

Intra-sinus complex odontoma management simultaneously to oroantral communication closure: Why remove it?

Tratamento do odontoma complexo intra-sinusal simultaneamente ao fechamento da comunicação oroantral: Por que removê-lo?

Manejo del odontoma complejo intra-sinusal simultáneamente al cierre de la comunicación oroantral: ¿Por qué eliminarlo?

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Abstract

The oroantral communication is considered one of the most frequent complications in oral surgery, especially in extractions of posterior teeth in the maxilla, treatment of cystic lesions, neoplasms, osteomyelitis and trauma in the region of the maxillary sinus, forming fistulas. However, ectopic third molar and lesions such as odontomas are rarely found simultaneously in the maxillary sinus. This report shows a successful treatment performed in a specific case of oroantral communication, associated to an underdiagnosed complex odontoma and an impacted ectopic third molar into the maxillary sinus and discuss the requirement of intervention. The treatment strategy involved clinical and surgical management through the oroantral communication, avoiding additional bone access to the maxillary sinus. This proposal presented a satisfactory result, and at six months after surgery, the patient has an excellent evolution, proving to be a successful strategy.

Keywords: Maxillary sinus; Odontoma; Oroantral fistula.

Resumo

A comunicação oroantral é considerada uma das complicações mais frequentes em cirurgia oral, principalmente nas exodontias de dentes posteriores da maxila, tratamento de lesões císticas, neoplasias, osteomielites e traumas na região do seio maxilar, formando fístulas. No entanto, terceiros molares ectópicos e lesões como odontomas raramente são encontrados simultaneamente no seio maxilar. Este relato apresenta um tratamento bem-sucedido realizado em um caso específico de comunicação oroantral, associado a um odontoma complexo subdiagnosticado e um terceiro molar ectópico impactado em seio maxilar e discute a necessidade de abordagem. A estratégia de tratamento envolveu abordagem clínica e cirúrgica por meio da comunicação oroantral, evitando acesso ósseo adicional ao seio maxilar. Essa proposta apresentou um resultado satisfatório e, aos seis meses de pós-operatório, o paciente apresenta excelente evolução, mostrando-se uma estratégia de sucesso.

Palavras-chave: Seio maxilar; Odontoma; Fístula oroantral.

Resumen

La comunicación oroantral se considera una de las complicaciones más frecuentes en la cirugía oral, especialmente en extracciones de dientes posteriores en el maxilar, tratamiento de lesiones quísticas, neoplasias, osteomielitis y traumatismos en la región del seno maxilar, formando fistulas. Sin embargo, el tercer molar ectópico y las lesiones como los odontomas rara vez se encuentran simultáneamente en el seno maxilar. En este artículo se muestra un tratamiento exitoso realizado en un caso específico de comunicación oroantral, asociado a un odontoma complejo infradiagnosticado y un tercer molar ectópico impactado en el seno maxilar y se discute la necesidad de abordaje. La estrategia de tratamiento implicó un abordaje clínico y quirúrgico a través de la comunicación oroantral, evitando el acceso óseo adicional al seno maxilar. Esta propuesta presentó un resultado satisfactorio y a los seis meses de la cirugía el paciente presenta una excelente evolución, demostrando ser una estrategia exitosa.

Palabras clave: Seno maxilar; Odontoma; Fístula oroantral.

1. Introduction

Oroantral communication (OC) is a communication between the mouth and the maxillary sinus, which may or may not give rise to oroantral fistulas, which are permanently epithelized paths between these cavities (Daif, 2016). It is considered one of the most frequent complications in oral surgery, occurring especially in extractions of posterior upper teeth. With the communication, there is even the possibility of displacement of teeth and roots into this cavity (Hupp, 2019). The treatment of cystic lesions, neoplasms, osteomyelitis and trauma to the maxillary sinus region can also result in OC (Daif, 2016). Patients on drug therapy containing bisphosphonates or other drugs with anti-resorptive and anti-angiogenic properties, when submitted to extraction of posterior upper teeth, are at high risk for the development of OC if they develop osteonecrosis in the posterior maxilla induced by such drugs (Greenberg, 2004). In addition, the prevalence of OC has increased among patients undergoing sinus bone grafts and implant installation in this region (Park et al, 2019).

Surgical treatment of OC can be immediate, performed during the operation, preventing the installation of fistulas and, consequently sinusitis, or late, especially indicated when an oroantral fistula and sinusitis are already installed. Before any surgical treatment is instituted in these late cases, it is preferable to previously treat sinusitis through drug therapy and / or sinusectomy, aiming to adapt the environment and clear the affected maxillary sinus. OC whose bone defects do not exceed 3 mm, tend not to form oroantral fistulas and can close spontaneously in 1 to 2 weeks, with simple local wound care and patient guidance, but larger defects usually require some more refined reconstruction to prevent the installation of fistulas (Daif, 2016; Park et al, 2019).

Among the methods available for closing the OC, the pedicled buccal fat pad flap (PBFPP) is a simple and reliable flap for solving these communications. Egyedi was the first to describe in 1977 the use of PBFPP for the closure of OC and persistent oronasal communications in 4 patients after resection of tumors in the posterior maxilla (Toshihiro et al, 2013; Egyedi, 1977). Considering its rich blood supply, its easy accessibility and its proximity to defects of the posterior maxilla, it is especially indicated for defects larger than 5 mm, often associated with an initial inflammatory condition, frequently found in cases of pre-existing fistulas (Daif, 2016; Park et al, 2019; Yang, Jee & Ryu, 2018). In a case review using PBFPP, Singh, Prasad, Lalitha & Ranganath, (2010) revealed the closure of OC as the main indication of this flap.

2. Methodology

The interventional, descriptive and qualitative study was developed as a case report of the treatment and monitoring of a patient. The history of the disease and other information about the case were collected through the physical examination of the patient, after authorization and signature of a Informed Consent Form, as (Brown et al, 2016; Rodrigues et al, 2021; Mendes, Bonardi, Silva, Crivelini & Bassi, 2020). The case report is presented based on a simple literature review with the descriptors (Maxillary sinus; Odontoma; Oroantral fistula) in PubMed and Web of Science, and included references from 1977 to 2020. For the conduct of the case, registration and publication, approval by the Ethics Committee was not required, but Informed Consent was obtained and signed by the patient.

3. Case Report

A 73-year-old male patient was referred for evaluation of OC, complaining of altered taste, fluid and food flowing out of the nasal cavity, bad breath, pain and recurrent nasal congestion after tooth extraction. At oroscopy, a 3 mm diameter oroantral fistula was observed in the region of tooth 27 (Figure 1).

Figure 1- Clinical aspect of the oroantral fistula in the tooth 27 region.



Source: Image obtained from the author's clinical case.

Computed tomography showed an enamel-like hyperdense image circumscribed by hypodense halo suggestive of a complex odontoma and an impacted ectopic tooth 28, anchored in the posterolateral sinus wall (Figure 2).

Figure 2- Computed tomography in coronal view, showing suggestive images of impacted tooth 28 (above) and a complex odontoma (below).



Source: Image obtained from the author's clinical case.

The treatment of sinusitis was started with amoxicillin 500 mg + clavulanate 125mg three times a day for 7 days, irrigation with 0.9% saline solution, two applications of 20 ml, three times a day, and mometasone 50 mcg, two jets in the left nostril, twice a day.

After 07 days, the patient underwent surgery for fistulectomy. An elliptical incision was performed around the fistula and a trapezoidal mucoperiosteal flap was detached. The sinusectomy (Figure 3), extraction of the tooth 28, excision of the odontoma, were performed.

Figure 3- Clinical aspect of the residual bone defect used for extraction of tooth 28 and excision of odontoma.



Source: Image obtained from the author's clinical case.

After cleaning the cavity with saline solution, a pedicled buccal fat pad flap was mobilized to fill the bone defect, being fixed with simple interrupted sutures of polyglactin 910 to the soft tissue of hard palate (Figure 1D).

Figure 4- Pedicled buccal fat pad flap mobilized and anchored in the palatal mucosa, filling all the bone defect.



Source: Image obtained from the author's clinical case.

The buccal mucoperiosteal flap was repositioned over the pedicled buccal fat pad flap and simple interrupted suture was performed with 5-0 nylon thread (Figure 5).

Figure 5- The buccal mucoperiosteal flap overlapping the pedicled buccal fat pad flap was established with an interrupted suture with 5-0 nylon thread.



Source: Image obtained from the author's clinical case.

After 6 months, the patient presented asymptomatic evolution, without complaints or sinus abnormalities (Figures 6 & 7).

Figure 6- Clinical aspect at 6 months postoperatively showing successful oroantral fistula closure.



Source: Image obtained from the author's clinical case.

Figure 7- Radiographic aspect of left maxillary sinus after 6 months of the surgery showing absence of sinusitis.



Source: Image obtained from the author's clinical case.

4. Discussion

Odontomas in maxillary sinus can cause drainage obstruction (large ones) and even serious complications such as orbital infection, epidural and subdural empyema, meningitis, cerebritis, cavernous sinus thrombosis, brain abscess and death. They may also exert significant influence in tooth displacement into the sinus, even towards the orbital floor (Grupta & Das, 2015; Singer et al, 2007).

About 12% of patients treated by pedicled buccal fat pad flap had a history of failure in previous vestibular flap closure. Stajcic (1992), described the success in closing 56 cases of communication using the buccal fat pad, considering it safe and efficient. Furthermore, it seems to be superior to the palatal flap, and the rare cases of failure usually involved smokers, and the fistulas occurring lately (el-Hakim & el-Fakharany 1999; Jain, Ramesh, Sankar, & Lokesh Babu, 2012; Nezafati, Vafaii, & Ghojazadeh, 2012). Although Caldwell Luc access is a traditional approach for the removal of teeth or foreign bodies in the maxillary sinus, in this case, the use of the present oroantral communication avoided additional osteotomy in an intact maxillary sinus wall, solving a surgical complication in just one surgical time (Ramanojam, Halli, Thakur et al., 2011; Hebbale & Bhardwaj, 2013; Courtot et al, 2021).

In addition, the double-layer technique (pedicled buccal fat pad flap with buccal mucoperiosteal flap overlapping it) avoids secondary epithelization, optimizing the OC closure, as used in this case (Jain et al, 2012).

Considering all clinical conditions involved, this surgical strategy solved simultaneously a rare sinusal complex odontoma, an ectopic impacted tooth and a chronic oroantral communication, easily and uneventfully, proving to be a valid alternative for treatment (Ramanojam et al, 2013; Grupta & Das, 2015; Kwon et al, 2020; Alonso-González et al, 2015).

5. Conclusion

As evidenced in the literature, it is concluded that the use of PBFPF to treat oroantral communications, among other applications, presents itself as a safe alternative and with an excellent prognosis, thus allowing a successful strategy for the treatment of the case presented.

Finally, studies with a greater number of similar cases, comparing the approaches and the results obtained would contribute to define a treatment choice algorithm in those cases.

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