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Case Report

Endodontic Retreatment of Element 17 with Removal of Intraradicular Pin: Case Report

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Abstract:

It is observed that most of the teeth indicated for endodontic retreatment are restored. When a crown and intraradicular retainer are present, the coronary access is somewhat compromised, as care must be taken when removing the crown and intraradicular pin to avoid fracture of the dental element. Endodontic retreatment consists of a new treatment of the root canals, due to the previous failure or to perform a more appropriate treatment, especially in cases where the dental elements serve as support for prosthetic work. Endodontic retreatment is the removal of filling material, re-instrumentation and re-filling of root canals in order to improve the deficiencies of the previous treatment. Removing intraradicular pins can present great difficulties, such as the risk of dental fractures or root perforations, especially when there is little amount of remaining dental structure. With the advances in techniques and equipment, such risks have been minimized. In this perspective, the objective of this work is to present a clinical case of removal of an intraradicular retainer associated with obturation of the non-obturated mesial canal. After the case report, it can be concluded that the use of ultrasound as an aid to remove the intraradicular pin proved to be safer and more conservative. With the location of the distal canal, untreated in the previous endodontic treatment, it greatly improves the prognosis of endodontic retreatment of the dental element, since the failure to locate any of the root canals is the major cause of failure of the endodontic treatment.

Keywords: *Intraradicular pin; Endodontic retreatment*

Introduction

Endodontic retreatment is resumed in a new treatment of the root canals, due to the previous treatment having failed or to perform a more correct or adequate treatment, mainly in cases where the dental elements serve as support for prosthetic works. Retreatment consists of the removal of filling material, the re-instrumentation and the re-filling of root canals in order to improve the deficiencies of the previous treatment (COHEN et. Al., 2011).

The purpose of endodontic treatment is to treat or prevent the development of periradicular lesions. The success of endodontic treatment can be characterized as the absence of periradicular disease after a period of sufficient treatment preservation, but endodontic failure results from technical failures, which make it impossible to properly complete intracanal procedures aimed at controlling and preventing endodontic infection. (SIQUEIRA et. Al., 2015).

To be considered an effective endodontic treatment, it is necessary to consider the clinical and radiographic aspects, as well as the time of control, as criteria for evaluating the success and failure rate of endodontic treatment (LUCKMANN et.al., 2013).

The European Society of Endodontics in 1994 considered that absences of pain, swelling and other symptoms; as well as the absence of fistula, loss of function and radiographic evidence of space in the normal periodontal ligament are indicative of success. If the radiograph shows that the lesion remains the same size or has not decreased in size, the treatment is not considered a success. In cases where there is a reduction in the size of the periradicular lesion without its absence, it means that the infection has decreased, but not to sufficient levels that are compatible with complete repair (SIQUEIRA et. Al., 2015).

For radiographic data obtained in endodontic treatment to be compared with those of subsequent evaluations, radiographs must be of good quality and with the least possible distortion, vertical and horizontal angulations must be constant and provide a representation as close as possible to the true root anatomy. and the channel configuration (MARCOLINI et. al. 2017).

From an endodontic point of view, whenever a failure arises, the option falls on two basic approaches: periradicular surgery or conventional retreatment, which when well indicated provide a good prognosis. The choice between one or another option depends on factors such as: access to the canal, location and anatomical situation of the tooth, involvement with prosthetic parts, quality of the endodontic treatment previously performed and periodontal involvement (SOUZA et.al., 2018).

The removal of coronary restorations in endodontically treated teeth can be simple or complex. Simple restorations must be removed using rotary instruments. As for complex restorations, maintenance or total removal of the crown may occur (ALLGAYER et. Al., 2011).

Complex metallic coronary restorations can be removed by the use of ultrasound, which is more efficient when cemented with conventional cements than with resin cements or cements with dentin adhesives. During the application of the device, the water jet must be kept in order to avoid an increase in temperature, caused by the vibration of the ultrasound tip, which must be applied at intervals of 1 to 2 minutes, and the time required for removal varies from 3 to 10 minutes, with the power register of the equipment positioned in vibration. To alleviate the discomfort of vibration, an auxiliary instrument (for example, a cement presser) can be applied next to one side of the restoration (SIQUEIRA et. Al., 2015).

Another way to promote the removal of complex coronary restorations, especially artificial crowns, is through the prosthesis device or pneumatic extractor. It is important to note that the force applied to the anatomical neck of the crown is parallel to the tooth axis. When using the prosthetic bag and pneumatic extractor, care must be taken when removing cemented prosthetic parts permanently. However, they are useful when cementation is of a temporary nature, due to the lower resistance to rupture of the cement used (COHEN et. Al., 2011).

Removal of intraradicular pins presents difficulties in their removal, with the risk of dental fractures or root perforations, especially when there is a small amount of remaining dental structure. (ALLGAYER et. Al., 2011).

The methods and procedures suggested for the removal of intraradicular retainers are: traction, the use of ultrasound, wear by means of rotary instruments and the combination of these methods. Before programming any intervention and choosing the method for removing the intraradicular retainer, a careful clinical and radiographic analysis of the dental element should be carried out (OLIVEIRA et. Al.,

Case Report

Male patient, 53 years old and leucoderma, sought care at the institution Inco25 - Centro, because he had discomfort in tooth 17. In the clinical examination he presented good oral hygiene, in element 17 he had a crown cemented in the dental element, with indication of exchange and presence of fistula. The radiographic examination (figure 1) did not identify a periradicular lesion. Presence of threadable intraradicular pin in the palatal root, mesial root filled to the apex and untreated distal root.

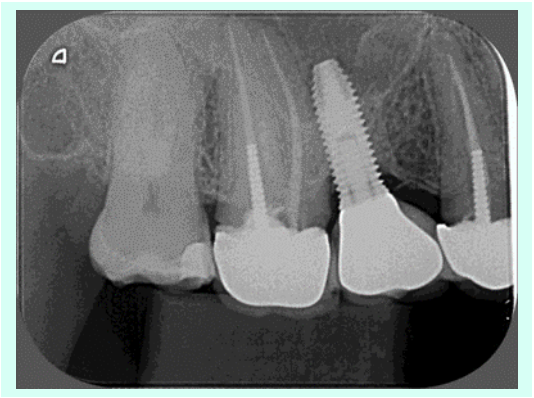

Figure 1: *Initial periapical radiography*

Patient reports having undergone endodontic treatment 20 years ago, then cementation of the metaloceramic pin and crown was performed. In mid-August the crown fell and he sought a dentist to cement the dental crown, but the crown was not correctly cemented and the patient reported starting to feel discomfort in the dental element. His previous dentist referred him to a specialization clinic for endodontics in the city center (inco25).

At the consultation on October 14, 2019, endodontic retreatment of element 17 was initiated. In this consultation, the removal of the total crown and the resin filling core was performed, removal of the intraradicular pin with the aid of ultrasound. After removing the intraradicular pin on the palatal root (figure 2), the distal canal was found and referred for an increase in the clinical crown, as it did not have enough dental structure to perform absolute isolation. It was re-scheduled for the next appointment to continue the treatment.

In the following session, on November 25, 2019, the patient was anesthetized and the clinical crown was increased, with absolute isolation with clamp 26. Total disobturation of the palatal and mesial channels was performed (figure 3). The distal canal was not treated in the previous treatment. Using the foraminal locator, canal dentometry (palatal root 19 mm / mesial root 19 mm/ distal root 20 mm), placement of intracanal medication (paramonochlorophenol) and dressing (glass ionomer cement) were measured.

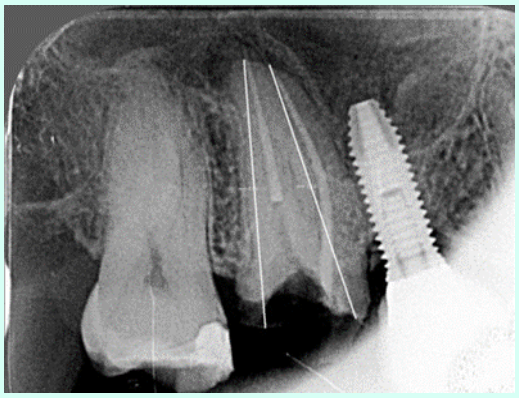

Figure 2: *Periapical radiography removal of the intraradicular pin*

Figure 3: *Periapical radiography total removal of gutta perchas*

On December 16, 2019, the channels were instrumented with a Kerr 35 TDK file and X1 Blue 20.06 and 25.06 MK Life reciprocating instrument, calibrated M cone test (figure 4) and, finally, the filling of the channels with the Sealer 26 cement and the lateral condensation technique (figure 5).

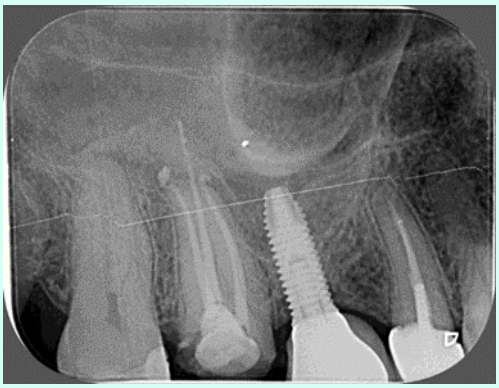

Figure 4: *Cone-proof periapical radiography*

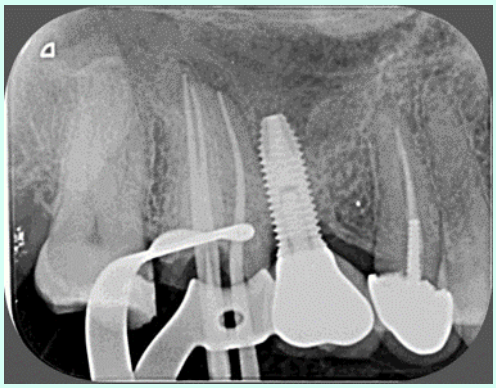

Figure 5: *Final periapical radiography of the canal filling*

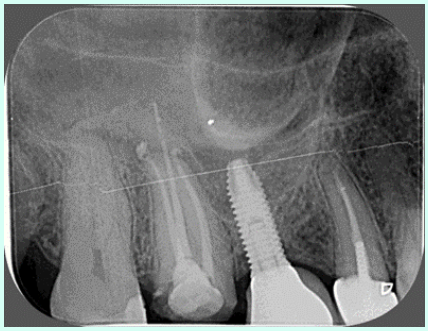

Figure 6: *Obturation*

On February 10, 2020, the patient returned to perform the preparation for pin in the palatal canal using wide 2 and 3 in 12mm, a dressing (glass ionomer) was placed.

Conclusion

After the case report, it can be concluded that the use of ultrasound as an aid to remove the intraradicular pin proved to be safer and more conservative. With the location of the distal canal, untreated in the previous endodontic treatment, it greatly improves the prognosis of endodontic retreatment of the dental element, since the non-location of any of the root canals is the major cause of failure of the endodontic treatment.

Conflict of Interest

The authors declare no conflict of interest.

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