



CASE REPORT

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Pyogenic granuloma associated with mandibular odontoma.

Abstract: Background: Pyogenic granuloma is a kind of inflammatory hyperplasia of multifactorial origin. It is usually related to trauma or constant irritation, drug use and hormonal factors, among others. On the other hand, the odontoma is a benign odontogenic tumor composed of epithelial and mesenchymal cells. Its development is usually associated with trauma, infections, inherited disorders or odontoblast hyperactivity. Objective: To present the clinical case of a patient with pyogenic granuloma associated with the presence of a mandibular odontoma, its therapeutic management and postoperative results. Case report: The case presents a 32-year-old female patient with a history of multinodular goiter and hypothyroidism who developed a mandibular odontoma on the left side, which was also associated with a pyogenic granuloma in the same area. It was treated with surgical excision and the affected tissues were reconstructed with lyophilized bone and collagen membrane. Favorable outcome was seen after surgery without evidence of recurrence and with proper osseointegration of alloplastic materials and soft tissues. Conclusions: The irritant effect of a tumor (odontoma) in developing a pyogenic granuloma was confirmed.

Keywords: *pyogenic granuloma, odontoma, inflammatory hyperplasia.*

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INTRODUCTION.

Pyogenic granuloma (PG) is the most frequent kind of inflammatory hyperplasia in the oral cavity. It can be defined as a pseudotumoral formation which usually appears on the keratinized gingival. It appears as a fast-growing soft mass, which may be reddish, lobulated and pedunculated. Occasionally, it is ulcerated and has a great tendency to bleed^{1,2}. Pyogenic granuloma of the oral cavity is considered a simple hyperplasia in response to different stimuli such as chronic local irritation, trauma, poor oral hygiene, hormonal factors (pregnancy and oral contraceptives), and drugs such as cyclosporine, phenytoin and calcium channel blockers like nifedipine^{3,4,5,6,7}. Odontomas are mixed odontogenic tumors. They are composed of a mixture of epithelial and differentiated mesenchymal odontogenic cells comprising the pulp tissue, enamel, dentin and

cementum, with a normal appearance but a generally weak structure^{8,9,10}.

According to the WHO classification from 1992, two types of odontomas are recognized^{11,12}.

Compound odontoma: a malformation in which all dental tissues are represented with a pattern of orderly distribution. The lesion consists of many tooth-like structures known as denticles.

Complex odontoma: a malformation in which all tooth tissues are represented but with a disordered pattern of distribution. Compound odontomas are usually unilocular lesions containing a few 2 at 3 or many 20 at 30 multiple radiopaque, miniature tooth-like structures¹³. Odontomas are the most common odontogenic tumors and represent 51% of all odontogenic tumors¹⁴. Treatment should be aimed at complete removal of the tumor, including the surrounding connective tissue cap-

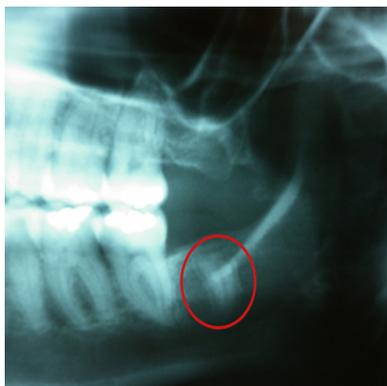


Figure 1. Preoperative radiographic view of the odontogenic tumor.



Figure 2. Preoperative clinical view. The edema can be observed in the circumscribed retromolar region.

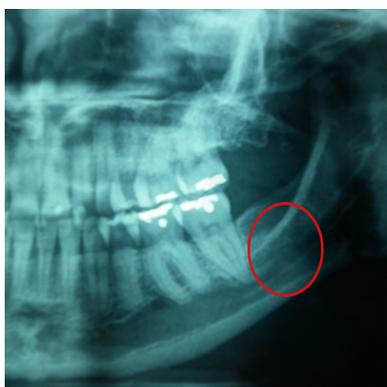


Figure 3. Postoperative orthopantomography six months after removal of the tumor. In the reconstruction with lyophilized bone and collagen membrane, good osseointegration without bone changes or variations in the course of the inferior alveolar nerve can be observed.

sule^{15,16}. Also, this condition may be associated with the presence of metabolic and thyroid disorders as in the case of the granuloma annulare^{17,18,19}.

CASE.

The patient was a 32-year-old woman. She was married and originally from Jalisco, but was living in the State of Mexico.

Family history: Two maternal great-aunts with breast cancer.

Non-pathological personal history: She denied addictions and zoonoses.

Medical history: Tonsillectomy and septoplasty at age 8. She denied using antihistamine medications and getting blood transfusions.

She underwent total thyroidectomy due to multinodular goiter and hypothyroidism on December 07, 2006. At the time of the study, she was undergoing surveillance and treatment with calcium, calcitriol and levothyroxine. Also, she presented malnutrition, accompanied by a significant weight loss, and polyphagia, though the autoimmune disease was discarded.

She was referred to the maxillofacial prosthetic service in January 2010 for treatment of dental injuries. On examination, a grade 2 mucositis with a grade 2 xerostomia, type 1 lesions in the oropharynx, dehydrated facial skin, moderate adult periodontitis, class II and III caries, and coated tongue were observed. In the left mandibular retromolar area, there was an increased erythematous lump. Apparently, the rest of the tissues did not show any pathological data (Fig. 1).

- In the orthopantomographic radiography, a radiolucent area involving the left mandibular body with radiopaque halo was seen. It also comprised the inferior alveolar canal and bone destruction besides the odontogenic tumor. When asked, the patient denied previous extractions, but remembered being told about her absence of third molars in a dental appointment (Fig. 2).

- Laboratories. February 1, 2010. $5.6 \times 10^6/\mu\text{L}$ erythrocytes, hemoglobin 15.1 g/dL, WBC $4.4 \times 10^3/\mu\text{L}$, 1.73 lymphocytes, 2.02 Neutrophils, Glucose 90, EPL 8.6, Thyroid Profile with hypothyroidism.

Presumptive diagnosis: Odontogenic tumor in the left mandibular region.



Figure 4. Postoperative clinical view three months after the procedure. Apparently, no evident changes were observed in the mucosa and the patient was reference asymptomatic.

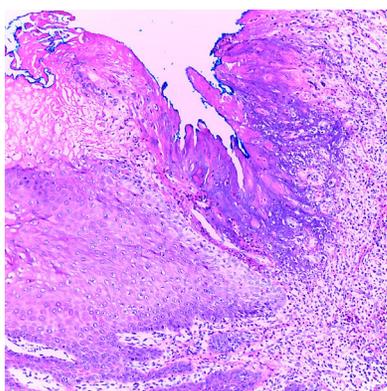


Figure 5. Microscopic appearance of the lesion in the left retromolar area. Its shows epithelial ulceration, vascular proliferation, abundant micro-hemorrhage and polymorphonuclear cells. x10.

Treatment: Total odontogenic tumor resection including affected mucosa and bone.

SURGICAL TECHNIQUE:

In order to perform the surgery under local anesthesia, it was proceed to apply aseptic and antiseptic techniques in the area. Sterile drapes were placed, and infiltrated with 2% lidocaine and epinephrine to locally block the left mandibular posterior area. The incision was made by radiographic localization of the lesion with a Wasmund flap type (arched and removing the affected mucosa) in the area near the second molar, releasing the buccal mucosa. The periosteum was lifted observing the unscathed corticals, thus a bone window was opened to assess internal injury. Hemostasis

was performed and continuous trabecular bone with good irrigation was observed. The cystic area of about 1cm was found and, at removal, it apparently exhibited dental tissue. Both were entirely extracted taking care that the lower dental channel was reintegrated after mobilizing. It was washed and dried bone was placed to fill the bone defect. The flap was repositioned with a collagen membrane and was held closed with suture and surgical dressing after placing local antibiotic (Fig. 3 and 4).

Currently histopathological outcome: It was described as a sign of injury in the retromolar area. It presented epithelial ulceration, vascular proliferation, micro hemorrhages and abundant polymorphonuclear cells compatible with a diagnosis of pyogenic granuloma without injury on the edges. Besides, the hard tissue of odontogenic origin was compatible with a diagnosis of complex odontoma (Fig. 5).

Diagnosis: Pyogenic granuloma associated with odontoma.

DISCUSSION.

The pyogenic granuloma of the oral cavity is considered a simple hyperplasia. It develops in response to different stimuli such as chronic local irritation, trauma, poor oral hygiene, hormonal factors (pregnancy and oral contraceptives), and drugs such as cyclosporine, phenytoin and calcium channel blockers like nifedipine^{3,4}.

Histopathologically, recent pyogenic granuloma lesions are indistinguishable from the granulation tissue. They consist of a proliferation of capillaries and venules radially arranged with respect to the surface epithelium⁹.

Traditionally, the treatment of choice for these lesions is complete surgical excision with subperiosteal curettage when it is in susceptible areas (gingiva and palate) to prevent recurrences which are frequent, apart from the removal of potential irritants (plaque, excessive fillings, etc.)⁶.

In a clinical case study, Sosa *et al.* reported that this type of lesions in the oral cavity are usually caused by minor trauma with exaggerated responses. Therefore, it was similar to the patient in this report, in whose case the reaction was exacerbated because of her systemic conditions, such as hypothyroidism. It also agrees with

what Pătrașcu reported in the studies^{7,17}.

Odontomas are a mixed benign form of neoplasia of odontogenic origin, *i.e.*, it is a mesenchymal and epithelial odontogenic cell injury. They are completely differentiated and form enamel, dentine and cement¹¹.

In terms of etiology, they are associated with a history of trauma in the primary dentition, as well as inflammatory or infectious processes, hereditary abnormalities (Gardner syndrome, Hermann syndrome), odontoblastic hyperactivity or alterations in gene control of tooth development¹⁴.

Treatment should be aimed at complete removal of the tumor, including the connective tissue capsule that surrounds it. It is important to carefully scrape the surgical site to avoid leaving remnants of the capsule which could cause the appearance of cystic lesions later. The prognosis after resection is very favorable, with little chance of recurrence¹⁶.

CONCLUSION.

Knowledge of clinical conditions such as those presen-

ted here, as well as the use of appropriate diagnostic aids (imaging and histopathological studies), allow a correct diagnosis and treatment of the injuries. They favor a differential diagnosis, which is important considering some clinical features of the lesion may suggest other pathologies including oral cancer. It is relevant that the dentist has the necessary diagnostic tools to provide a favorable prognosis for the patient through the correct planning of the treatment.

Since both have a common origin: persistent irritant injuries for a long time, it was concluded it was a pyogenic granuloma with odontoma. In this particular case, the local irritating factors were potentiated by the patient's systemic involvement. In this study, hypothyroidism conditioned the presence of oral abnormalities which contributed to the presence of pathologies due to the marked predisposition to infections. Finally, it is confirmed that the correct surgical treatment and disposal of local irritation factors may offer less recurrence probabilities of the disease process.

Granuloma piógeno asociado a odontoma mandibular.

Resumen: Antecedentes: el granuloma piógeno es una especie de hiperplasia inflamatoria de origen multifactorial, que suele relacionarse a trauma o irritaciones constantes, uso de drogas, factores hormonales, entre otras. Por su parte, el odontoma es una tumoración odontogénica benigna, compuesta de células epiteliales y mesenquimatosas. Su desarrollo suele relacionarse con traumatismos, procesos infecciosos, alteraciones hereditarias o hiperactividad odontoblástica. Objetivos: El objetivo es presentar el caso clínico de una paciente la cual presentó un caso de granuloma piógeno relacionado a la presencia de un odontoma mandibular; así como el manejo terapéutico y los resultados

posoperatorios. Caso clínico: El caso muestra a una paciente del sexo femenino de 32 años de edad con antecedentes de bocio multinodular e hipotiroidismo, desarrollando un granuloma piógeno asociado al desarrollo de un odontoma mandibular del lado izquierdo, el cual fue tratado con extirpación quirúrgica y los tejidos incidido reconstruidos con hueso liofilizado y membrana de colágeno. Evolución favorable pos quirúrgica, sin evidencia de recidiva, con correcta osteointegración de materiales aloplásticos y tejidos blandos. Conclusiones: se confirma el efecto irritante de la presencia de una tumoración (odontoma) en el desarrollo de un granuloma piógeno.

Palabras clave: *piógeno, odontoma, hiperplasia inflamatoria.*

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