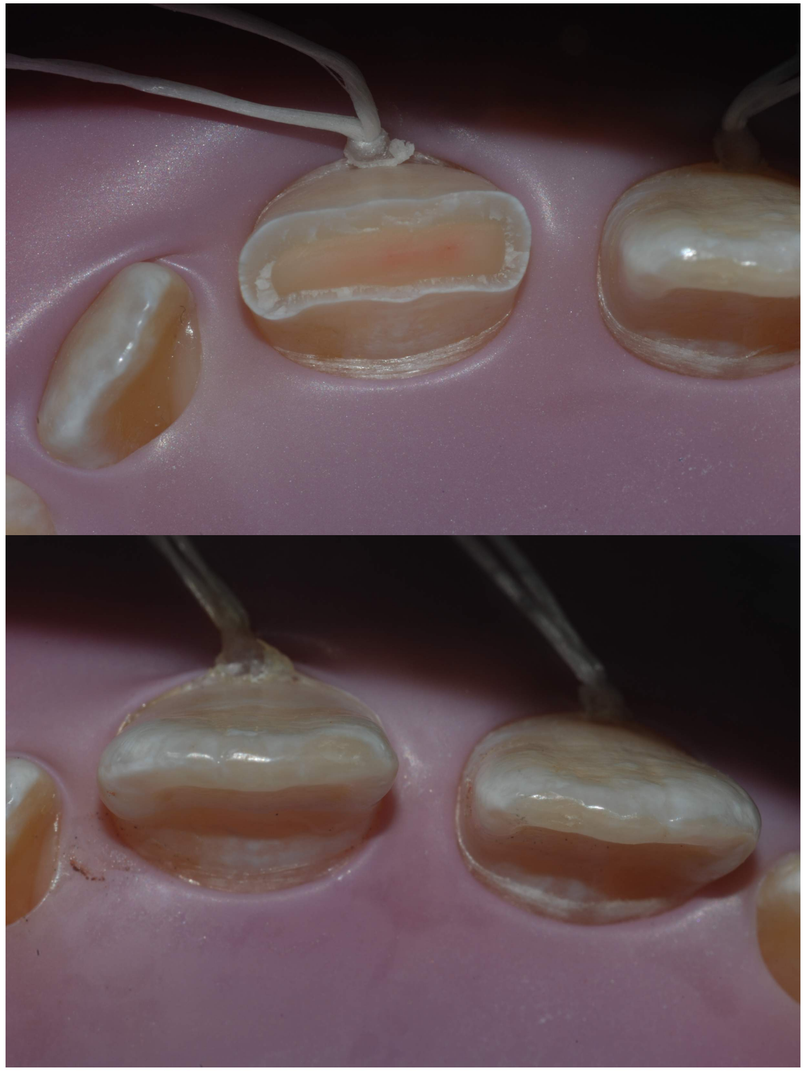




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ATTENZIONE AL MANTENIMENTO DELLA VITALITA'

IN APICI NON FORMATI NO TEST ELETTRICI MA TEST TERMICI (FREDDO)

Common
Scand J Dent Res

Fulling HJ, Andreasen JO

1976;84(5):286-90

Influence of maturation status and tooth type of permanent teeth upon electrometric and thermal pulp testing

Pulp tester elettrici non funzionano in denti con apice immaturo a causa della transitoria mancanza di risposta neuronale o dell'indifferenziazione delle fibre nervose A-delta



trauma frontale qualche anno prima

nessun controllo della vitalità dei denti successivamente

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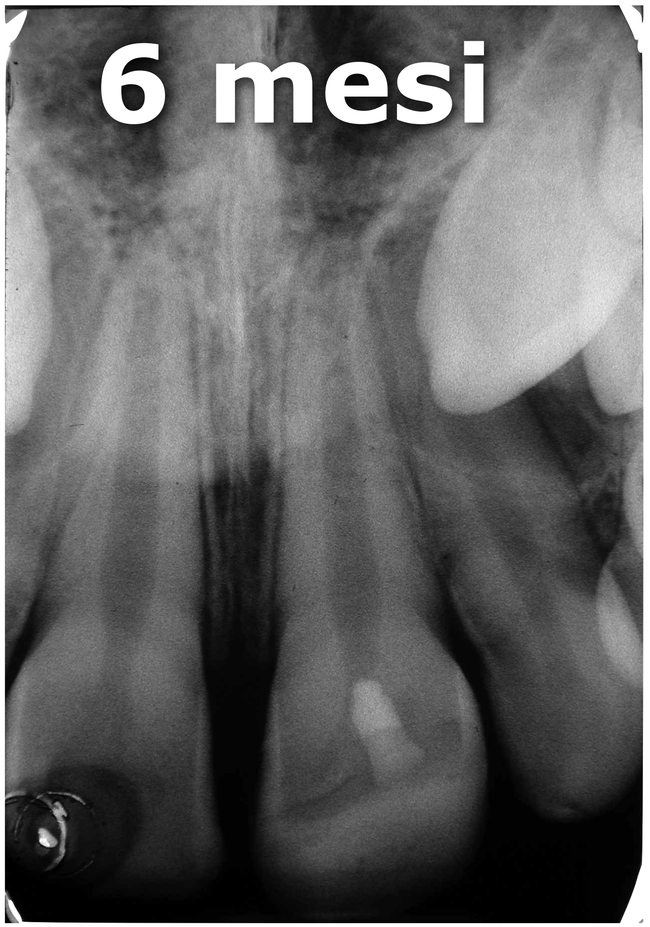


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TEST ELETTRICI
21 RISPONDE A 18 - 11 RISPONDE A 16



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Francesca, 7 anni, trauma 1 settimana prima.

Test di vitalità negativi e pigmentazione della corona.

Polpa coronale completamente necrotica, scendendo nel canale la polpa appare viva.



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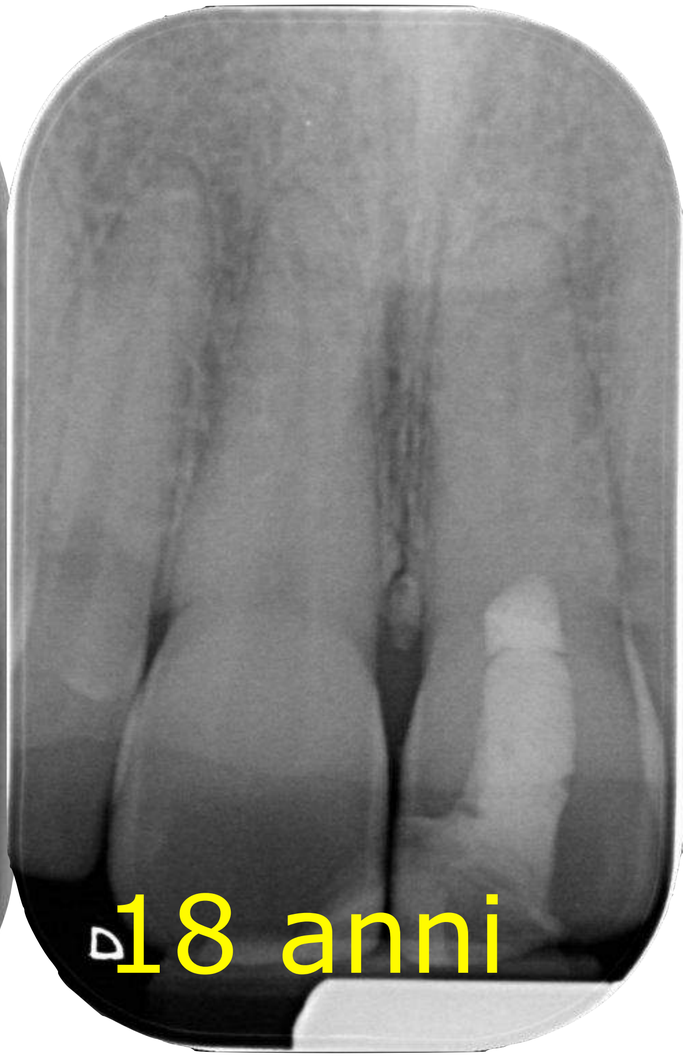
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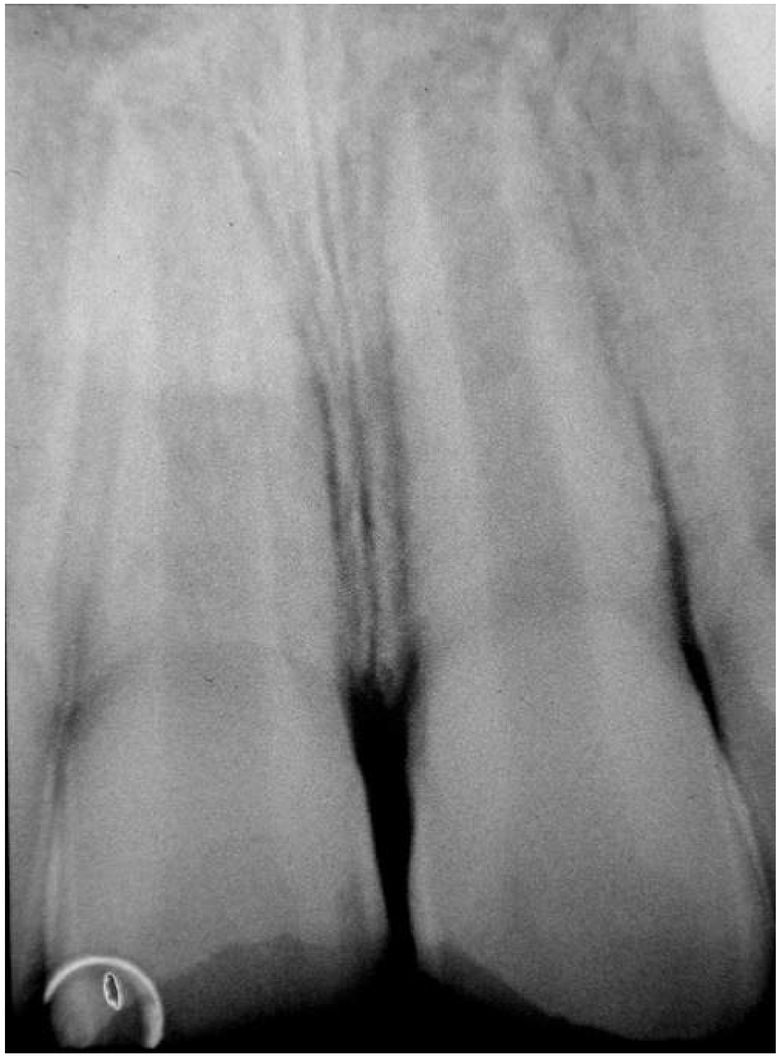








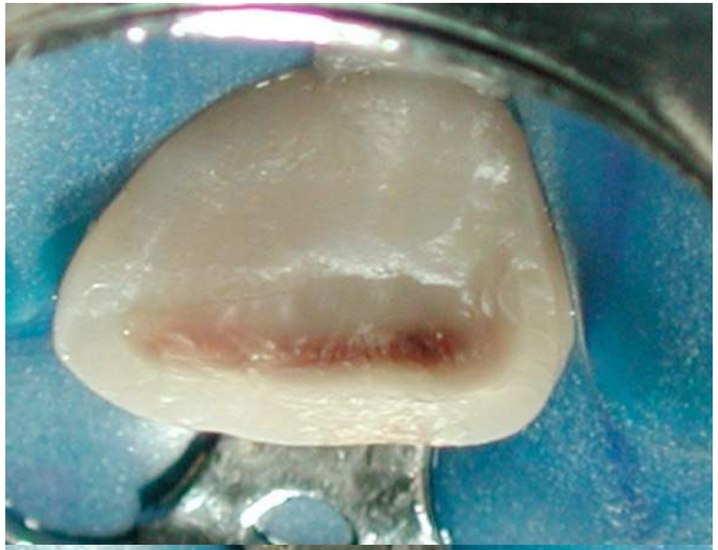




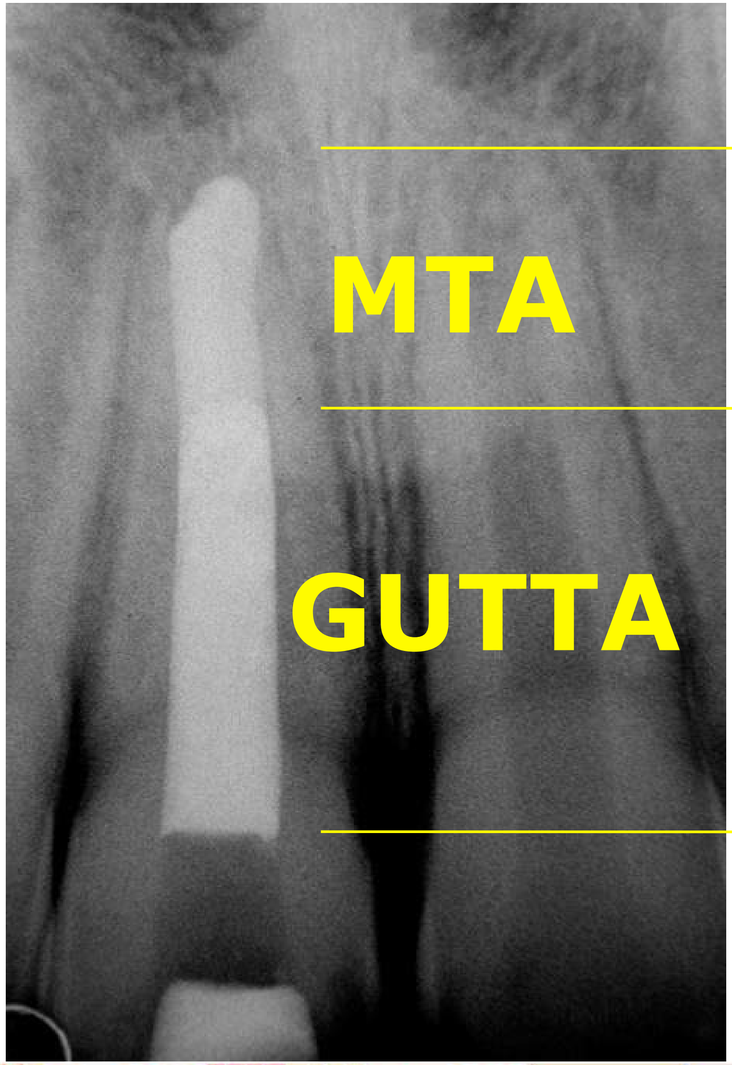
P. M.
maschio anni 8

11: test di sensibilità negativi

la polpa e completamente necrotica





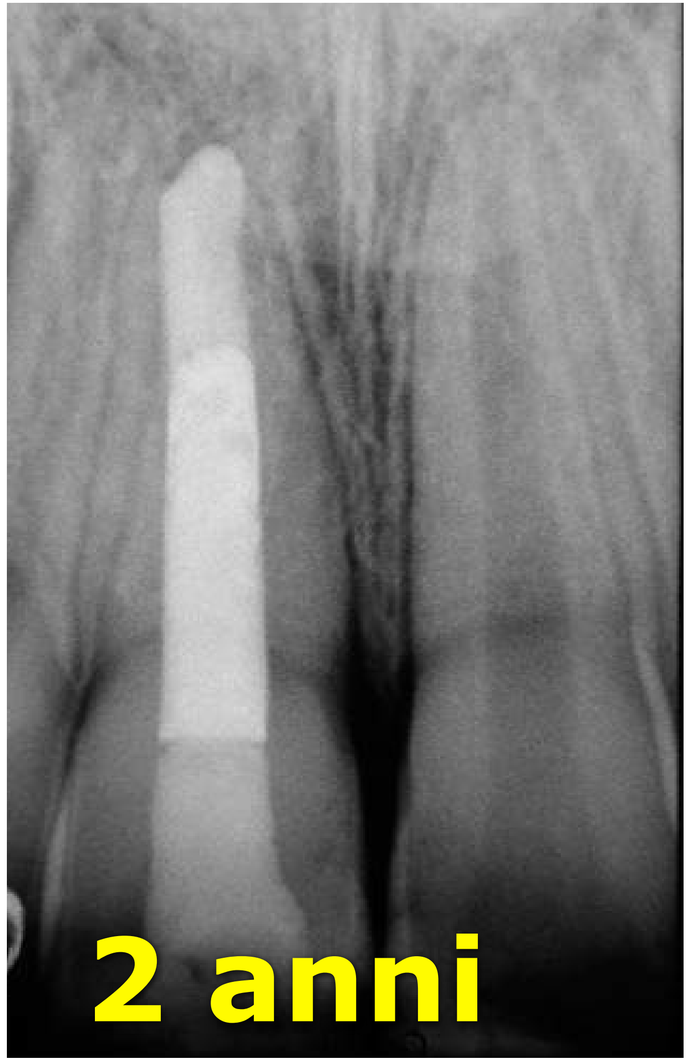


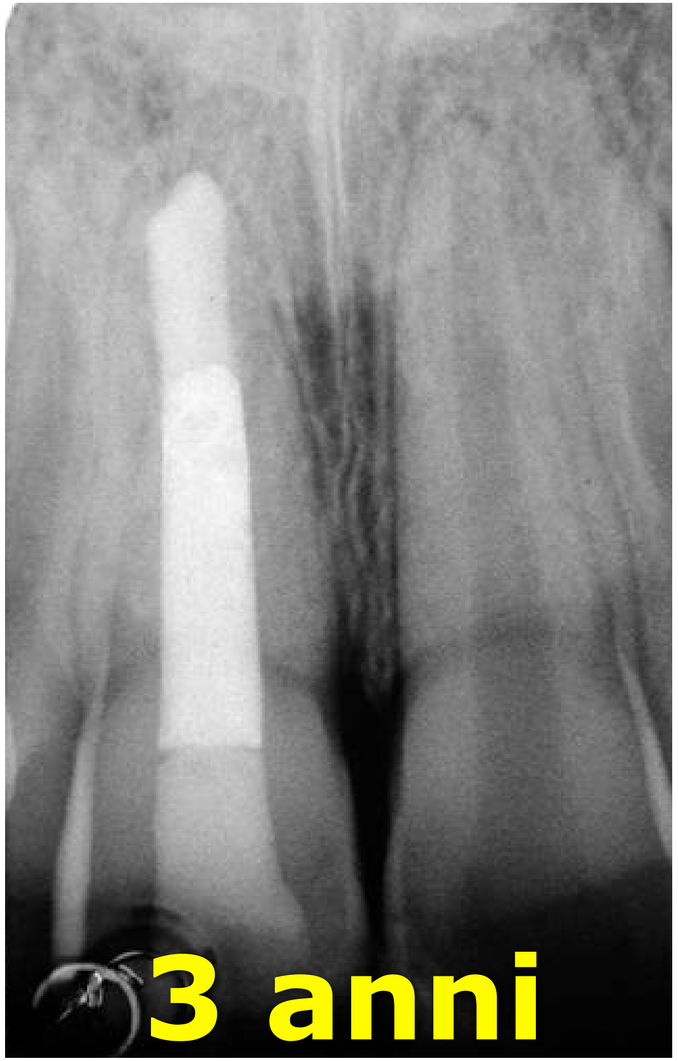
MTA terzo apicale
pellet di cotone bagnato dopo 1 settimana
otturazione del resto del canale

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SUBLUSSAZIONE

lesione medio-lieve della struttura di supporto senza dislocamento ma con mobilità

DIAGNOSI

Sintomatologia: ipersensibilità alla percussione
Test di vitalità:talora risposte anomale
Esame clinico:
lievi segni di trauma parodontale
(sanguinamento del solco)
Esame radiografico: spesso negativo, talora con modico allargamento dello spazio parodontale
Terapia: controllo occlusale, splintaggio?
Prognosi: a rischio la vitalità pulpare

dopo 1 mese il dente non risponde più ai test di vitalità



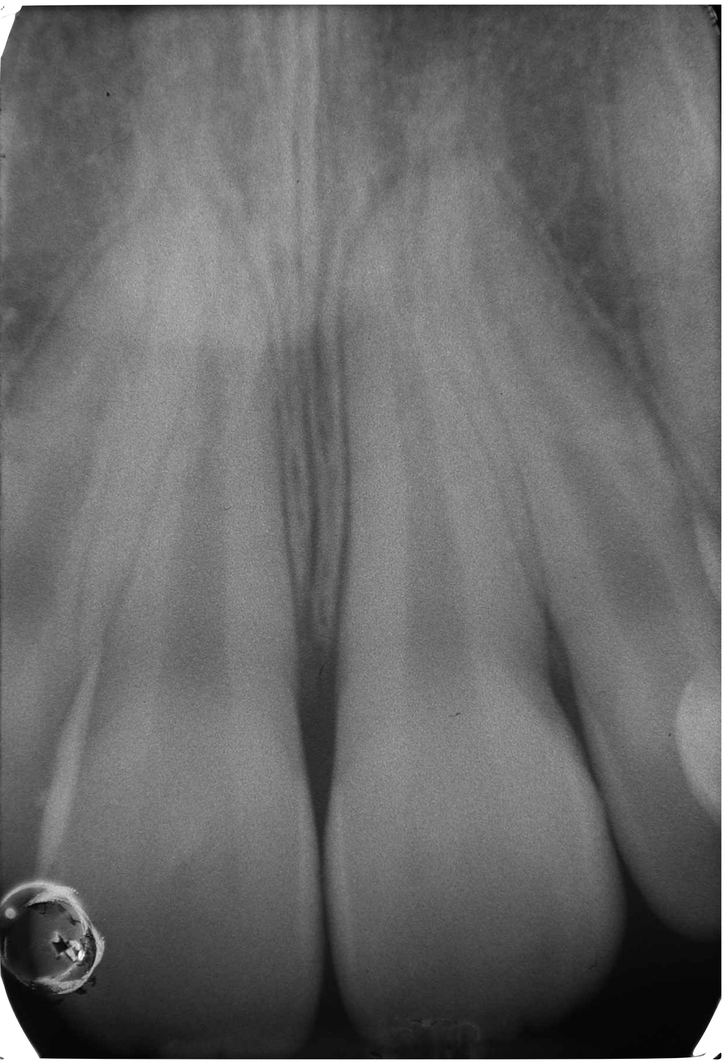


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Mauro 14 anni cade in bicicletta 06-2003.

21 sublussazione.

Test termici ed elettrici positivi al momento del trauma e dopo 2 settimane.

Dopo 1 mese test negativi ed inizio di discromia.



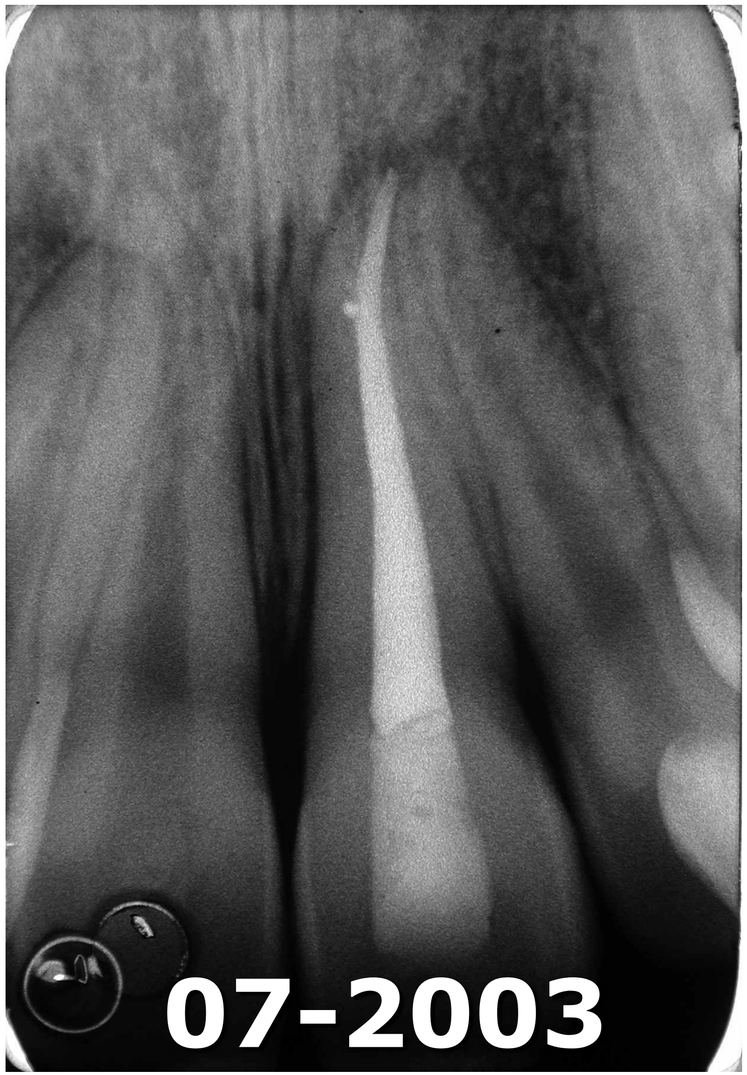
Dopo 1 mese test negativi ed inizio di discromia.

Modica radiotrasparenza periapicale

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LUSSAZIONE

lesione grave della struttura di supporto
con dislocamento e mobilità:
intrusiva
laterale
estrusiva
intrusiva e laterale
estrusiva e laterale

DIAGNOSI

Sintomatologia:
dolore al contatto occlusale, alla masticazione ed alla percussione
Test di vitalità:
spesso risposte anomale

Esame clinico: gravi segni di trauma parodontale (sanguinamento del solco) e spesso ferite o lacerazioni a gengiva ed a tessuti molli

Esame radiografico: allargamento dello spazio parodontale e disassamento rispetto all'alveolo; cercare segni di frattura radicolare o alveolare

Terapia: riduzione manuale od ortodontica e splintaggio per 3-4 settimane

Prognosi: quasi sempre compromessa la vitalità pulpare

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10 gg dal trauma - esiti di lussazione - dolore al contatto
stravaso emorragico - test di vitalità dubbi
subito splintaggio

dopo altri 15 gg test di vitalità negativi trattamento endodontico







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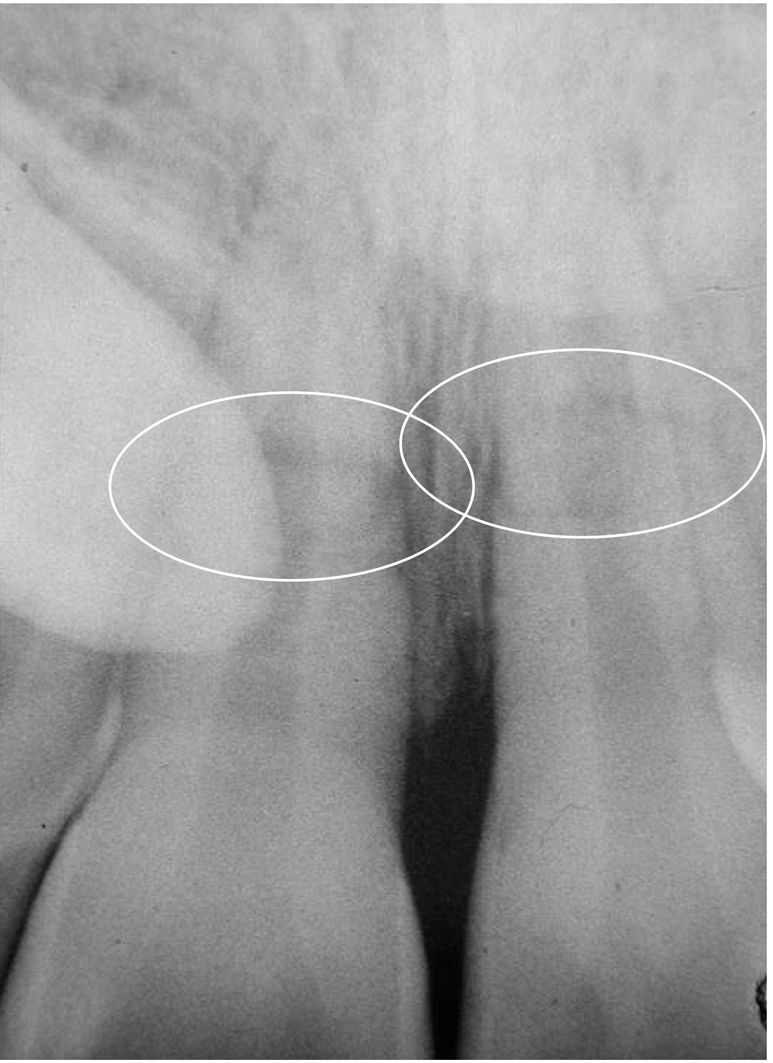


FRATTURA RADICOLARE

frattura della radice, spesso orizzontale, talora con dislocamento e mobilità

DIAGNOSI

Sintomatologia:
dolore alla percussione e masticazione
Test di vitalità:
talora risposte anomale
Esame clinico:
talora segni di trauma parodontale (sanguinamento del solco)
Esame radiografico: peculiare l'immagine ellittica
Terapia: splintaggio per 90 giorni
Prognosi: favorevole, talora necessaria terapia endodontica



splintaggio per 90 giorni

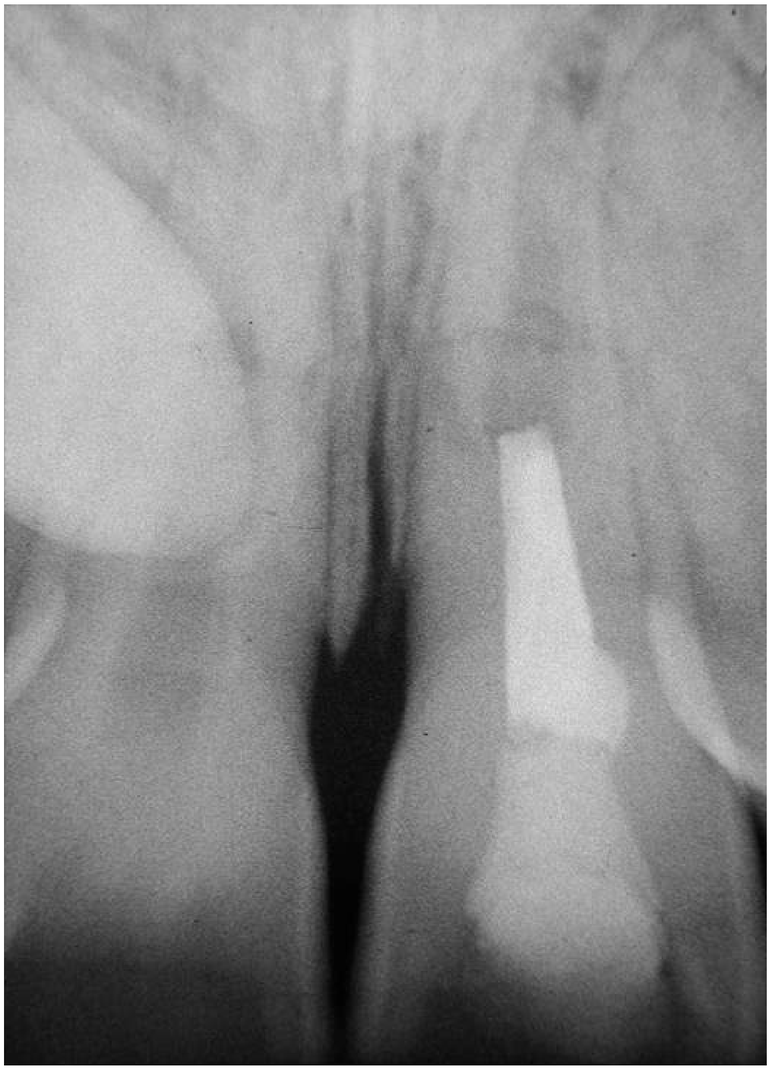
progressiva attenuazione della risposta ai test di vitalità del 21

trattamento endodontico solo del moncone coronale

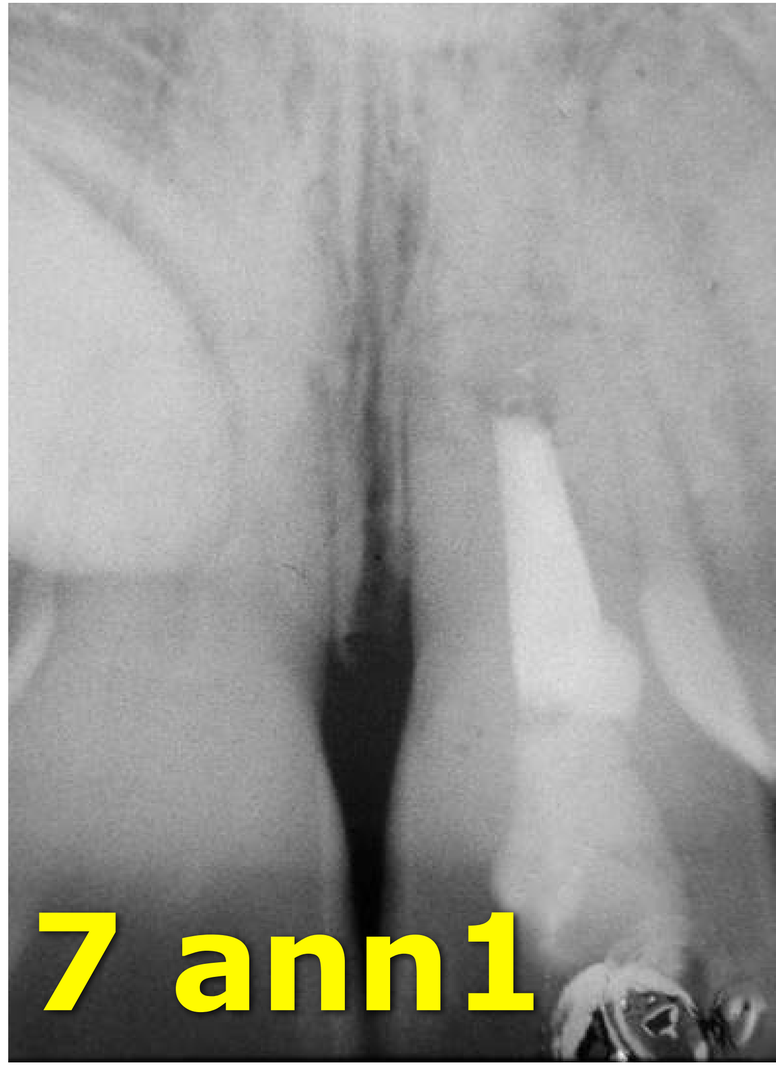
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FRATTURA CORONO RADICOLARE

DIAGNOSI

Sintomatologia:
dolore alla percussione e masticazione
Coinvolgimento pulpare:
spesso camera pulpare interessata dalla frattura
Esame clinico:
frammento mobile e mantenuto in situ solo dal legamento parodontale
Esame radiografico: spesso evidente linea di frattura
Terapia: estrazione del frammento
Prognosi: dipende dalla profondità della frattura

trauma 40 giorni prima, 22 molto dolente

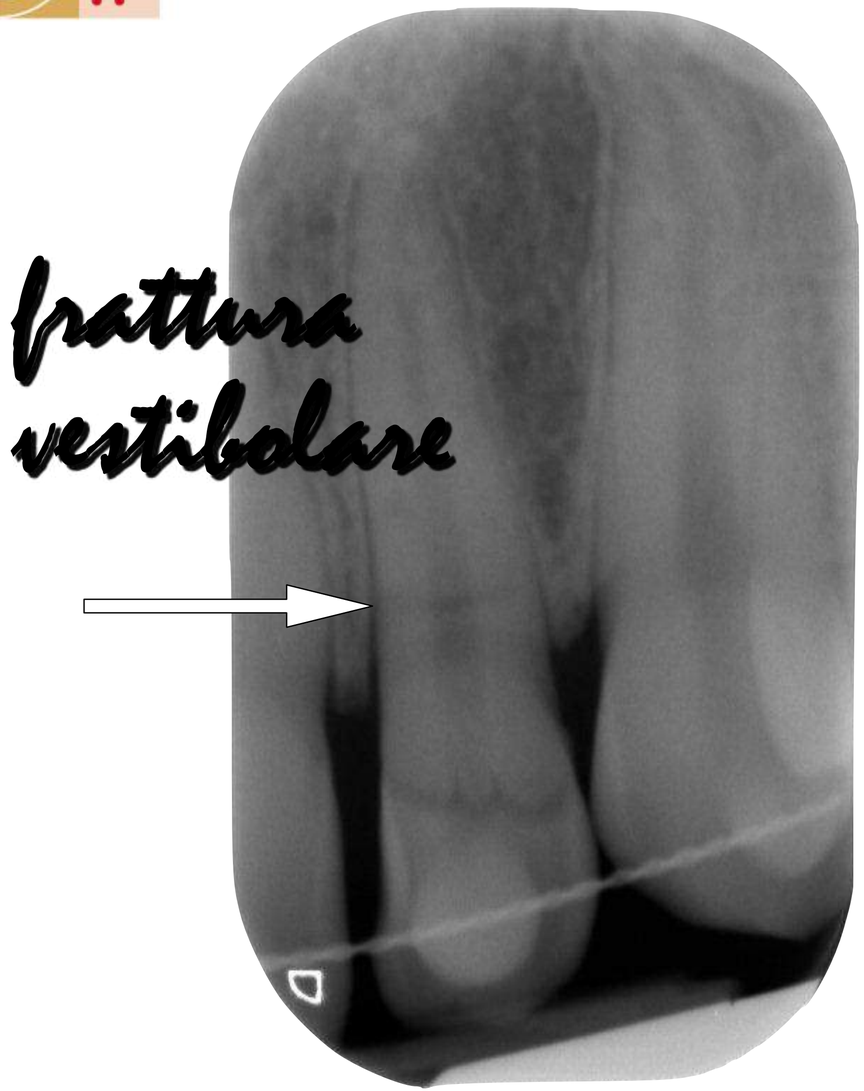
diagnosi sbagliata di sublussazione

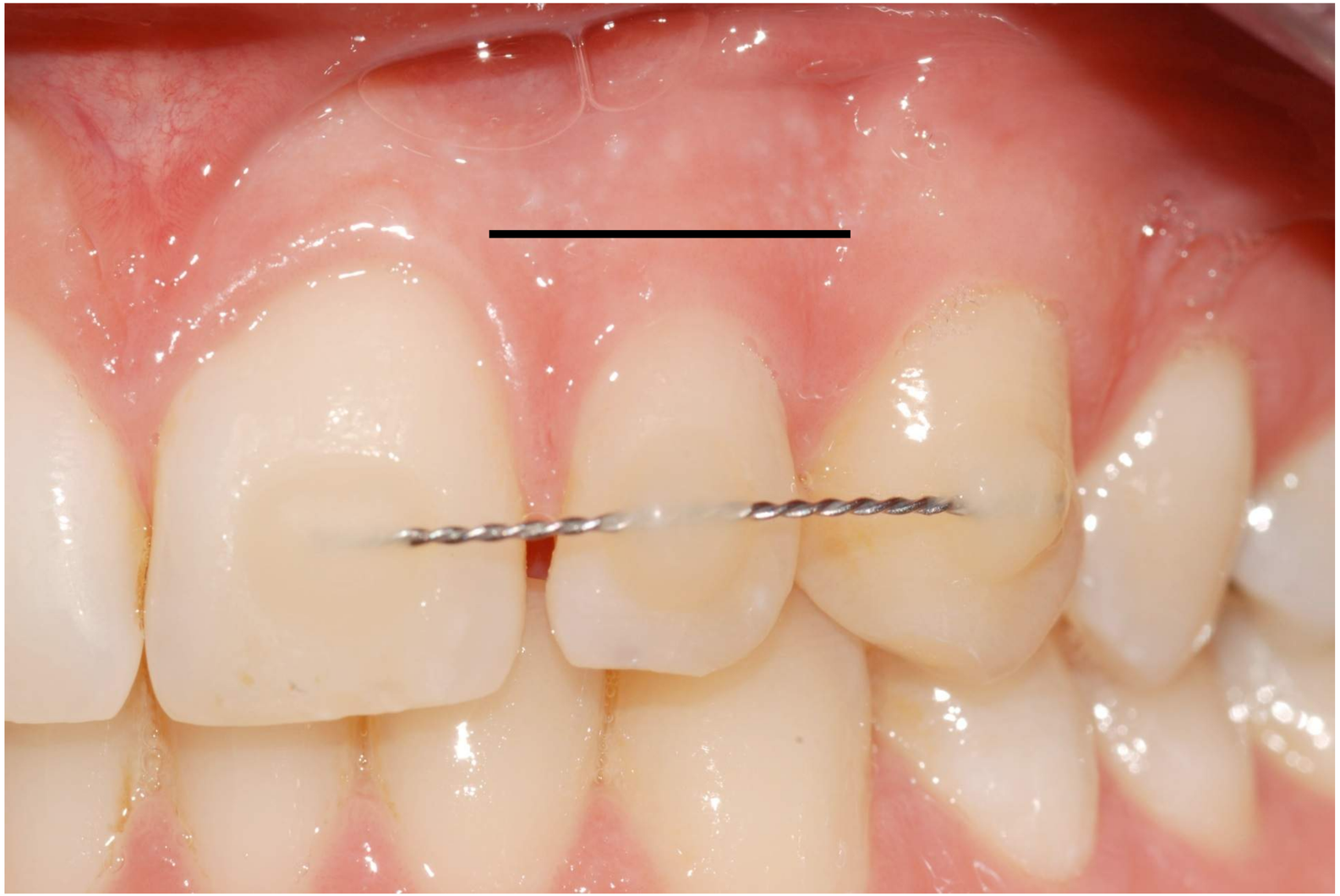


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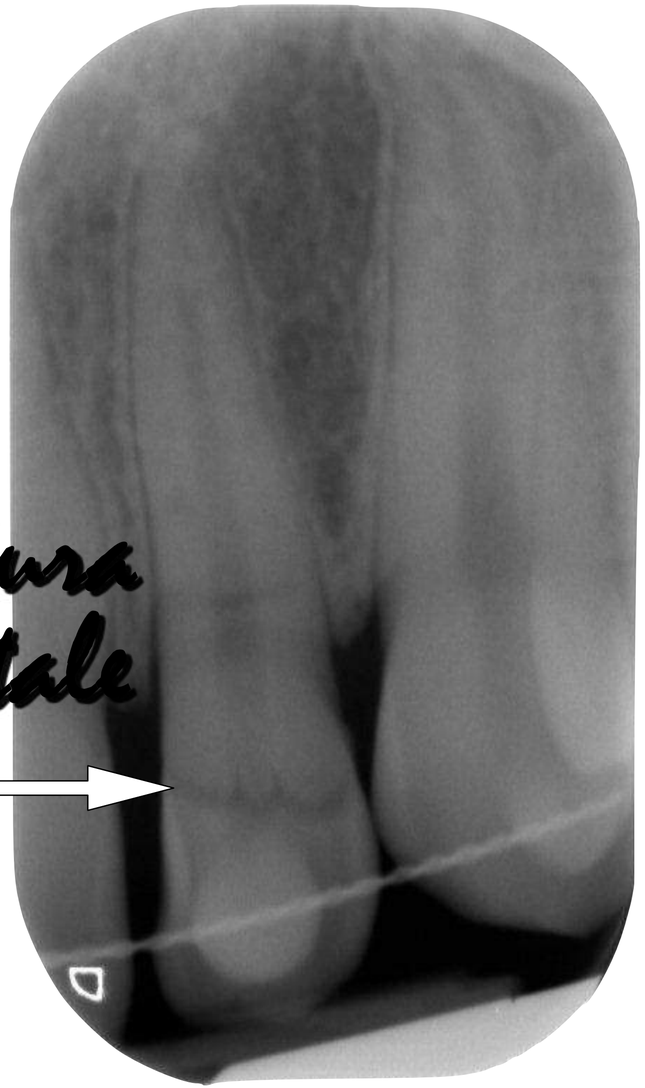




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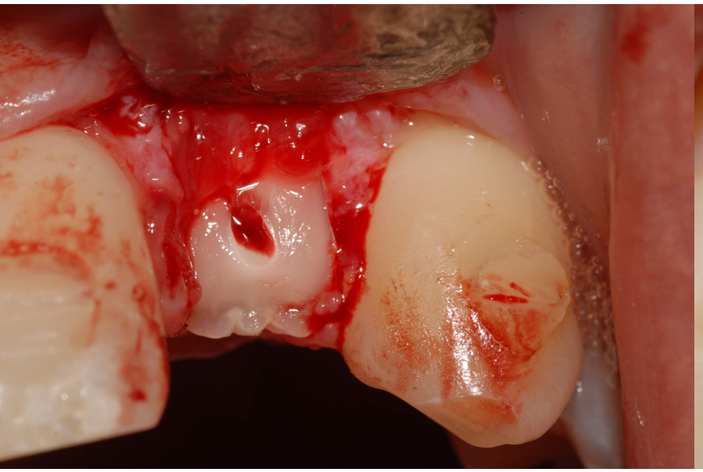
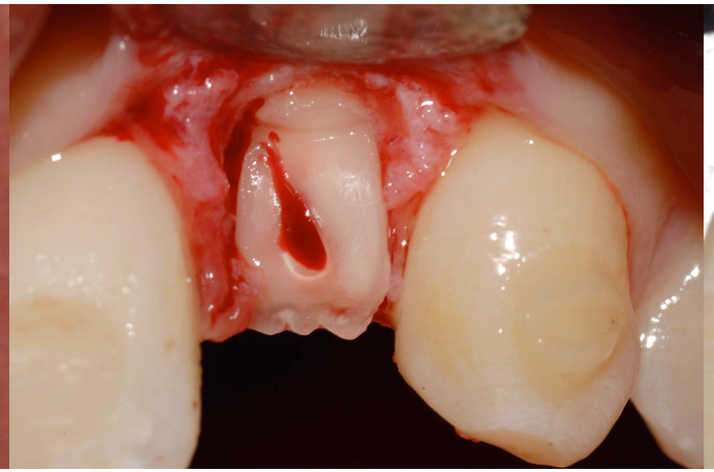
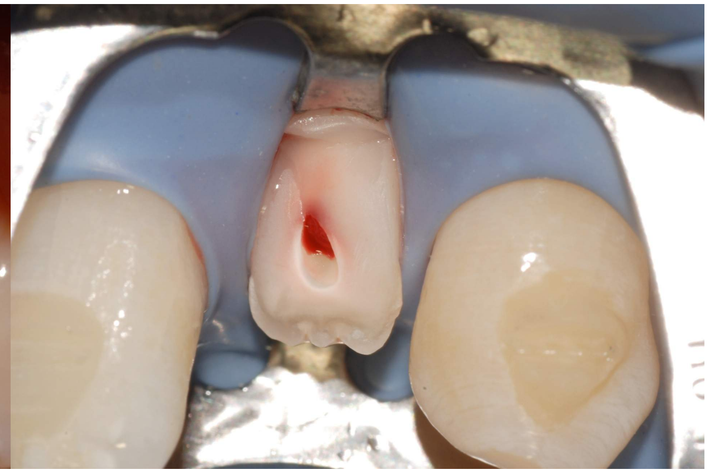
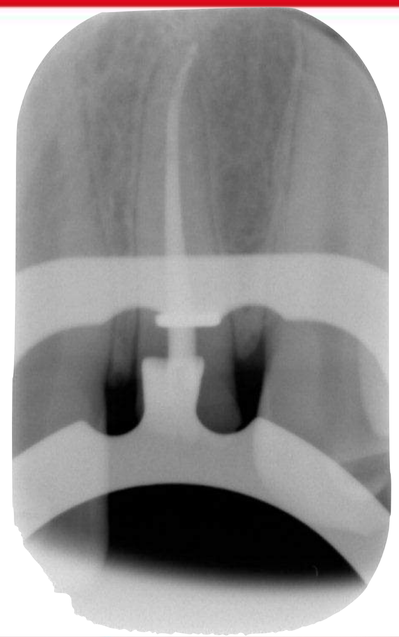
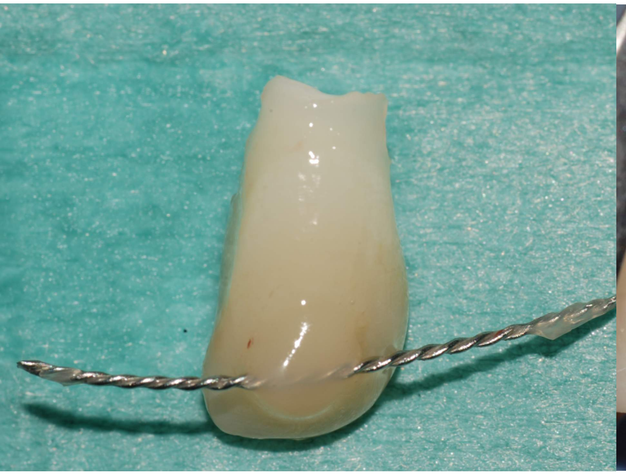
frattura palatale



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AVULSIONI TRAUMATICHE

COMPORTAMENTO AL DI FUORI DELLO STUDIO

reimpiantare IMMEDIATAMENTE

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COMPORTAMENTO AL DI FUORI DELLO STUDIO

conservare in un medium adatto e recarsi IMMEDIATAMENTE dal dentista

MEDIUM ADATTO

latte

soluzione salina

saliva (fornice)

acqua???



Review > Aust Endod J. 2012 Dec;38(3):129-36. doi: 10.1111/j.1747-4477.2012.00356.x. Epub 2012 Jun 1.

Transport media for avulsed teeth: a review

Christopher I Udoye [1], Hamid Jafarzadeh, Paul V Abbott

Affiliations + expand

PMID: 23211073 DOI: 10.1111/j.1747-4477.2012.00356.x

Abstract

Management protocols for avulsed teeth should include management of the pulp and periodontal ligament (PDL) cells in order to improve the long-term prognosis and survival of these teeth. The use of an inappropriate transport or storage medium potentially increases the risk of PDL cell necrosis, which can result in ankylosis and replacement resorption of the tooth root. Considering the critical role of these media, an informed choice of a suitable medium is essential for a favourable outcome. The literature regarding transport media for avulsed teeth was reviewed using PubMed/MEDLINE up to February 2010. This review outlines the common storage media that are available and highlights their specific features or problems. Although HBSS, ViaSpan and Eagle's medium have great potential to maintain the PDL cells in a viable state after avulsion, the practicalities of using these solutions, the costs and the lack of ready availability to the general public make them less than ideal. Milk remains the most convenient, cheapest and readily available solution in most situations while also being capable of keeping PDL cells alive. Hence, milk remains the storage medium of choice for avulsed teeth that cannot be replanted immediately or very soon after the avulsion.

© 2012 The Authors. Australian Endodontic Journal © 2012 Australian Society of Endodontology.



J Contemp Dent Pract. 2008 Sep 1;9(6):25-32.

A new storage medium for an avulsed tooth

Abbas Ali Khademi [1], Saeed Saei, Mohammad Reza Mohajeri, Nooshin Mirkheshti, Fatima Ghassami, Nakisa Torabi nia, Sayyed Ali Alavi

Affiliations + expand

PMID: 18784856

Abstract

Aim: The purpose of this study is to determine the efficacy of egg white in maintaining the viability of human periodontal ligament (PDL) cells on avulsed teeth.

Methods and materials: The experimental media were: egg white, milk, Hanks' Balanced Salt Solution (HBSS) as the positive control, and tap water as the negative control. The storage times were 1, 2, 4, 8, and 12 hours. Extracted premolar teeth of healthy individuals were rinsed in the media. After trypsinization and subsequent treatment in collagenase, cell viability was determined using trypan blue staining. The two-way analysis of variance (ANOVA) statistical test was used to compare the results among different media.

Results: There was no difference in the cell viability between egg white and HBSS media, but there was a statistically significant difference between the viability of PDL cells in egg white medium in comparison with milk ($P<0.05$) and water ($P<0.05$).

Conclusion: Egg white could be suggested as a suitable storage medium. Its principle advantage is its availability.



CAMPAGNA DI SENSIBILIZZAZIONE SUI
TRAUMI DENTALI IN ETA' PEDIATRICA
PROMOSSA DA
SOCIETÀ ITALIANA DI TRAUMATOLOGIA DENTALE SITD
ACCADEMIA ITALIANA DI ENDODONZIA AIE
SOCIETÀ ITALIANA DI ODONTOIATRIA INFANTILE SIOI
IN COLLABORAZIONE CON LA
CENTRALE DEL LATTE DI BRESCIA

SALVA IL TUO DENTE

La maggior parte dei denti permanenti può essere salvata!



Se il dente è uscito dall'alveolo:



Cerca il dente



Sciacqualo tenendolo per la corona



Rimetti il dente in posizione *oppure*





Conservalo nel latte o in soluzione fisiologica e rivolgiti immediatamente ad un dentista

SITD - Società Italiana di Traumatologia Dentale
AIE - Accademia Italiana di Endodonzia
SIOI - Società Italiana di Odontoiatria Infantile

SOLO latte italiano

più puro,
più a lungo



BRESCIA
LATTE DI CENTRALE

50% RPET
PLASTICA RICICLATA

intero
microfiltrato

CERTIFICATO • BENESSERE ANIMALE

COMPORTAMENTO IN STUDIO

minimizzare i danni al PDL

non ci si preoccupa della polpa

COMPORTAMENTO IN STUDIO

dente già reimpiantato

↓

eventuale correzione della posizione

↓

splintaggio per 2/3 settimane

COMPORTAMENTO IN STUDIO

dente non reimpiantato

mantenere il dente in medium adatto

↓

lavare alveolo con fisiologica e rimuovere i coaguli

↓

reimpiantare

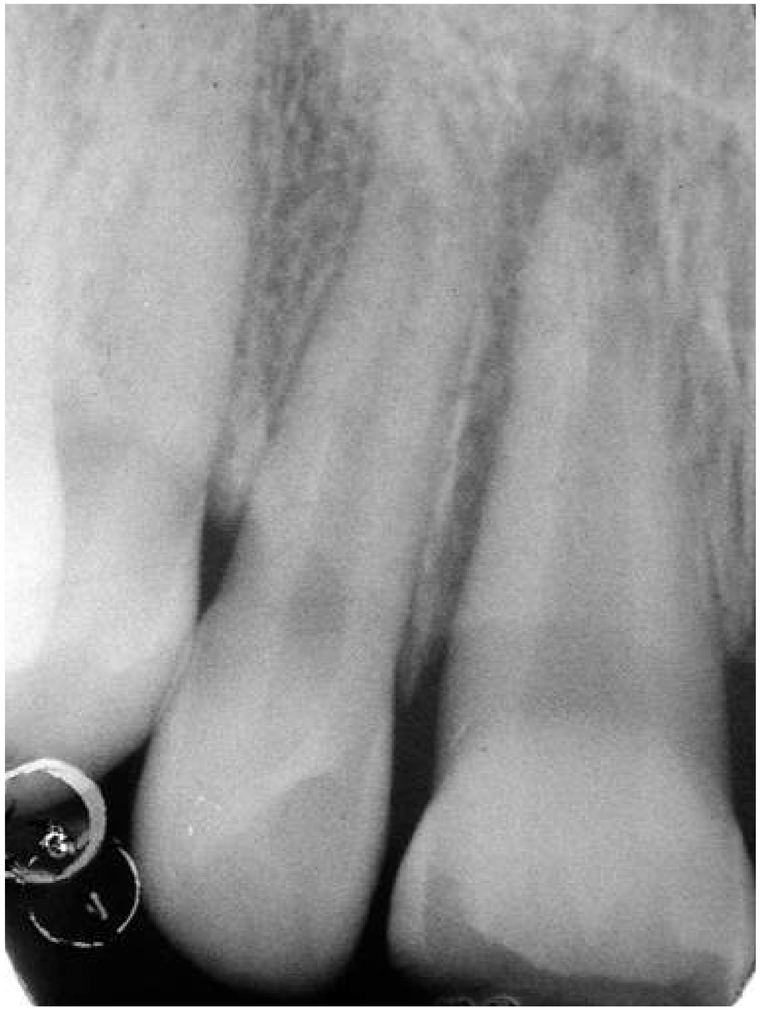
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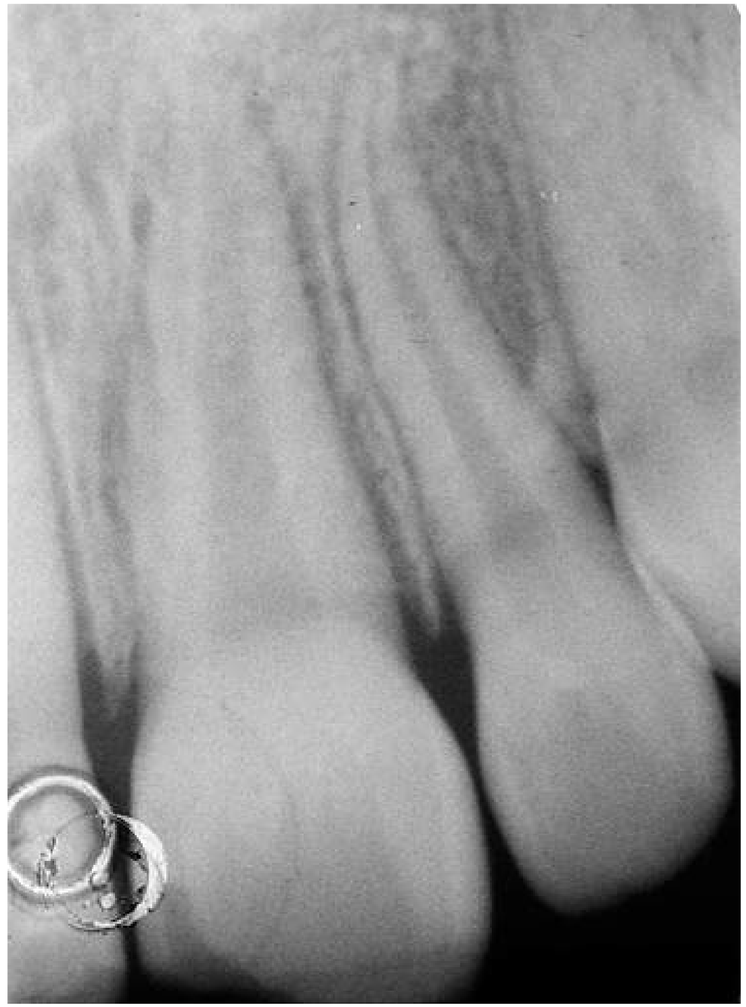
splintaggio per 2/3 settimane



reimpianto effettuato entro 40 minuti
fotografia eseguita dopo 2 giorni

Rx a 2 giorni dall'avulsione



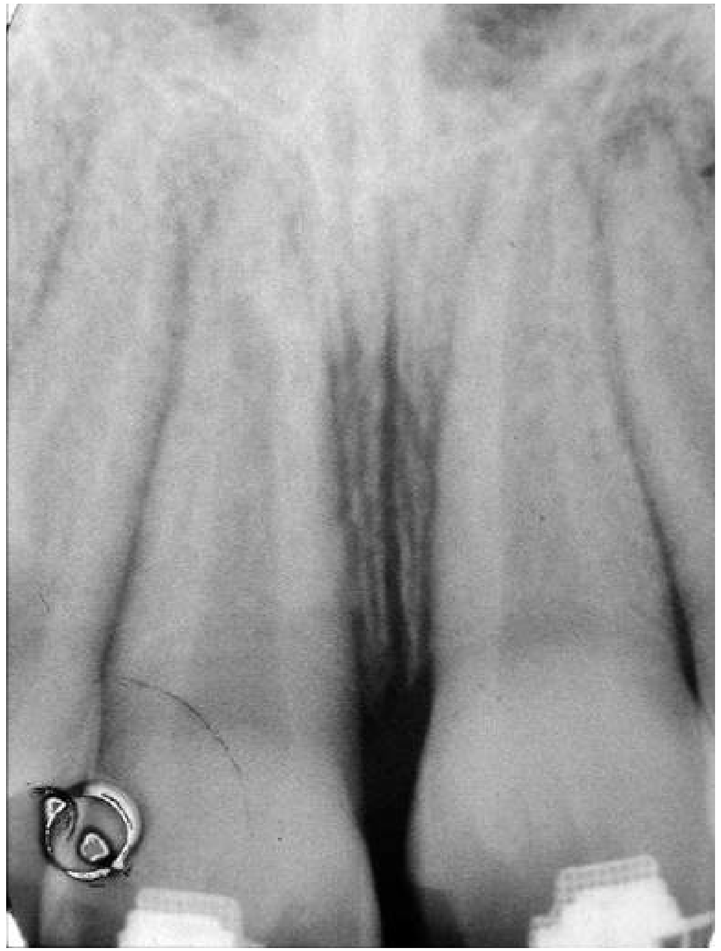


BLOCCAGGIO ORTODONTICO ELASTICO PER 3 SETTIMANE





Terapia antibiotica
Clorexidina per 2/3 sett
Profilassi antitetanica
Rimozione splintaggio
Test di vitalità e probabile terapia endodontica

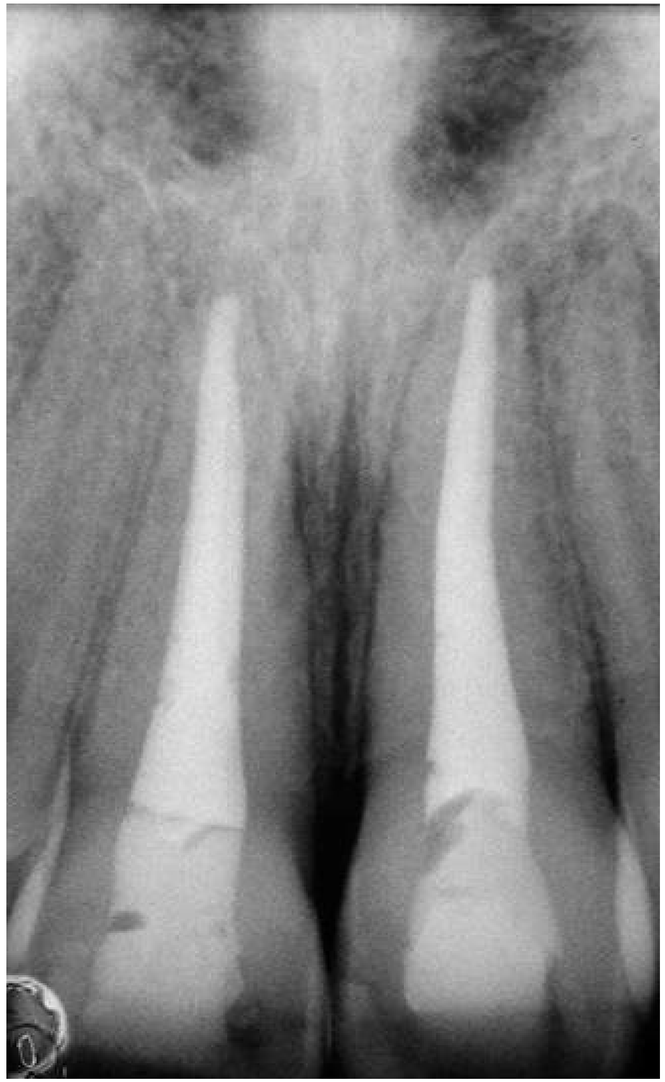


a 3 settimane
test di vitalità
negativi su 11



dopo 3 mesi test di vitalità negativi su 21; trattamento endodontico anche di 21





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Conclusioni

- Salvare i denti è possibile, doveroso e clinicamente rilevante
- L'Endodonzia moderna è centrale nella odontoiatria riabilitativa
- Il dentista come promotore della salute orale e della cultura conservativa nella prevenzione delle estrazioni precoci
- Invito a riflettere e a cambiare prospettiva: sostegno alla formazione basata su evidenza

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World Antimicrobial Resistance Awareness Week: WHO calls for action

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doi:10.1111/iej.12781

REVIEW

European Society of Endodontology position statement: the use of antibiotics in endodontics

European Society of Endodontology

It also highlights the role that dentists and others can play in preventing the overuse of antibiotics.

Table 2 Indications of antibiotics prophylaxis in Endodontics

Patient group	Indications
Impaired immunologic function (Leukaemia, HIV/AIDS, end-stage renal disease, dialysis, uncontrolled diabetes, chemotherapy, steroids or immunosuppressive post-transplant medications or inherited genetic defects)	Nonsurgical root canal treatment and, especially, endodontic surgery, considering: • State and control of the disease • Risk of infection-related complications • Risk of adverse drug reaction If doubt, the management of patient should be discussed with a physician
Risk of developing infective endocarditis (Patients with complex congenital heart defects, prosthetic cardiac valve or a history of infective endocarditis)	Nonsurgical root canal treatment Endodontic surgery
Prosthetic joint replacement	Nonsurgical root canal treatment Endodontic surgery During the first 3 months after joint operations
Patients whose jawbones are exposed to high-dose irradiation	Nonsurgical root canal treatment Endodontic surgery
Patients receiving intravenous bisphosphonate treatment	Endodontic surgery

Please consult local guidelines as these indications may vary from country to country.

Il ruolo del dentista

Molti denti considerati 'irrecuperabili' sono in realtà solo compromessi.

Grazie ai progressi della moderna Endodonzia, è possibile oggi trattare in maniera predicibile anche elementi un tempo considerati irrecuperabili.

La diagnosi precoce è essenziale per aumentare le probabilità di successo.

Messaggi chiave per il dentista

- Rispettare il valore biologico del dente naturale
- Decidere con consapevolezza
- Affidarsi a protocolli basati su evidenze
- Evitare estrazioni precoci non motivate
- Conservazione come scelta clinica ed etica
- Informare adeguatamente il paziente sulle alternative

Il ruolo del Medico di Medicina Generale (MMG)

Il medico di base:

- ha un ruolo fondamentale nella prevenzione e nella promozione della salute orale.
- Può orientare il paziente verso cure conservative e tempestive,
- Può educare il paziente all'importanza della conservazione dentale
- Può collaborare con l'Odontoiatra per affrontare condizioni sistemiche che possono influenzare ed essere influenzate dalla salute dei denti.

Messaggi chiave per i MMG

- La collaborazione interprofessionale è fondamentale
- Esaltare il ruolo dei MMG nella prevenzione dell’edentulia
- Educazione del paziente sulla conservazione dentale

Cosa possiamo fare insieme?

- Educare i pazienti all’importanza della salute dentale
- Evitare l’estrazione precoce dei denti naturali
- Collaborare per una diagnosi precoce e un trattamento tempestivo
- Diffondere una cultura della conservazione, non della sostituzione automatica

Messaggi chiave per i pazienti

- Educare il paziente sul valore del dente naturale
- Contrastare la cultura dell’impianto come soluzione rapida
- Contrastare il turismo odontoiatrico

Il ruolo di AIE nel progetto

- Diffusione scientifica, formazione, consulenza clinica
- Impegno continuo nella promozione della cultura conservativa
- Opportunità di contribuire attivamente al mantenimento dei denti naturali

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Grazie dell’attenzione!