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Raiz dentária impelida para o seio maxilar após exodontia: uma opção de tratamento

Dental root displaced to maxillary sinus after tooth extraction: a treatment option

Daniela Ponzoni ¹
 Ana Paula Farnezi Bassi ¹
 Alessandra Marcondes Aranega ¹
 Leonardo Perez Faverani ²
 Gabriel Ramalho-Ferreira ²
 Idelmo Rangel-Garcia Jr. ⁶

RESUMO

Introdução: A íntima relação anatômica entre raízes dentárias e o assoalho do seio maxilar, principalmente na região de pré-molares e primeiro molar superiores, podem levar ao deslocamento acidental de raízes para o interior do seio maxilar nos procedimentos de exodontia. **Objetivo:** Descrição do tratamento realizado para a remoção de uma raiz dentária no interior do seio maxilar, deslocada durante um procedimento de exodontia. **Relato de Caso:** Paciente do sexo feminino, 39 anos de idade, que relatou ter sido submetida à extração do elemento 26 para cerca de dois meses. O paciente foi informado pelo profissional que realizou a extração de uma raiz que foi impelido para o interior do seio maxilar. O plano de tratamento incluiu a cirurgia para remover a raiz no seio maxilar. **Comentários Finais:** Os profissionais devem ser criteriosos durante as extrações dentárias, para evitar estes acidentes. Entretanto, caso ocorra esta intercorrência, o acesso ao seio maxilar é a melhor opção terapêutica.

Descritores: Acidentes; Seio Maxilar; Raiz Dentária.

SUMMARY

Introduction: Upper teeth, especially first premolars and molars, can have a close anatomical relationship with the floor of maxillary sinus. For this reason, accidental displacement of dental roots into the sinus could happen during exodontic procedures. **Objective:** Description the treatment performed to remove a tooth root within the maxillary sinus, displaced during an extraction procedure. **Case Report:** Female patient, 39 years of age, which reported being subjected to the extraction of the element 26 for about two months. The patient was reported by the practitioner who performed the extraction that a root was pushed into the maxillary sinus. The treatment plan included surgery to remove the root within the maxillary sinus. **Final Comments:** Clinicians should be careful during extractions, to prevent these accidents. However, if such complications occur, access to the maxillary sinus is the best treatment option.

Key words: Accidents; Maxillary Sinus; Tooth Root.

INTRODUCTION

The accidental displacement of tooth roots into the maxillary sinus can occur as a complication in tooth extraction procedures, especially involving premolar and first molar¹. The superior first molars roots are the more often driven into the maxillary sinus. In epidemiological studies, this transoperative accident is the greatest cause of bucco-sinus communications.

The intimate anatomical relationship between the roots of these teeth and the maxillary sinus floor, often associated with periapical disease processes, favors this

type of complication. Factors in surgical technique, such as excessive manual pressure applied to dental forceps or traumatic use of extractors, increase the risk of transoperative accidents².

After this accident has occurred and confirmed by radiological exams (periapical, occlusal, Waters projection and panoramic), the presence of the root fragment within the maxillary sinus, suggest that no exploration through dental socket should be attempted, because there is small possibility of being removed, and it increases the risk of oroantral fistula formation and maxillary sinusitis.

1) Doutora em Cirurgia e Traumatologia Bucocomaxilofacial. Professora Dra da Cirurgia e Traumatologia Bucocomaxilofacial da UNESP Araçatuba.
 2) Especialista em Cirurgia e Traumatologia Bucocomaxilofacial. Mestrando em Cirurgia e Traumatologia Bucocomaxilofacial.
 3) Doutor em Cirurgia e Traumatologia Bucocomaxilofacial. Professor Adjunto da Cirurgia e Traumatologia Bucocomaxilofacial da UNESP Araçatuba.

Instituição: Universidade Estadual Paulista - UNESP - Faculdade de Odontologia de Araçatuba.
 Araçatuba - SP / Brasil.

Correspondência: Leonardo Perez Faverani - Rua Jose Bonifácio, 1193 - Prédio 10A - Vila Mendonça - Araçatuba / SP - Brasil - CEP: 16015-050.

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Thus, after the confirmed diagnosis and procedures for maintenance of sinus aseptically, the removal of the tooth or root fragment can be done, in particular by means of surgical access Caldwell Luc, widely used for allowing direct visualization of the maxillary sinus and therefore the tooth to be extracted².

CASE REPORT

Female patient, 39 years of age, leukoderma, was referred to Department of Oral and Maxillofacial Surgery, Faculty of Dentistry of Araçatuba, which reported being subjected to the extraction of the element 26 for about two months. The patient was reported by the practitioner who performed the extraction that a root was pushed into the maxillary sinus.

During anamnesis there was absence of symptoms. The patient reported air exit and sometimes the presence of unpleasant taste in the mouth. In intraoral evaluation the presence of oro-sinus fistula was observed in the alveolar ridge in the region of 26. In the extra-oral radiographs panoramic was observed the presence of an image compatible with a root inside the left maxillary sinus (Figure 1A and 1B). For the posterior-anterior Waters projection, was observed slight radiopacity of the left maxillary sinus, suggesting the presence of maxillary sinusitis.

The treatment plan included surgery to remove the root within the maxillary sinus with previous preparation of the maxillary sinus by means of irrigation with saline, and systemic antibiotic therapy (Amoxicillin, 500mg 1 tablet 8/8h). The previous preparation was initiated three days before surgery.

In an outpatient setting, the patient underwent local anesthesia of the left hemi-maxilla by blocking infraorbital, posterior superior alveolar, palatine and nasopalatine nerves, an anesthetic of intermediate duration was used (mepivacaine 2% with epinephrine 1:100,000). Nowak-Peter incision was made, consisting in a straight incision in alveolar crest surrounding the fistula, with relaxing incisions anterior and posterior to fistula. The epithelium that covered the oroantral fistula was removed by curettage. A mucoperiosteal flap was detached and the anterior wall of the maxillary sinus exposed. An osteotomy was performed in anterior wall of maxilla, allowing access to the maxillary sinus (Figure 2A). After partial curettage of the sinus membrane the root and surrounding tissues were removed (Figure 2B). Abundant irrigation with saline solution and cleaning of the maxillary sinus was done. Were necessary horizontal incisions in the periosteum to bring greater elasticity to the flap, which was slipped, repositioned and sutured in palatine gingiva, resulting in a coaptation of incised edges and a first intention repair of the surgical wound (Figures 3A and 3B).

DISCUSSION

The maxillary sinus is located anatomically in the body of the maxilla, with a pyramidal shape, its basis is

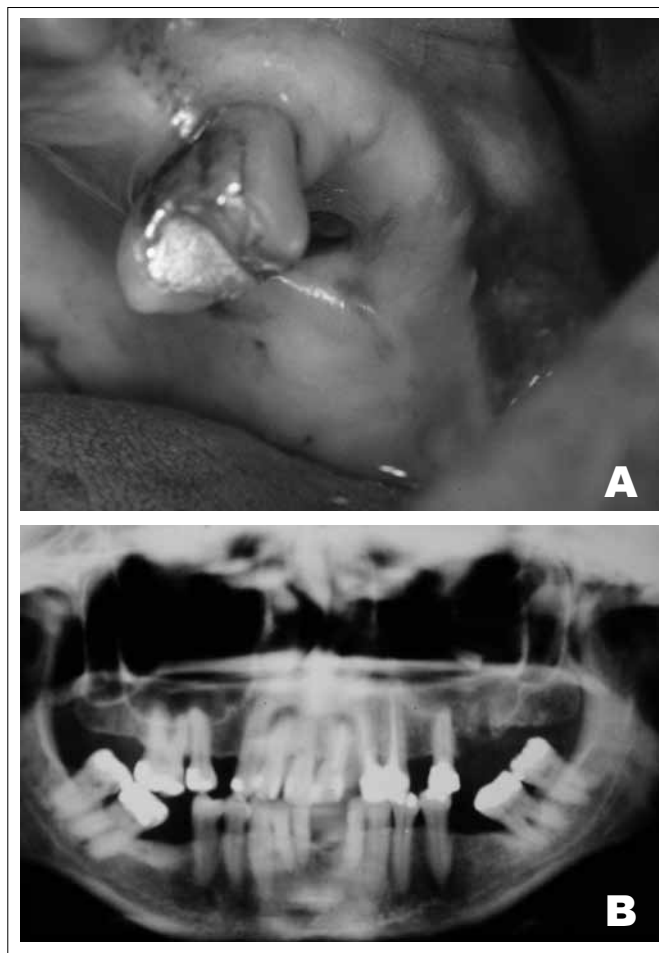


Figure 1. A. Intraoral evaluation the presence of oro-sinus fistula was observed in the alveolar ridge in the region of 26. **B.** Radiographs panoramic was observed the presence of an image compatible with a root inside the left maxillary sinus.

in the naso-sinus wall and the apex at the root of the zygomatic bone, linking themselves closely in its floor, with the roots of the superior molars and premolars¹. The maxillary body is gradually expanding by vacuolation of the maxillary sinus. After teeth loss, the maxillary sinuses can extend to that part where they lost some of its mechanical functions. The recesses of the sinuses can then extend down between the remaining teeth and the floor of such extensions is thin³. Often the maxillary sinus is broad and low and the roots form bumps on the floor, being covered merely by alveolar bone, lined by mucous membrane lining the maxillary sinus. When periapical disease exists, this bone is destroyed with remaining only the sinus mucosa covering the roots. Such anatomical and pathological factors may predispose the penetration of a root in the maxillary sinus when attempting an extraction.

The most commonly roots displaced to maxillary sinus are those of the molars. This can occur if the root is being removed with a straight extractor with excessive apical pressure².

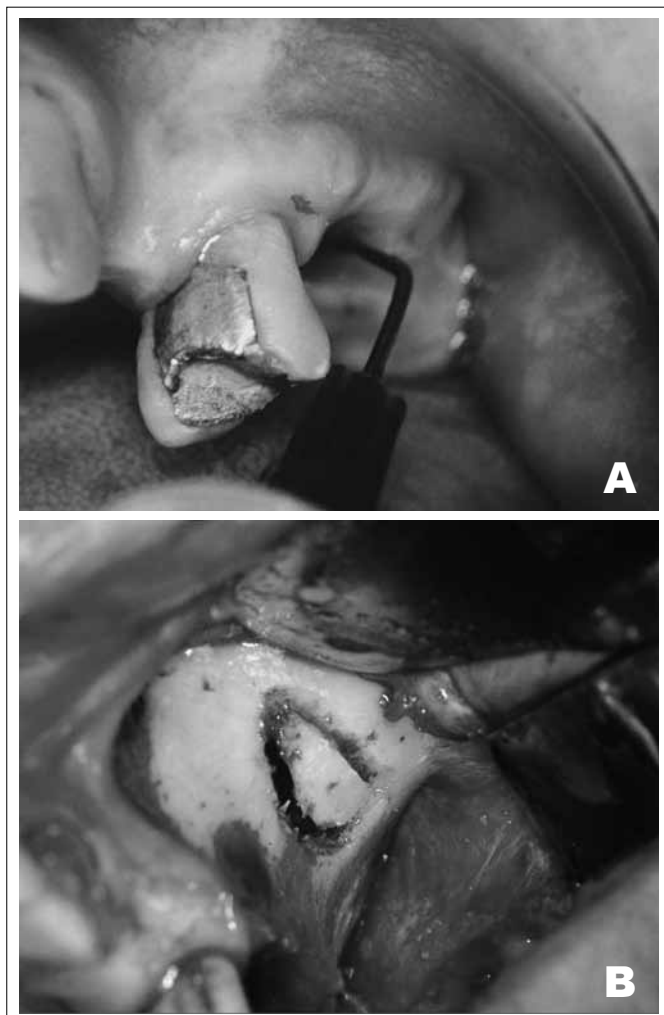


Figure 2. A. Osteotomy was performed in anterior wall of maxilla, allowing access to the maxillary sinus. B. After partial curettage of the sinus membrane the root and surrounding tissues were removed.

Kaufman, Neuman⁴ list factors that determine the consequences generated from the displacement of a root into the maxillary sinus: presence of periapical disease; location of the root - if submucosa, has a great chance of acceptance; level of irritation to soft tissues: physical (such as the fragment size) and microbiological (level of contamination and virulence of microorganisms); and the mechanism of host defense: general (age and physical condition of the patient at operation) and local (state of the maxillary sinus, an interference may exacerbate a pre-existing condition).

In the case of displacement of tooth root into the maxillary sinus, the surgeon must assess whether there is any infection in the tooth or in the periapical tissues. If the tooth fragment displaced is a small root tip, one should irrigate the socket and use a powerful vacuum cleaner. If removal is not possible in this way, the root must remain within the sinus. The use of instruments across the dental socket may introduce further fragment and allow the development of microorganisms that cause sinus infection^{1,2}.

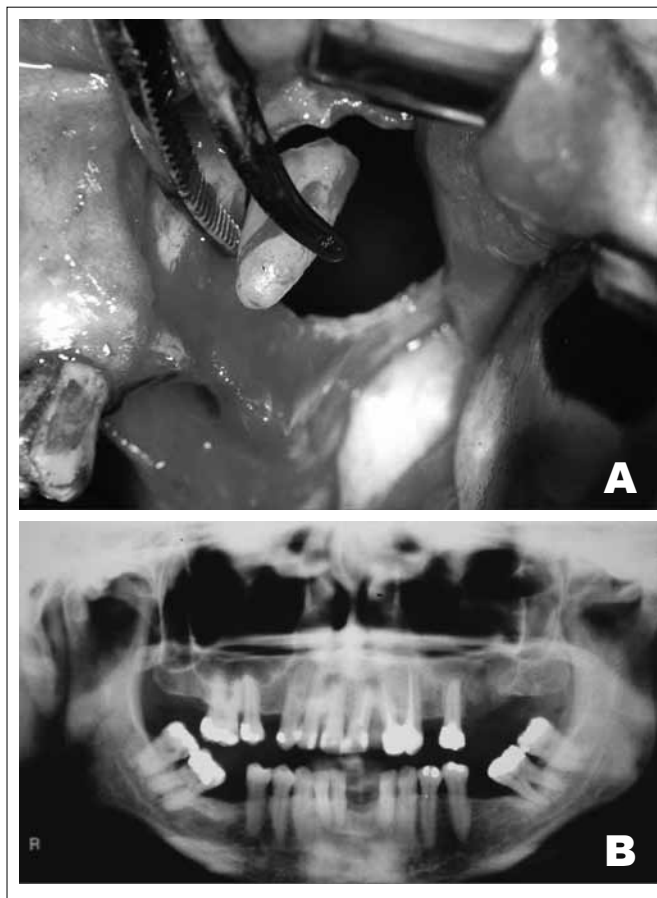


Figure 3. A. Root removed. B. radiographs panoramic postoperatory.

If the fragment of root is large, or even an entire tooth was displaced, this should be removed. The usual method to access maxillary sinus is Caldwell-Luc incision in the region of the canine fossa^{4,5}.

In our case, the access road to the canine fossa was performed through a Nowak-Peter incision, starting from the distal of the canine, which not only allows wide exposure of the canine fossa, but also of the alveolar process region, since it wanted to remove the root and to closure of the fistula. Another advantage is that the muco-periosteal flap protects the canine fossa trepanned avoiding a vestibular fistula occasionally observed when the classical incision Caldwell-Luc is used^{2,3,5}.

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