■ CASE STUDIES

Compound Odontoma as a Cause of Chronic Maxillary Sinusitis

Jorge Crespo del Hierro,[a] Manuel Ruiz González,[a] Margarita Delgado Portela,[a] Eduardo García del Castillo,[a] and Juan Crespo Serrano[a]
[a]Servicio de Otorrinolaringología, Hospital General, Ciudad Real, Spain
[b]Servicio de Anatomía Patológica, Hospital General, Ciudad Real, Spain

Sinusitis of dental origin is a relatively frequent entity, but the presence of an odontoma in the sinus as a source of this pathology is exceptional. Here we present a case of a young patient who presented chronic maxillary sinusitis over 2 years, originating in an odontoma located in the sinus drainage area.

Key words: Odontoma. Sinusitis. Maxillary.

Odontoma compuesto como causa de sinusitis maxilar crónica
La sinusitis de origen dentario es una entidad relativamente frecuente; sin embargo, que el origen de esta sea un odontoma sinusal es muy poco probable. Presentamos el caso de un paciente joven con sinusitis maxilar crónica de años de evolución, secundaria a odontoma en el área de drenaje sinusal.

Palabras clave: Odontoma. Sinusitis. Maxilar.

INTRODUCTION

Sinusitis of dental origin is not uncommon.[1,2] The prevalence rate of chronic maxillary sinusitis of dental origin in the whole of all chronic maxillary sinusitis varies depending on the series published in the literature. Nordic authors report rates of between 40% and 47%, whereas other authors would cite it as being less than 10%. Dental origin is estimated to account for some 10% of all cases of acute maxillary sinusitis.[3]

It is usually secondary to periapical abscesses that progress toward the floor of the maxillary sinus or are secondary to infections of orosinus fistulae following exodontia; it is exceptional for it to be due to an odontoma of the sinus.

Odontomata are benign odontogenic tumours that contain all the tissues making up teeth.[4]

We present the case of a young, male patient diagnosed with chronic maxillary sinusitis lasting for several years and secondary to an odontoma in the sinus drainage basin.

CASE STUDY

We present the case of a 24-year-old patient, with no noteworthy personal history, sent to our clinic due to spontaneous suppuration towards the oral cavity in the area of the left superior maxillary, compatible with an oroantral fistula in the sinus affected by acute maxillary sinusitis.

As disease history, the patient reported occasional purulent rhinorrhea in the left nostril over several years.

The examination revealed oedema of the medial and inferior cornet of the left nostril, although no fistula was seen in his mouth at the time. The patient reported having noted pus-like exudate leaking into the oral cavity for 2 weeks that remitted a few days prior to our assessment after his primary care physician had initiated oral antibiotic treatment (amoxicillin-clavulanic acid 875 mg/8 h).

A computerized tomography (CT) was performed and showed the left maxillary sinus to be enlarged, totally occupied, with areas of calcification (Figure 1).

Given the clinical symptoms and the radiological findings, chronic fungal sinusitis was suspected, together with a mycetoma, as the origin of the symptoms. It was decided to operate using a combined approach. A Caldwell-Luc antrostomy was performed during which an enormous maxillary sinus was observed with hypertrophic, fibrous mucosa. This sinus was seen to contain a tooth in the superior medial region, obstructing the drainage of the sinus (Figure 2). A medial meatotomy was them performed under endoscopic guidance.

The authors have indicated there is no conflict of interest.

Correspondence: Dr. J. Crespo del Hierro.
Burgos, 14. 13005 Ciudad Real. España.
E-mail: jcrespoh@hotmail.com

Received July 18, 2007.
Accepted for publication November 9, 2007.

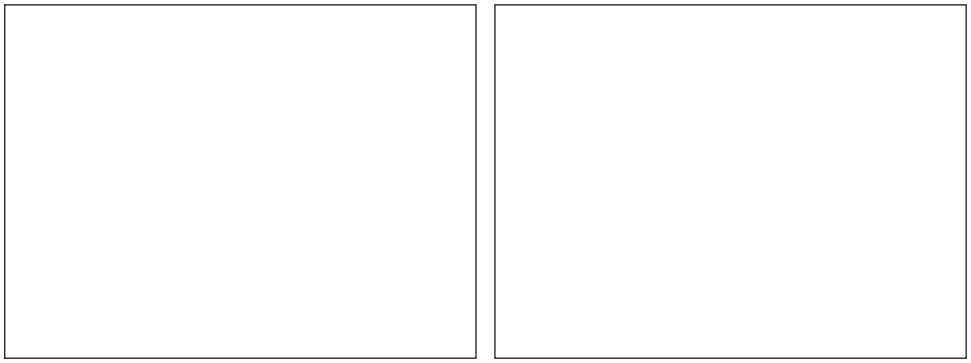

Figure 1. Radiological image. Computerized tomography before and 1 year after surgery.

Figure 2. Surgical specimen of the maxillary sinus.

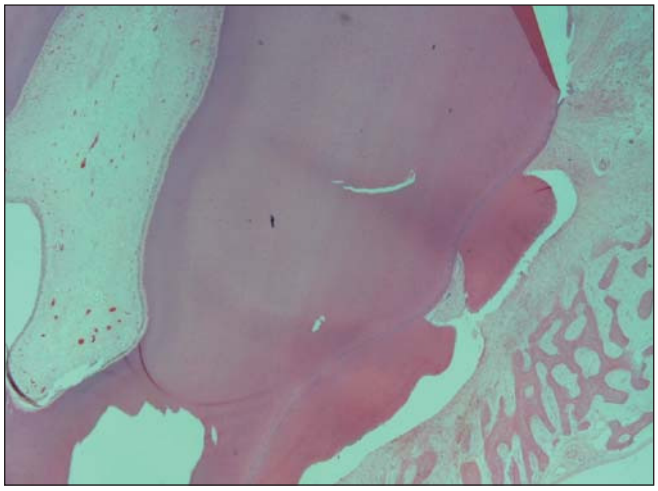

Figure 3. Pathology image. Haematoxylin-eosin stain. A dental structure is observed adjacent to the bone tissue.

The pathology analysis of the surgical specimen revealed mucosa with inflammatory changes, squamous metaplasia, and chordal inclusion (Figure 3).

The patient remains symptom-free after 1 year of follow-up and the CT is normal.

DISCUSSION

Odontomata are neoformations containing all the tissues making up teeth. Some theories support the idea that they are the result of the protrusion of supplementary odontogenic epithelial cells from the dental lamina.

Odontomata are considered to be a benign odontogenic neoplasm; in other words, a developmental alteration or malformation of dental origin[4-9] characterized by having fully differentiated odontogenic epithelial and mesenchymal cells that form enamel, cement, and dentine,[4-6] and that present a more or less orderly arrangement depending on the degree of alteration in the morphological differentiation of the odontogenic cells.[5] It is considered the most common odontogenic tumour.[4,8,9] There are 2 types: complex odontoma, containing all the dental tissues in an unorganized manner, and the compound odontoma, characterized by the orderly arrangement of these tissues, giving rise to the formation of many dental structures that look like normal teeth, but highly varied insofar as size and shape are concerned.[5,6] Compound odontoma should not be considered to be a final, alternative phase of a complex odontoma, but as a malformation, with a high degree of histological differentiation, constrained by local hyperactivity of the dental lamina.[10]

Compound odontomata, as in our case, contain tissues that present relationships and structures morphologically very similar to teeth.

They begin to form during childhood, coinciding with the natural development of teeth; this would explain the large-scale involvement of the maxillary sinus affected in the patient presented here.

Most are located in the superior and inferior maxillary; in rare cases, the tooth develops spontaneously inside the maxillary sinus. Such an odontoma occurs as the result of an atypical location of embryonic tissue at this level, where a complete tooth is formed.

In our case, there was an alteration in the development and ventilation of the maxillary sinus due to the location (in the area where the sinus drains) in which the odontoma was located; this caused long-standing, chronic sinusitis, and an overdeveloped sinus. Given the symptomatology and radiological examination, chronic fungal sinusitis in the form of a mycetoma was suspected, since the patient was immune-competent and presented recurrent sinusitis, related to an oroantral fistula revealed in the radiological tests to contain an image similar to a calcified foreign body.[11] The

definitive diagnosis was not made until surgery and subsequent pathology confirmation.

The differential diagnosis (DD) of chronic sinusitis with an image of intrasinal bone density also includes osteoma, a benign bone tumour that often settles in the paranasal sinuses, although it is most commonly found in the frontal and ethmoid sinuses; it is very infrequent for it to develop inside the maxillary sinus.[12] The DD also includes the rhinolyte, a calcareous body generally formed as a result of a foreign body in the nostril; a possible complication of this could be its spread toward the maxillary sinus.[13]

With regard to the treatment applied in our case, despite the fact that external surgical approaches for chronic sinusitis have over many years given way to conservative, endoscopic surgery with the aim of preserving function,[11] we chose to use a combined approach because, given the large size of the patient's maxillary sinus, we suspected that the endoscopic view alone would not allow us to properly assess all the walls and floor of the maxillary antrum.

As a conclusion, in light of how exceptional the development of an odontoma is at the level of the ostium of the maxillary sinus drainage basin, the diagnostic suspicion of it as the cause of chronic sinusitis is complicated, but it appears to be appropriate to bear it in mind when facing radiological images that reveal areas of bone density in the sinus.

REFERENCES

1. Arana A, Zelada L. Análisis de la relación de las piezas dentarias con el piso del seno maxilar y las complicaciones odontológicas consecuentes. Endod Boliviana. 1996;10:39-44.
2. Jhonnys HF, Tony HF. Sinusitis maxilo-etmoidal de origen odontógeno en pacientes masculinos de 63 años de edad. Reporte de un caso. Acta odontol Venez. 1996;34:40-2.
3. López M, Monserrat JR, Kolanczak K, Piñeioro Z, Gañan L, Costey M. Sinusitis odontógena y fístula orosinusal. Rinitis, rinosinusitis, poliposis nasal. Official Presentation of the SEORL and PCF, 2005. 1st ed. Badalona. EUROMEDICE Ediciones Médicas; 2005. p. 721-30.
4. Patiño C, Berinil Sánchez GE. Odontomas compuestos y complejos: análisis de 47 casos. Arch Odontoestomatol. 1995;11:423-30.
5. Santana JC. Atlas de patologías del complejo bucal. La Habana: Científico Técnica; 1985. p. 252-3.
6. Shafer HM, Levy B. Tratado de patología bucal. 4th ed. México: Interamericana; 1990. p. 313-5.
7. Dinatale E. Neuralgia sintomática de la tercera rama del trigémino asociada a un odontoma compuesto. Presentación de un caso. Acta Odontol Venez. 2003;41:50-3.
8. García A. Odontologenic tumors in Mexico: A collaborative retrospective study 349 casos. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1997;84:672-5.
9. de Oliveira BH, Campos V, Marcol S. Compound odontoma – diagnosis and treatment: three case reports. Pediatr Dent. 2001;23:151-7.
10. Philipsen HP, Richardt PA, Praetorius F. Mixed odontogenic tumors and odontomas. Considerations on interrelationship. Review of the literature and presentation of 134 cases of odontomas. Oral Oncol. 1997;33:86-99.
11. Alobid I, Menéndez Colino LM, Bernasar F, Sandiumenge Cañas A, Bernal Sprekelsen M. Sinusitis agudas y crónicas y sus complicaciones. Manual del residente de ORL y patología cérvico-facial. 1st ed. Volume II. Madrid: IM&C; 2002. p. 1085-97.
12. Rodríguez Prado N, Llorente Pendás JL, del Campo Rodríguez A, Puente Verez M, Suárez Nieto C. Osteomas de senos paranasales: revisión de 14 casos. Acta Otorrinolaringol Esp. 2004;55:225-30.
13. Viscosillas Pallás C, Nogués Orpí J, Mañós Pujol M, Haag O. Rinolitiasis. A propósito de un caso. Acta Otorrinolaringol Esp. 2006;57:381-2.