CASE REPORT

Surgical Treatment of Maxillary Solid Ameloblastoma by Weber-Fergusson Incision and Immediate Prosthetic Rehabilitation

Claudio Maranhão Pereira, Danilo Santos Carneiro, Renan Correia Arcanjo, Alberto Ferreira Da Silva Júnior, Claudiney Candido Costa

Abstract
Ameloblastomas are benign odontogenic neoplasias of epithelial origin, locally invasive and mainly affecting the posterior mandibular region. They have the capacity to infiltrate into the medullary spaces of the bone without showing any radiographic or macroscopic indications, thus leading to high recurrence rates. Their treatment has been extensively discussed and is varied, ranging from more conservative techniques such as enucleation through to extensive surgical resections associated with facial mutilations. The use of an Immediate Prosthesis for Large Maxillary Losses diminishes cicatricial retraction and reduces facial deformity, making it easier to fabricate the permanent prosthesis. Large exposures of tissue have historically been obtained by means of an incision of the Weber-Fergusson type, a technique that leads to practically no scar development. The aim of this paper is to relate the clinical case of a patient with a solid ameloblastoma on the right side of the maxilla, who was submitted to removal of the tumor through the Weber–Fergusson incision and rehabilitation with an immediate prosthesis. When 24 hours had elapsed after performing the procedure, the patient was able to feed himself by mouth. Recovery was extremely rapid and the patient has responded positively to the treatment.

Key words: Ameloblastoma; Odontogenic tumor; Denture, Complete, Maxillary Sinus.


Introduction
The buccomaxillofacial region may be the side of choice in the appearance of pathological processes involving cysts and tumors, classified as odontogenic and non odontogenic types. Among them, the ameloblastoma is the most clinically significant epithelial odontogenic tumor.(1) It accounts for approximately 1% of all the cysts and tumors that affect the maxillae and 9% to 11% of all odontogenic tumors. It affects individuals without predilection for gender; however, age varies greatly, being from 10 to 70 years of age, with predominance between the ages from 30 to 40 years. Approximately 20% of all cases are found in the maxilla, with 47% being in the region of the molar teeth, 15% in the maxillary sinus and floor of the nasal fossa, 9% in the region of the canine and incisor teeth and 2% in the palate. In the mandible, where 80% of cases are found, the molar and ascendant ramus are the most affected regions (70%), followed by the premolar(20%) and canine and incisor (10%) regions.(2-4)

Several treatment modalities have been proposed, including chemotherapy, electrocauterization, cryosurgery, radiotherapy, curettage and resective surgery.(5) Although surgical treatment of the tumor is the most indicated approach, it is responsible for extensive facial mutilations, resulting in great morbidity and loss of the patient’s quality of life.(6) Reconstruction of the loss of these structures is complex, and in this case, the use of immediate prosthesis is widely indicated for extensive maxillary losses (IPEML).(7) Head and neck surgeons who do not have a specialized prosthesis service at their disposal, resort to packing the surgical...
cavity with Furacin® ointment or Vaseline gauze dressings, which need to be changed daily. Removal of the packing causes an unpleasant odor, as a result of fermentation of the fluids in the gauze within the cavity in the maxilla, in addition to great suffering to the patient by manipulating the raw cavity and risk of bleeding.(8)

As regards surgical access, large exposures have historically been made by means of an incision of the Weber-Fergusson type. These incisions may be used in parts or extended when necessary, with additional incisions and dissections. The external scar with this approach is minimal, as it is localized between the facial anatomic subunits.(9)

In view of the foregoing discussion, the purpose of this paper is to relate the clinical case of a patient with a solid ameloblastoma on the right side of the maxilla, who was submitted to removal of the tumor through the Weber–Fergusson incision and immediate prosthetic rehabilitation.

CASE REPORT

The patient, a 41-year-old man, sought attendance at the specialized surgery service in the city of Goiânia - Brazil, presenting an increase in volume on the right side of the maxillary region, with constant painful symptomatology for approximately 8 months. During anamnesis, the patient reported that he had recently been submitted to antibiotic treatment because of possible chronic sinusitis, however, due to the recurrences he sought other specialized treatment.

On extraoral physical exam, a small asymmetry was found in the right maxillary region. On intraoral clinical exam, the alveolar ridge with teeth was observed to have a discrete increase in volume, of a hard consistency, approximately 5cm in diameter, covered with whole mucosa in the region of the palate. The patient reported constant, intense pain in the facial sinus region, exacerbated headache and odynophagia for the past month.

The imaging exams demonstrated a tumoral image in the maxillary sinus and the presence of tooth 18 migrated to the floor or the orbit, as a result of the bone destruction in the posterior region of the maxilla, with involvement of the nasal fossa and extension into the floor of the orbit (Fig1).

With suspected diagnosis of Ameloblastoma, the patient was submitted to an incisional biopsy of the region. In the histopathologic analysis it was possible to observe cells with polarized nuclei similar to ameloblasts located at the periphery of tumor nests (nests similar to normal dental follicles) immersed in a fibrous conjunctive tissue stroma, confirming the final diagnosis of solid ameloblastoma of the follicular type.

The patient was referred to the Surgery Service, where he was submitted to the surgical procedure for complete removal of the tumor with a safety margin. Osteotomy was performed in the maxillary canine and premolar regions, floor of the orbit and zygomatic process. The Weber-Fergusson access was used for larger exposure of the posterior region of the maxilla and zygomatic process. During the procedure, the patient was rehabilitated with an immediate prosthesis (Fig 2) and orbital floor reconstruction with titanium mesh and titanium screws of the 1.6 mm system, (Osteosin®), thus providing support to the ocular globe, as well as diminishing the free space in the operated region and favoring plugging to prevent bleeding. The patient remained in the ICU for 24 hours after surgery, was discharged, and transferred to the infirmary, and was able to feed himself by mouth 24 hours after the procedure. This is an important fact, because these patients generally require a naso-gastric probe for several days. The nasal plug was removed after 48 hours and the patient was discharged from hospital 72 hours after the surgery. Development occurred without complaints and the stitches were removed 10 days after surgery. The patient has been followed-up for around 8 months without signs of recurrence.

The patient's treatment was planned using CT scans and MRI examinations in the
region to help determine the amount of bone tissue that would be lost after osteotomy. The patient was cast before the surgery and made a provisional removable partial denture. This was installed during the surgery, however, the prosthesis was rebased with surgical cement to restore the anatomy of the region, besides helping the healing process, keep the space that was lost, and establish stomatognathic function. As with conventional prostheses, clips present in the immediate implant stability are fundamental for the same. The basis of methyl metacrylic, the resin contained in the prosthesis and the bone cement, are possible correction and adjustment during or after surgery with the use of drill wear. This prosthesis is used for about six months and removed for making a definitive prosthesis. The durability and strength of the immediate provisional prostheses is that of a conventional prosthesis, since it is made from the same material. In relation to risk of contamination during the installation of the prosthesis immediately, this is sterilized prior to its installation with ethylene oxide, and cement used for relining and sterilized by the manufacturer. The choice for the immediate use of the prosthesis is intended to assist in feeding the patient after surgery and maintenance of vertical tire size, avoiding possible deformed tissue. The patient is being followed until now. We observed a healing without problems and improving their quality of life after surgery.

DISCUSSION
Ameloblastomas are classified into three variants that must be differentiated because they have different treatments and prognoses: Solid or multicystic (86% of cases), unicystic (13% of cases) and peripheral (1% of cases) types. Among the intraosseous variants, the multicystic ameloblastoma presents as the most aggressive variant when compared with the unicystic variant. Whereas the peripheral ameloblastoma, in contrast to the intraosseous variant, has a less aggressive biologic behavior, with a favorable prognosis. (10, 11) The solid ameloblastoma shows a greater propensity to infiltrate into the surrounding tissues, thus presenting a higher rate of recurrence. The treatment of the ameloblastoma remains controversial. In the classical manner, in the majority of cases, solid ameloblastomas are treated by radical surgical excisions with a safety margin from 1 to 2 cm of healthy bone.(12) However, radical surgeries are invariably associated with serious problems for the patient, mentioning examples such as: masticatory dysfunction, mutilation, facial deformity, and abnormal mandibular movements. It is pointed out that the rate of recurrence is a crucial factor for coherent planning, however, other aspects are also important, and must be taken into consideration at the time of therapeutic approach, among these, emphasizing morbidity and the patient’s quality of life. However, various other treatment modalities have been proposed such as cryosurgery, electrocauterization, sclerotherapy and radiotherapy.(5) The addition of liquid nitrogen spray, by means of cryosurgery has reduced the rate of recurrence to 30%11. It is believed that cryotherapy has the capacity to devitalize bone at a depth of 1 to 2 cm, in addition to causing less post-operative morbidity.(5) The routine use of radiotherapy is restricted and can be indicated in inoperable cases, since the ameloblastoma in turn, is radio resistant. (11) In the case described complement with radiotherapy or other coadjuvant therapy was not indicated, in view of the location and extension of the lesion, in addition to the fact that the surgical margins were not compromised. The patient has been strictly followed up for about 8 months. He will be monitored for a long period of time, by virtue of the fact that the tumor is in the maxillary region, which favors an increase in its degree of invasion, thus resulting in a worse prognosis. However, up to the present time, the patient presents no signs of recurrence of the lesion.

Partial or total resections of the maxilla result in large defects in the mouth and face, and post-maxillectomy prosthetic rehabilitation is of functional, psychological and esthetic importance.(12, 13) This rehabilitation normally requires the use of an immediate prosthesis for extensive maxillary losses (IPEML), performed right after maxillectomy, and followed by a reparative prosthesis after the period of healing. (13)
In developed countries, such as England, 65% of the head and neck surgeons have a rehabilitation service available to them, with specialized dentists, but there are no references about prostheses inserted in the surgical act.(7) On the other hand, in Brazil few hospitals have a team of head and neck surgeons that comprise a rehabilitation service with a dentist specialized to perform an IPEML in the act of a maxillectomy(12, 14).

Compensating for the surgical loss by means of a obturate prosthesis is generally the most frequently adopted solution, because of the advantage of not being an invasive procedure, and also because it can be removed and thus allows clinical exam of the site for early discovery of an eventual recurrence.(12) The scarcity of literature about IPEML makes it difficult to perform statistical comparison with other authors and other procedures. The few papers found are case reports that mention prostheses, but there are no evaluations with a significant number of cases submitted to post-maxillectomy reconstruction with immediate prostheses of large proportions (PMRIPLP).(15)

An important factor to emphasize in the case described is that the patient remained in the ICU for 24 hours, was discharged to the infirmary and was already able to feed himself by mouth after one day had elapsed after performing the therapeutic procedure. Normally, patients submitted to extensive surgeries such as the removal of malignant tumors require a naso-gastric probe for several days. It is noteworthy that the reconstruction with PMRIPLP was extremely important for the patient’s rapid recovery. It is also worth pointing out the psychological and social factors, since the patient rapidly returned to carrying out his activities, and this fact also favored his recovery.

Lastly, the importance of integrating a professional specialized in bucco-maxillofacial prosthesis into the head and neck surgery services is clearly evident. His/her presence in an oncologic team and the consequent use of immediate obturator prostheses is easily implemented as a therapeutic procedure, without risks and responsible for a substantial improvement in the patient’s recovery and quality of life.

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References
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