

Conservative option of retreatment for gutta-percha overfilled root canal: a case report

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ABSTRACT: In case of endodontic treatment failure due to root canal overfilling with gutta-percha there are two conducts to be followed: the endodontic retreatment or the surgical therapy. This paper demonstrates a conservative option of retreating overfilled root canals with gutta-percha, without a surgical procedure. The endodontic retreatment of overfilled teeth is a viable method for the dentistry practice, because it allows the performance of a conservative technique with great chances of clinical success, preventing an unnecessary surgical treatment.

KEYWORDS – overfilling; retreatment; unsucces

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Introduction

The endodontic retreatment is indicated on a variety of circumstances: apical percolation, root canal perforation, incomplete filling, concomitants periodontic lesions, coronal leakage, nondetected root canals and overfilling, among others (1,2,3,4). In the case of endodontic treatment failure due to overfilling, there are two conducts to be followed: the root canal retreatment or the apical surgery (2,4,5,6,7,8,9,10). Nowadays there is a tendency to indicate the reintervention as the first option, restricting the paraendodontic surgery only in cases where the retreatment has failed (6,10,11).

The gutta-percha overfilling is a kind of disruption on endodontics due by the professional trying to fill the root canal system. In this case the filling material goes beyond the limits of the endodontic cavity, exceeding the cement-dentin-canal (CDC) barrier, probably due by a failure on the odontometry, the selection of the principal gutta-percha point, or by missing of a proper apical stop. The filling material that remains on the periapical tissues induces the

formation of a periapical lesion and/or a foreign body reaction, moreover, the patient can present pain symptoms (12,13).

Histologically the perirradicular areas containing extruded filling material beyond the apical barrier shows the presence of granulation tissue, specially mononucleus cells, giant cells, and macrophages surrounding the material (14,15). The presence of those cells suggests a typical foreign body reaction (4,16).

The extrusion of the gutta-percha along with the feeling cement causes an immediate inflammatory response, of transitory and acute characteristics, due to the biological incompatibility of the cement in the majority of the cases, showing a chemical damage to the periapical tissues. There are cases where the irritation process can not be depleted because some cements can liberate toxic components for a long period of time, performing a physical damage as well as a biological stimulus (17,18).

Some authors observed that the endodontic

retreatment success index is more superior when compared to the surgical treatment (1,4,12). The periradicular surgery is not a simple procedure, been sometimes performed in difficult access areas, next to complex structures. Normally it can be avoided with the advantages of the endodontic retreatment (19), once the conservative conduct is more likely easy to execute (2).

The present paper reports a clinical case of endodontic overfilled root canal that was successful solved with an endodontic retreatment, dismissing the surgical treatment.

Case Report

Patient R.C., leucoderm, 35 years old, male gender, was directed to the Endodontic clinic of The Dentistry School at the Federal University of Amazonas, due to the presence of an acute dental-alveolar abscess in the element 21.

The patient described intense, continuous, pulsatile, spontaneous pain and a grown tooth feeling. During the clinical intra-oral evaluation, it was observed excessive pain during percussion, tooth mobility, and an edema in the labial furrow. The periapical XR showed extensive periapical lesion and a gutta-percha overfilling of about 5mm, beyond the apical limit (Figure 01). Based on the objective and subjective findings, it was established a diagnosis of Phoenix abscess, indicating an endodontic retreatment.

The treatment initiated by the rectification of the access to the pulp chamber and removal of a large amount of gutta-percha from the cervical 1/3 using a Gates-Glidden bur number 04. At the beginning, the exploration was performed using a K type file number 35 up to 1 mm beyond the working length. A Hedström file number 30 was used to cross the apical limit in 1 mm (Figure 02), perform the rotation to apprehend the overflowed material, and remove the overfilled gutta-percha (Figure 03). There was an purulent fluids drained from radicular canal (Figure 04).

During the retreatment it wasn't used any solvent, and after the removal of the filling, a chemical-mechanical disinfection of the radicular canal was initiated using the step-down technique (Figure 05). The irrigation solution was sodium hypochlorite at 2,5%. The smear-layer was removed by agitating EDTA solution using a surgical file during 5 minutes, followed by the irrigation with sodium hypochlorite (NaOCl). The canal was dried e filled using a Lentullo bur with an associated paste of Calcium hydroxide, paramonochorophenol, Zinc Oxide, and propylene glycol as the vehicle (Figure 06). On the next visit, after 15 days, the innercanal medication was removed with a new step-down procedure, followed by the filling of the canal using the active lateral condensation technique (Figure 07 and 08). The patient was evaluated for 02 years clinically and radiographically and the periapical repair was observed (Figure 09).



Figure 01. Initial radiography



Figure 02. Hedström point apprehending the gutta-percha



Figure 03. Point with gutta-percha

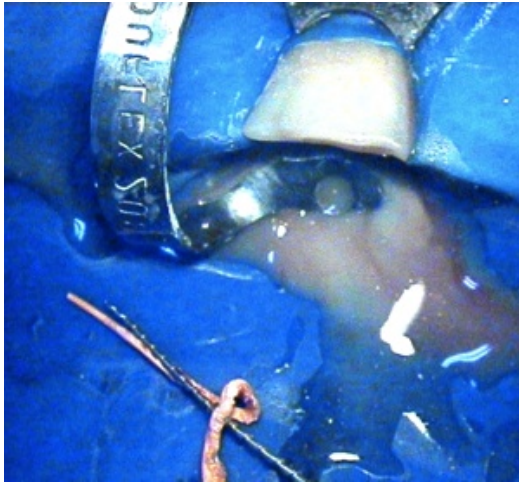


Figure 04. Purulent fluids draining

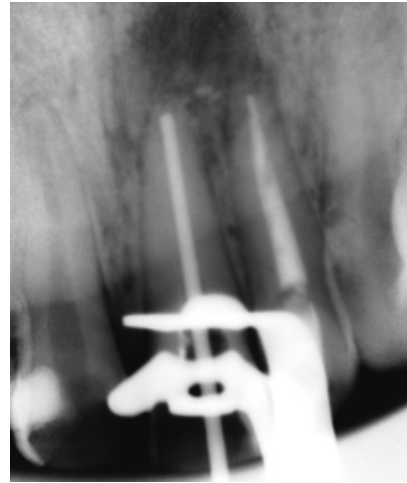


Figure 07. Measuring the gutta-percha point



Figure 05. Odontometry



Figure 08. Post-filling radiography

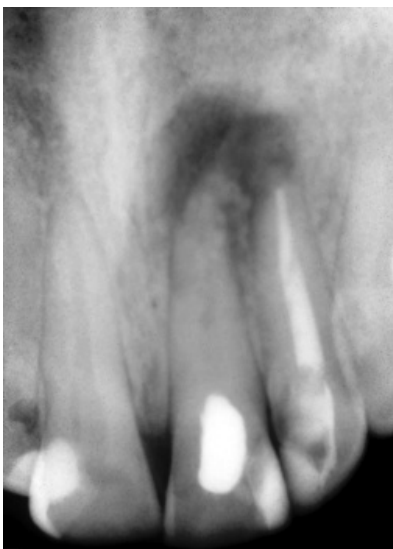


Figure 06. Root canal medication

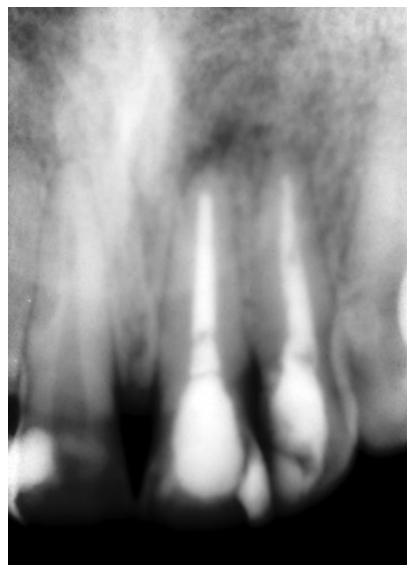


Figure 09. Post-provocation radiography (after 02 years)

Discussion

The radiographic evaluation facilitated the diagnosis, because it was possible to visualize the radicular overfilling, showing an unsuccess of the previews treatment, consequently by a mistaken endodontic filling technique. Sadly, nowadays the main cause of an unsuccessful endodontic treatment is iatrogeny (4,5,6,8,11,12). Due by the high rates of unsuccessful radicular treatment the future of the Endodontics is the retreatment (19).

The treatment optioned depended on the apical limit of the obturation and the quality of the lateral condensation. According to the evaluated criteria, a conservative treatment was chosen (Endodontic retreatment) with the gutta-percha removal without the application of solvents (7).

The manual technique utilized in the retreatment consisted in the association of K type points - for the opening of a way through the filling material - followed by Hedströen points with traction movements (4,6). Initially it used the K point to explore the canal up to a millimeter beyond the apical limit, later a Hedströen point was used in the same depth to remove the overfilled gutta-percha. The method of the Hedströen point should always be the first option, especially when the gutta-percha cone is beyond the apical limit and the filling is badly compacted (6,19). It is necessary to cross the gutta-percha with a Hedströen point beyond the apical limit in order to assure that the extravasated material won't loosen up from the apex. Those points apprehend the cones loosely compacted and remove them entirely with the traction of the instrument. When succeeded, this is the easiest, fastest and safest method of removing the overfilled gutta-percha (1,7,19).

During the retreatment no solvent of any type was used, because this could hinder the gutta-percha removal. In places where the root-canal filling was not homogeneous and condensed, it was removed by traction movements without the use of a solvent, due to the fact that a solvent can lead to the solubilization of the filling material, and by the piston action of the instrument, the extrusion of the filling through the apical limit is facilitated, damaging the periradicular tissues (1,5,11,19). The literature relates the use of a solvent, when necessary, as the gear lever for the transformation of the filling material into a soluble mass, facilitating the penetration into the periradicular tissues, and consequently hindering its removal. Another important factor in the endodontic retreatment is the material extrusion that, once infected with necrotic material, microorganisms, or solvent material, it can determine the change of a chronic inflammatory reaction in to an acute state, called *flare up* (19,20).

In the presented case success was obtained with the proposed conservative treatment. A surgical procedure was not recommended because the patient came with an acute state. The apical surgery is a procedure contraindicated in acute infectious states, once it can commit the patient's

general health by exposition to bacteremia and the risk of a septicemia (5,13,17).

Conclusion

The retreatment of overfilled canal roots should always be drifted based on the local factors. Therefore, it's inexcusable the clinical state analyses and the radiographic evaluation in order to increase the chances of adopting an appropriate treatment technique, avoiding unnecessary radical techniques that can compromise the prognosis and the general health of the patient.

The conservative treatment via gutta-percha overfilled canal root is a viable, secure and effective procedure. The surgical option should be considered only as a complementary treatment, when the conservative option does not solve the problem, which was not the case.

Resumo

RÊGO, Cintia Mara Melo; SALES, Francislaine Augusto; NETO, Manoel Valcacio Guedes; SALES Jr, Carlos Alberto; SENA, Neylla Teixeira; GARRIDO, Ângela Delfina. **Opção conservadora de retratamento para extravasamento de gutta-percha do canal radicular: relato de caso.** Oral Sci., jan/jun. 2012, vol. 4, nº 1, p. 31-35.

Em caso de insucesso do tratamento endodôntico devido a sobreobturação por gutta-percha, há duas condutas a serem seguidas: o retratamento endodôntico ou o tratamento cirúrgico. Este trabalho demonstrou uma opção conservadora de retratar canais sobreobturados com gutta-percha, sem necessitar de procedimento cirúrgico. O retratamento endodôntico de dentes sobreobturados é um método viável na prática odontológica, pois permite realizar um tratamento conservador com grande chance de sucesso clínico, prevenindo o tratamento cirúrgico desnecessário.

PALAVRAS-CHAVE: insucesso, sobreobturação, retratamento

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