

Case Report

Intentional replantation: case report

**Cristhal Duque-Urióstegui¹, Luis A. Alvarez Hernández¹, Yanirethe I. Muñoz-Ramírez²,
Verónica Vallejo Ochoa³, Noemí Méndez Hernández⁴, Karen I. González Madó⁴,
Emmanuel Poceros Angeles⁴, Carlos Briseño Flores⁴, Carla B. Duque-Urióstegui⁴,
Alicia M. Corona Maya⁵, Gabriela Castañeda-Palacios⁶,
Baltazar Barrera-Mera⁷, Alan I. Valderrama -Treviño^{8*}**

¹Department of Stomatology, UAM, Mexico City, Mexico

²Department of Stomatology, CST-III Health Center, Hidalgo Extension, Mexico City, Mexico

³Department of Stomatology, U.M.S.N.H, Morelia, Mexico

⁴Department of Stomatology, UAM, Mexico City, Mexico

⁵Department of External Dental Consultations, ISSEMYM Morelos, Mexico

⁶Faculty of Dentistry, ULA, Mexico City, Mexico

⁷Department of Physiology. Faculty of Medicine, UNAM, CDMX, Mexico

⁸Department of Surgery, Central North Hospital PEMEX, CDMX, Mexico

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*Correspondence:

Dr. Alan I. Valderrama-Trevino,

E-mail: alan_valderrama@hotmail.com

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ABSTRACT

Intentional reimplantation is a procedure in which an intentional tooth extraction is performed followed by reinsertion of the extracted tooth. We present the case of a 50-year-old male patient who came to the consultation due to incrustation detachment in tooth #37, when performing the radiographic study an extensive apical lesion was observed in tooth #36 with a sinuous path and the presence of purulent exudate. The tooth #36 was extracted, apicoectomy, retro preparation and retrograde filling were carried out for later reimplantation, showing bone regeneration after one year of evolution.

Keywords: Dental reimplantation, Dental extraction, Dental ankylosis, Periapical surgery, Apicoectomy, Retrograde filling

INTRODUCTION

Intentional reimplantation is a procedure in which an intentional tooth extraction is performed followed by reinsertion of the extracted tooth after endodontic manipulation. After the intentional extraction, an apicoectomy of the tooth should be performed, this treatment should be considered as the last option in the effort to keep the tooth in the mouth, its objective is to achieve that the tooth is anchored to the alveolar bone.¹⁻³ This is not a new procedure it has been performed since 1982 and there is evidence from reports by Grossman et al of a success rate of 8895%.⁴ The success of this procedure

depends on the care and manipulation of the periodontal ligament. To carry out the treatment it is necessary to evaluate all the conditions of the root canal treatment, to know the periodontal conditions and the symptoms that the patient refers.⁵⁻⁷ The indications for periapical surgery and contraindications are summarized in Table 1.^{3,4,8-10}

Apicoectomy

Apicoectomy consists of eliminating the apex of the dental root to achieve the sealing of the canal by retrograde obturation, the objectives are: to eliminate accessory canals from the apical end, to eliminate the unobstructed

portion of the root by orthograde route, to clean the excess of root sealing material and get a good seal.¹¹ Root-end cavity preparation is a crucial step in establishing an apical seal. The objective is to open a cavity at the root-end. The ideal preparation of a Class I cavity extends to a depth of at least 3 mm, 11 surgical intervention is likely to be successful if the rest of the duct system has been previously cleaned and shaped to eliminate irritating microorganisms.¹²

Retrograde filling

The procedure requires the prior preparation of a class I obturation box that maintains the sealing material and is

carried out with diamond-coated ultrasound tips. The recommended dimensions of the box are 2 to 3 mm deep and 1.5 mm in diameter, it must be a retentive box, the material that is placed must meet the following requirements: biocompatibility with the apical tissue, good marginal sealing (minimal leakage), not resorbable or alterable by humidity, radiopaque and easy to handle.¹³

CASE REPORT

A 50-year-old male patient with incrustation detachment in tooth #37, when performing the radiographic study, an extensive apical lesion was observed in tooth #36 (Figure 1).

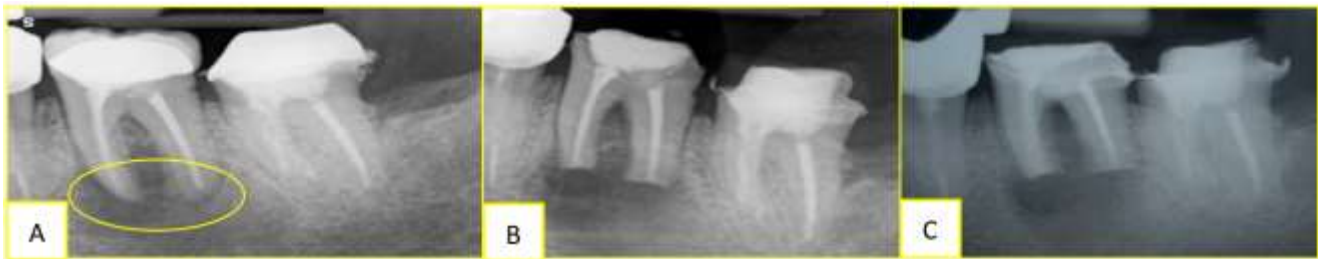


Figure 1: (A) Coronoapical radiograph of tooth # 36, periapical region with rarefaction involving both roots (circle); (B) postoperative coronoapical radiograph of tooth # 36; (C) coronoapical radiography at one year of evolution of tooth # 36.

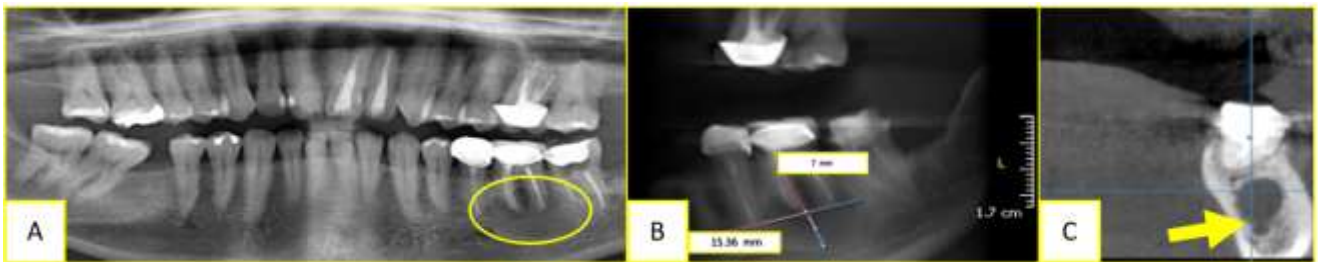


Figure 2: (A) Orthopantomography of tooth #36, periapical region with rarefaction involving both roots (circle); (B) CT, shows mesiodistal dimension 15.36 mm, coronal dimension of 7 mm of apical lesion; (C) CT scan shows contact of the lesion with the inferior alveolar nerve at the distal root (yellow arrow), decreased bone support.



Figure 3: (A) Photograph of tooth # 36 extraction with forceps # 18R; (B) apicoectomy; (C) retroapical obturation.

It presents a sinuous path and purulent exudate, a fistulography was performed, sensitivity tests were positive for the vertical percussion test and

orthopantomography (Figure 2), the apical lesion was found close to the inferior alveolar nerve (Figure 2) for which it was performed an open mouth tomography (CT)

scan. (Figure 2). Tooth 36 was diagnosed with previous root canal treatment and chronic periapical abscess, so treatment was started with 0.12% chlorhexidine rinse and amoxicillin antibiotic with clavulanic acid 500/125 milligrams, every 8 hours for 5 days.

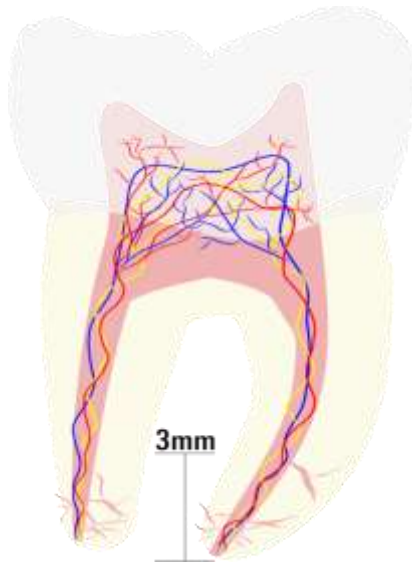


Figure 4: Representation of the apical end, accessory apical canals, most of the apical branches can be removed with a 3 mm resection.

Surgical procedure

After signing consent for oral surgery, dexamethasone 8 milligrams were administered intramuscularly and an inferior alveolar nerve block was performed with 2% lidocaine / epinephrine with direct truncal technique. The extraction was performed with 18R forceps (Figure 3), making buccolingual movements, the crown was detached from the tooth. Once the tooth was extracted, it was placed in 0.9% sodium chloride solution and the procedure was started with a 15-minute stopwatch.

The cut was made at 3 millimeters from the root apex with a high-speed piece (Figure 4) and a fine-grained frustoconical bur and manual irrigation of 0.9% sodium chloride. With an ultrasonic element and the NSK E32DS tip, the retrograde obturation box was made with manual irrigation of 0.9% sodium chloride (Figure 3). With a canal explorer the canals were located, a fragment of interradicular bone was removed and the retrograde filling with gray MTA (Angelus) was continued (Figure 3) applying it with a William's - Goldman Fox probe and compacting with gauze. The tooth was implanted with a working time of 14 minutes, it was sutured with 4-0 silk through an "X" point, it was left out of occlusion and a post-implantation radiograph was taken (Figure 2), indications were given to the patient with external follow-up in 7 days, 2 and 12 months, observing a decrease in bone mobility and regeneration.

Table 1: Indications and contraindications for periapical surgery.

	Indications	Contraindications
Corrective surgery of the endodontic technique	Persistent periapical pathology, pain, lesion size does not decrease, incorrect root filling, broken instruments within the root canal that cannot be removed, large reconstruction, root perforation creating a false pathway.	Divergent roots, which could fracture preventing any intentional reimplantation attempt or an obvious fracture in the tooth, when the extraction requires a root hemi section or bone contouring, or if it is part of an extensive fixed prosthesis, periodontal disease with mobility.
Periapical surgery for anatomical abnormalities	Invaginate tooth, inaccessible curved apex, root apex outside the external cortex, accessory canals not accessible.	
Periapical surgery for dental pathology	Canals obliterated by secondary dentin (reactive dentin, progressive calcification of the canal or physiological aging), horizontal fracture of the apical third or resorption of the root apex.	

DISCUSSION

Apical surgery generally has high success rates, 1 it is evaluated by clinical examination with radiographic controls, and infection control as well as smoking is essential.¹⁴ Reimplantation is considered successful when the original periapical region of rarefaction shows a reduction in size after 6 months or a complete bone regeneration of the lamina that can be observed in a period of 2 to 4 years.¹⁵

There are complications in periodontal healing, Hermann et al showed possible alternatives in periodontal healing after injuries, with similar results to Andreassen et al.^{16,17} where there may be normal periodontal healing, repair-related resorption, infection-related resorption, and ankylosis-related resorption, as well as transient marginal bone loss. The physiological process of healing in the absence of complications, differentiates regeneration and repair, in regeneration healing occurs through the integral restoration of the function and architecture of the periodontal tissues that had been lost. In the repair, the

location of a tissue occurs that does not allow the original functional or morphological restoration of the periodontium, being considered as a non-functional scar.¹⁸

CONCLUSION

Intentional reimplantation is an alternative surgical treatment for specific cases and can reduce complications such as paresthesia due to injury to the alveolar nerve, as well as allowing treatment of periapical and periradicular pathologies in the same procedure.

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Ethical approval: Not required

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