

DENTIGEROUS CYST ON ECTOPIC THIRD MOLAR IN MAXILLARY SINUS

KYSTE DENTIGÈRE SUR UNE TROISIÈME MOLAIRE ECTOPIQUE AU NIVEAU DU SINUS MAXILLAIRE

G. Kharrat 1, K. Ayachi 1, S. Ferchichi 1, A. Dougaz 2, E. Chalbi 2, K. Bouzaidi 3

1. ENT and maxillo-facial surgery department

2. Cytology and pathological anatomy department

3. Medical imaging department

Mohamed Taher Mâamouri Hospital, Nabeul, Tunisia

ABSTRACT

Background: The association of a dentigerous cyst with a maxillary sinus ectopic tooth is a rare situation. The objective is to study different aspects of this pathology.

Observation: This was a 22-year-old man who presented symptoms of recurrent right unilateral maxillary sinusitis complicated by fistulization the oral cavity. Facial CT showed an impacted tooth 18 in the inner wall of the right maxillary sinus at the level of ostium, and total filling of the right maxillary sinus. In MRI of the facial area the signal was not in favor of a tumor process. The patient underwent enucleation of the entire sinus formation with tooth extraction. The pathological examination concluded that it was a dentigerous cyst on an ectopic 3rd molar in the maxillary sinus.

Conclusion: The dentigerous cyst on an ostio-meatal dental ectopy is an interesting entity to know due to its rarity and the risk of diagnostic delay especially that malignant transformation is possible.

Key-words: Ectopic tooth eruption- dentigerous cyst- tooth extraction- pathology

Résumé

Introduction: L'association d'un kyste dentigère à une dent ectopique au niveau du sinus maxillaire est une situation rare. L'objectif est d'étudier les volets cliniques, radiologiques et thérapeutiques de cette pathologie.

Observation

Il s'agissait d'un homme âgé de 22 ans qui consultait pour une symptomatologie de sinusite maxillaire unilatérale droite récidivante compliquée de fistulisation à la cavité buccale. La TDM du massif facial a montré une dent 18 enclavée dans la paroi interne du sinus maxillaire au niveau ostio-méatal avec un comblement total du sinus maxillaire droit. En IRM du massif facial le signal n'était pas en faveur d'un processus tumoral. Le patient a eu une exérèse chirurgicale de toute la formation avec extraction de la dent causale. L'examen anatomopathologique a conclu à un kyste dentigère sur une 3ème molaire ectopique au niveau du sinus maxillaire.

Conclusion: Le kyste dentigère sur une ectopie dentaire au niveau ostio-méatal (sinus maxillaire) est une entité intéressante à connaître de part sa rareté et le risque de retard diagnostique, ce dernier est en rapport avec une symptomatologie non spécifique de sinusite maxillaire aigüe à répétition ou chronique.

Mots-clés: éruption dentaire ectopique- kyste dentigère- extraction dentaire- anatomopathologie

INTRODUCTION:

Dental ectopia is a topographical disturbance, in which the tooth does not follow its usual course of eruption in the oral cavity. Ectopic teeth tend to form a dentigerous cyst or a tumor. The combination of a dentigerous cyst with an ectopic tooth in the maxillary sinus is a very rare situation [1,2]. Surgical treatment is necessary since the dentigerous cyst of the maxillary sinus results in chronic or recurrent maxillary sinusitis but also there is an exceptional risk of its transformation into squamous cell or mucoepidermoid carcinoma [3].

Here we present an original case of dentigerous cyst of the maxillary sinus on an ectopic 3rd molar tooth at the level of the ostium.

OBSERVATION:

This was a 22-year-old patient, without any medical history, who had presented a right nasal obstruction combined to cacosmia, facial pain and intraoral purulent discharge for three months. Nasal endoscopy showed a bulging of the lateral wall at the level of the middle meatus without other associated abnormalities. The intraoral examination revealed a purulent discharge coming from a fistula next to the 17th tooth. The rest of the ENT and maxillofacial examination was normal. The orthopantomogram showed an ectopic tooth 18 at the projection area of the right maxillary sinus. Facial CT showed an impacted 18th tooth at the level of the middle meatus, with total filling of the maxillary sinus which presented thinned walls with loss of vestibular bone substance next to 17 in connection with an oral-sinus fistula (figure 1).

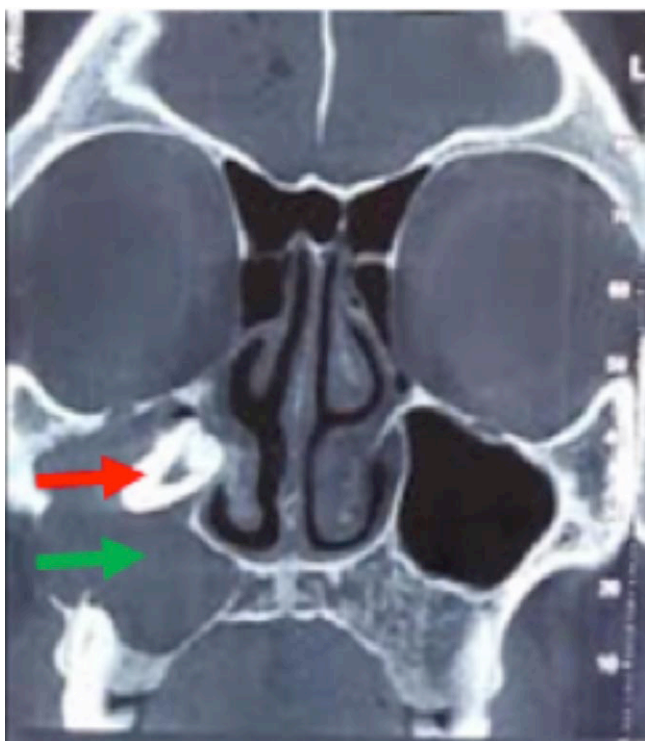


Figure 1: Facial CT, coronal section, bony window showing an ectopic tooth impacted in the inner wall of the right maxillary sinus at the ostial level (red arrow) and total filling of fluid density (green arrow)

MRI showed a maxillary sinus mucosal thickening and a central content in T1 hypersignal, not disappearing after saturation of the fat signal and not enhancing after injection of Gadolinium and an intermediate T2 signal (Figure 2).

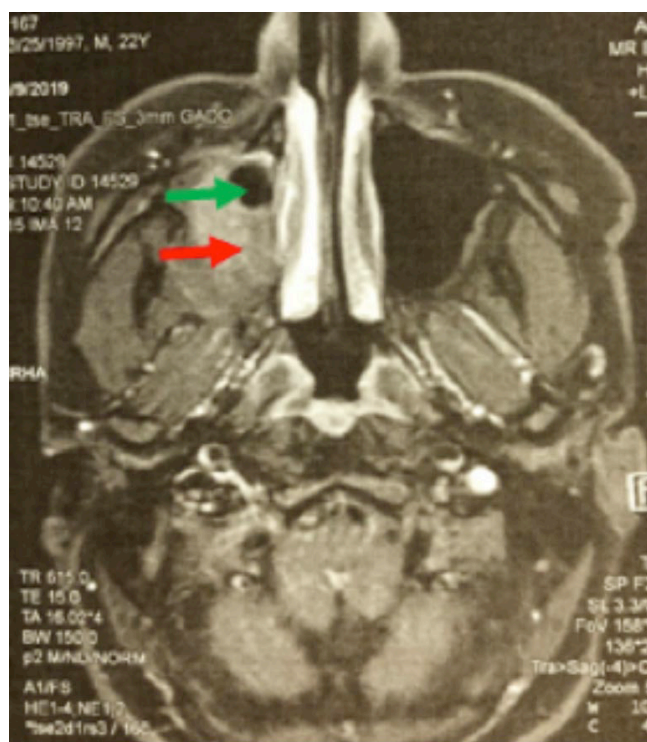


Figure 2: Face MRI axial section, T1 sequence showing hypersignal filling of the right maxillary sinus (red arrow) and the ectopic tooth (green arrow)

The patient received oral antibiotic therapy based on amoxicillin-clavulanic acid 80 mg/kg/day for eight days to treat the infection episode. Three weeks later, he was operated on under general anesthesia via vestibular route, he had formation enucleation with extraction of the tooth and curettage of the maxillary sinus. An endoscopic control made it possible to assess the good quality of the excision. The oral-sinus communication was used as an approach (Figure 3) then repaired with a superiorly hinged mucoperiosteal flap.



Figure 3: Intraoperative photo showing the extraction of the ectopic tooth (red arrow) through oral-sinus communication (blue arrow)

The pathological examination showed: a cystic wall attached to a tooth, its covering was thin and had discreetly keratinized squamous epithelium. This coating was based on a fibrous tissue, including a macrophage resorption reaction around cholesterol crystals, giant cells with foreign bodies and microcalcifications (Figure 4). The diagnosis was a dentigerous cyst on an ectopic 3rd molar in the maxillary sinus. The follow-up one year after surgery did not show any signs of recurrence.

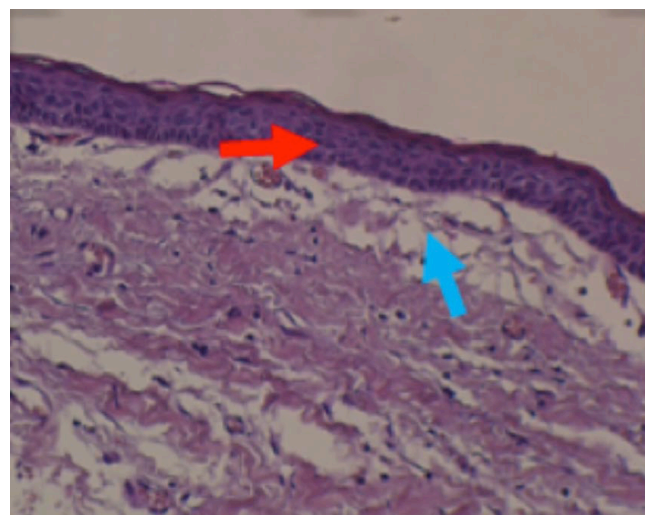


Figure 4: Pathological examination of dentigerous cyst: thin and discreetly keratinized squamous epithelium (red arrow), fibrous tissue (blue arrow)



DISCUSSION:

Dental ectopia is a topographic disturbance. It has been described at the palate, the mandibular condyle, the coronoid process, the orbit, the nasal cavities and the chin [4,5,6]. The maxillary sinus is a rarer site of dental ectopia [1,2,5]. According to Lombroni and al [7], only 21 cases of 3rd molar ectopic teeth in the maxillary sinus have been reported. The ectopic tooth can be located in the sinus cavity, on the sinus floor or on the upper wall. It can become stuck in the ostium of the sinus as was the case of our patient. If not extracted, these ectopic teeth tend to form a dentigerous cyst or tumor [7,8].

The dentigerous cyst is an odontogenic epithelial cyst that develops around the crown of an impacted tooth or a tooth whose roots have not yet formed [9]. Concerning the dental site, the mandibular 3rd molar comes in first position, followed by the maxillary canine, the mandibular premolars and the central incisors [10,11,12]. Its pathogenesis is linked to the pressure exerted by an erupting tooth on the follicle. This leads to obstruction of venous circulation, resulting in the accumulation of exudate between the reduced adamantine epithelium and the crown of the tooth [4,11,13]. The combination of the dentigerous cyst with a 3rd molar ectopic tooth in the maxillary sinus is a very rare situation 1% [1,2]. Clinically, the cyst is often asymptomatic except in cases of secondary infection or when it becomes large [1,11]. However, the maxillary sinus localization often results in symptoms of recurrent or chronic sinusitis as nasal obstruction, facial pain, smell disorders and rhinorrhea. An obstruction of the nasolacrimal duct may result in chronic tearing. Exceptionally, elevation of the orbit floor, diplopia and even blindness have been described [2,4]. Oral discharge through a bucco-sinus communication can be isolated [8]. Finally, it may be a chance radiological discovery [1]. Radiologically, it is a lytic lesion, well circumscribed with a peripheral condensation. A large cyst can simulate a multilocular process due to persistence of bony trabeculae [9,11,12]. It can thin the cortices, sometimes causing root resorption. It is either central, pericoronal, lateral, or periradicular [12]. CT or Cone Beam provides a precise topographical diagnosis as well as the relationship with adjacent structures, particularly the orbit, nasal cavity and infra-temporal fossa. In our patient, in addition to these data, the radiological assessment clarified the exact location of the oral-sinus communication. The main differential diagnosis

is radicular cyst based on frequency. Other diagnoses are considered such as hyperplastic pericorony sac, ameloblastoma, keratocyst and paradental cyst [9,11]. Treatment of dentigerous cysts is always surgical. Two therapeutic techniques are possible: the conservative one allows reduction in cystic pressure, stimulation of osteoformation and preservation of the tooth [9,13], it is proposed in young subjects, if the cyst has a large-volume and the tooth concerned has a high potential for eruption [1,9]. It consists of either decompression or marsupialization or cystostomy. The greatest disadvantage is the preservation of pathological tissue whose carcinomatous or ameloblastic transformation, although exceptional, is possible [8,10,11,13]. Non-conservative technique consists of enucleation of the cystic pocket with extraction of the impacted tooth. Several approaches have been described: the endoscopic approach via a middle antrostomy, the Caldwell-Luc approach, the two combined approaches [4,5,10]. The postoperative recurrence rate of non-conservative technique is clearly low compared to conservative one [9]. Concerning our patient a non-conservative technique was necessary given the ectopia and the non-conservable nature of the tooth. On pathological examination, the dentigerous cyst is most often lined by a non-keratinizing squamous epithelium (90.8%). Cases with a keratinizing coating have been reported, Keratinization is due to the pluripotentiality of the enamel epithelium [14]. Our observation is one of the rare cases where the epithelium was keratinizing. The inflammatory signs noted on our specimen are not characteristic of dentigerous cyst, however their presence indicates diagnostic delay. Transformation into squamous cell or mucoepidermoid bone carcinoma by ameloblast grafting has been described [3].

CONCLUSION:

The originality of our observation is twofold, on the one hand the location at the level of the maxillary sinus and on the other hand the keratinization of its epithelium. Its presence may be asymptomatic initially. CT or Cone Beam provides a precise topographical diagnosis and the relationship with adjacent structures.

Conflicts of interest

The authors declare that they have no conflict of interest

Availability of data

The data underlying this case report will be shared on reasonable request to the corresponding author.

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