

Conservative Management of a Large Cyst Associated with an Ectopic Tooth Evolving towards the Orbit: A Case Report

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Abstract: *The ectopic teeth may have several etiologies such as pathological or iatrogenic processes. Their association with a cyst pushing them back through the sinus and into the orbit is a rare entity presenting the challenge of the treatment of the lesion and the extraction of the tooth while avoiding the possible complications. The present case is that of a young Moroccan boy who was referred to the department of oral surgery for a large cyst associated with ectopic wisdom tooth. The management of this case has been conservative by decompression using a device allowing to carry out the treatment thus optimizing its success.*

Keywords: Conservative management, large cyst, ectopic tooth

1. Introduction

Conservative treatment of cysts is a highly recommended approach especially in the presence of significant dimensions of the cyst. It allows optimal care while avoiding the potential complications due to surgery.

We present, in this paper, a case report that was diagnosed as a dentigerous cyst with an ectopic tooth evolving towards the orbit. The case was managed by decompression technique using a customized device.

2. Case Presentation

A 16 years old Moroccan boy was referred to the department of oral surgery in the faculty of dentistry at Rabat for a swelling of the left cheek. The interview revealed no particular antecedent and the patient had no health problems.

Exobuccal examination shows asymmetry in the left region of the cheek that appeared a month ago. (Figure 1)



Figure 1: Exobuccal view showing a facial asymmetry

On palpation, the area was compact, not painful and no lymphadenopathy was noted.

The endobuccal examination showed a filling of the vestibule floor at the level of the upper left molar region with absence of the left wisdom tooth. (Figure 2)



Figure 2: Endobuccal view showing a filling of the bottom of the vestibule

No symptoms of sinusitis were present.

A panoramic radiography shows a wide radiolucency image evolving towards the orbit and associated with the wisdom tooth. (Figure 3)



Figure 3: Panoramic view of the patient

The CBCT shows the limits of the image that is extended beyond the maxillary sinus to the orbit. The wisdom tooth is located at the lower edge of the orbital floor. (Figure 4)

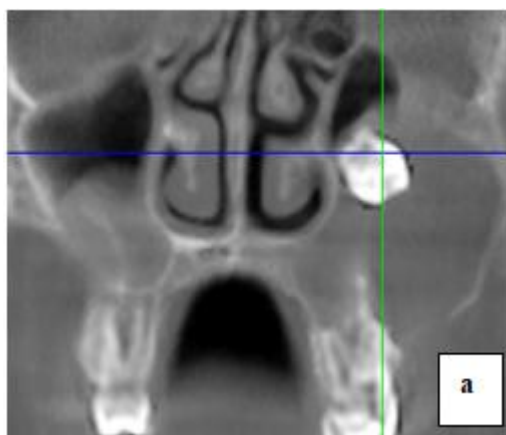


Figure 4 (a, b) : CBCT images show a large image reaching the sinus with the presence of the wisdom tooth at the floor of the orbit

In view of the clinical examination carried out, the diagnosis referred to are dentigerous cyst Odontogenic keratocyst and tumors.

Given the large size of this lesion, it was agreed to apply a conservative treatment by decompression. For this a device formed by a tube, orthodontic wires and brackets was used.

After an incisional biopsy specifying the diagnosis of dentigerous cyst, the tube was placed at the surgical opening

at the wall of the cyst and was fixed by sutures. Then the wire surrounded the brackets at the first and second molar.

The tube was thus well fixed and explanations concerning the irrigation of the cavity through the tube were given to the patient.

The patient was followed for a period of six months with a monthly check

Clinical swelling disappeared during the first days of the treatment. A panoramic radiograph was performed after six months and objectified the displacement of the impacted tooth towards the apex of the molars with a decrease in the size of the lesion. (Figure 5)



Figure 5: Panoramic view after 6 months showing the migration of the tooth towards the apices of the 2nd upper molar

Total enucleation of the lesion with extraction of the wisdom teeth was performed.

Histological examination of the entire operative specimen confirmed the initial diagnosis and eliminated the possibility of ameloblastic grafting or in situ carcinoma.

The intervention for the enucleation of the lesion and the extraction of the tooth was thus carried out with the minimum of risk, less surgical time and less stress for the doctor as well as for the patient. (Figure.6)





Figure 6 (a,b): Specimen of enucleated cyst (a) with the extracted tooth (b)

The patient is being followed-up for the past 3 months with no evidence of recurrence or complications till date.

3. Discussion

Ectopic eruption of teeth into regions other than the oral cavity is rare, although there have been reports of teeth in the nasal cavity, mandibular condyle, coronoid process, and palate [1].

Only few cases of ectopic teeth affecting the orbital floor have been reported in the literature [2].

Ectopic eruption may result owing to one of these 3 processes: developmental disturbance, iatrogenic activity, or pathologic process, such as a tumor or a cyst [1].

In our case, this ectopia is associated with the presence of a Dentigerous cyst. According to Tümer et al., the displacement of the tooth is due to the pressure exerted by intracystic fluid on the occlusal aspect of the tooth [2].

Dentigerous cysts (DC) are the most common type of developmental odontogenic cyst and are the second most common cystic lesion of the jaw, after radicular cyst (Tournas et al. 2006, Buyukkurt et al. 2010). About 70% of the cyst occurs in posterior mandible and 30 % in maxilla [1, 3].

DC are known to be asymptomatic which gradually grows over time and are generally presented only when it attains sizes big enough to cause gross intraoral swelling or teeth displacements and facial asymmetries while others are found incidentally during routine radiographic examinations (Tournas et al. 2006) [1,3].

When the maxillary sinus is invaded, symptoms usually occur late in the process [1].

In our case, there are no clinical signs despite the presence of an image occupying almost the entire sinus.

When sinus symptoms are present, it is often chronic nasal obstruction, nasal discharge, maxillary pain, reduced olfaction, oro-antral fistula with secondary infection, or rarely ophthalmic symptoms if the orbit is compressed or invaded [4].

Dentigerous cysts usually present in the second or third decade of life and are rarely seen in childhood. However, according to some authors, most patients with a dentigerous cyst are younger than 20 years [1].

Third molars, maxillary canines and premolars are the most frequently affected teeth [3].

The pathogenesis of the cyst is unknown and is believed to originate from dental follicles. The epithelial lined developmental cavity encloses the crown of an unerupted tooth at the cement-enamel junction (Ko et al. 1999)[1, 3].

On radiographic examination, dentigerous cysts appear as unilocular radiolucent cysts of varying sizes, with well defined sclerotic borders, associated with the crown of an unerupted tooth [5].

A three dimensional examination shows the actual extension of the cystic lesion of the jaw, its proximity to vital structures, and the loss of cortical bone [6].

Differential diagnosis of DC includes radicular cyst, odontogenic keratocyst, odontogenic tumours like ameloblastoma, Pindborg tumour, odontoma [1].

The standard treatment for a dentigerous cyst is enucleation and extraction of the cyst-associated impacted or unerupted tooth [1].

For this, many surgical techniques are possible. Transalveolar approaches to such teeth are difficult and associated with high surgical risk because of reduced visualization of vital structures [4].

On the other hand, the technique of Caldwell-Luc provides a direct view into the maxillary sinus [1]. However, this procedure is associated with greater surgical morbidity [4].

Among these complications facial swelling as a result of premaxillary fibrosis and facial pain are important [7]. Other complications are due to the extent of bone removal, and risks injury to the infraorbital neurovascular bundle. The removal of ectopic teeth or cysts from the supero lateral aspect of the maxillary sinus risks perforation into adjacent anatomical structures such as the infratemporal or pterygopalatine fossae, or through the orbital floor [4].

The enucleation of the cyst and the extraction of the tooth can also be achieved by transnasal endoscopy. The latter, though less aggressive than the Caldwell-Luc technique requires a specific technical platform (nasoendoscope..) [4].

Similarly, transnasal extraction of the tooth may be attempted if the tooth is small and sited near the maxillary ostium [1].

Thereby, in large cysts, the use of cyst marsupialization or decompression followed by enucleation and tooth extraction has been advocated [1,3,4].

The benefits of marsupialization and decompression include the gradually decreasing the cystic cavity; preserving the adjacent oral tissues, maintaining pulp vitality, avoiding

dental extractions, preventing iatrogenic damage to adjacent noble structures, avoiding mandibular fractures and reducing the risk of recurrence [8]. They would also avoid the cost of hospitalization and minimize the extent of surgery [9, 10].

Decompression is more conservative and better tolerated than marsupialisation, which converts the cyst into an accessory pouch of the mouth by suturing the lumen of the lesion to the oral mucosa [6].

Decompression is a common conservative approach requiring preparation and preservation of a cyst opening. The cyst opening can be preserved with simple iodoform gauze packing, a custom-made obturator, bracket and chain on involved impacted teeth, and drains [9].

Nonetheless, cases must be carefully selected and the surgeon has to weigh many factors, such as patient age, type of lesion and time of evolution, and the patient's cooperation [10].

This method is not without its disadvantages. As any other treatment technique, it's not a panacea [10].

Disadvantages of decompression include the duration of treatment, discomfort, and reliance on patient compliance [9].

Another main drawback is the tube lost [8]. Instead, it could be dislodged over time [10].

Several ways have been used to counter this problem. In 2011, Kolokythas et al used a 16-gauge needle to create a passage for a 28-gauge wire that would be secured to the teeth [11].

In 2012, another stent fixation method, using 1.2-mm screws, was proposed in by Swantek et al [12].

In our case, we used a device allowing a reliable anchoring of the tube by orthodontic brackets and a steel wire. The case was well conducted and after six months the lesion greatly diminished and the tooth migrated downwards and ended up at the apices of the second molar. (Figure .7)

4. Conclusion

Decompression is a minimally invasive technique in the management of large cysts that mainly prevents morbidity. Good operative planning, rigorous follow-up of the patient allowed to carry out this clinical case and lead to a migration of the tooth far from the orbit and towards the apical part of the teeth, thus allowing a simple enucleation and extraction with the minimum of complications.

Declarations of interest: none

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