CASE REPORT
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Endoscopic Endonasal Approach to a Giant Dentigerous Cyst

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ABSTRACT

Dentigerous cysts constitute 20% of all odontogenic cysts and are often located in the mandible and maxilla. They are often seen at young ages and in men. Patients are usually asymptomatic, and the diagnosis is established by dental radiographs in routine scans. Surgery is recommended for dentigerous cysts because ameloblastoma, intraosseous mucoepidermoid carcinoma, or intraosseous squamous cell carcinoma may develop from them. Generally the transoral route is preferred over the endoscopic route for dentigerous cysts located in the maxilla. In addition to the question of the transnasal versus oral approach to dentigerous cysts, another controversy is the removal or marsupialization of the entire cyst. In our 10-year-old male patient, a cyst that completely filled the right maxillary sinus and eroded the lateral and anterior wall of the maxillary sinus was treated with transnasal endoscopic surgery. The cyst wall and 3 permanent teeth were removed endoscopically. No post-operative complications were observed. The patient's age and the location and size of the cyst play an important role in the choice of treatment. Furthermore, the most accurate way to choose the appropriate treatment is to make the treatment decision with a multidisciplinary approach.

Keywords: Endoscopic surgery, Dentigerous cyst, Odontogenic Cyst

INTRODUCTION

Dentigerous cysts constitute 20% of all odontogenic cysts. They are usually seen between the ages of 10 and 30 and are more common in men. They form around the crown of an unerupted tooth. The pressure of the erupting tooth on the follicle is the cause of the cyst. That pressure prevents normal blood flow, leading to fluid accumulation between the enamel membrane tissue and coronal of the tooth. This will cause inflammation and infection, and finally, a dentigerous cyst. Patients are usually asymptomatic, and the diagnosis is established by dental radiographs in routine scans. X-ray imaging shows a well-defined unilocular radiolucency surrounding the crown of the affected tooth, with a good sclerotic margin. While marsupialization may be preferred for large lesions in treatment, enucleation is generally preferred (1, 2).

CASE REPORT

Written informed consent was obtained from the patient's family for this case report.

A 10-year-old male patient applied to the dental clinic for a check-up examination. Mild swelling was observed on the right cheek. It was observed that the baby teeth numbered 1, 2, and 3 on the upper right were still in place. In the panoramic x-ray, radiopaque areas surrounded by the sclerotic border in the right maxillary sinus and thought to belong to 3 permanent teeth were observed (Figure 1). For detailed evaluation, a PNS CT was taken and a dentigerous cyst was observed, obliterating the right maxillary sinus almost completely and containing 3 unerupted permanent teeth, one on the floor of the maxillary sinus, the other on the medial wall, and the last one on the floor of the orbit (Figure 2). It was observed that the cyst had severely thinned the anterior and lateral walls of the

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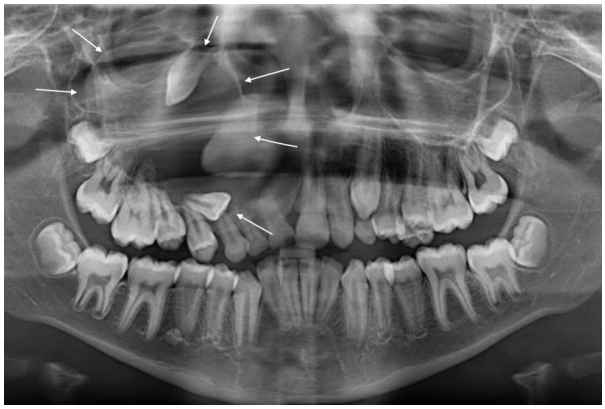

Figure 1: Panoramic X-Ray Imaging of Cyst

maxillary sinus. The patient was operated on endoscopically under general anesthesia and the cyst wall and 3 permanent teeth were removed endoscopically (Figure 3). Post-operative bleeding was controlled and a merocell tampon was placed in the nasal cavity. The patient's tampon was removed postoperative day 1 and the patient was discharged. The pathology result was confirmed as a dentigerous cyst and no postoperative complications were observed.

SURGICAL PROCEDURE

The patient was intubated orotracheal under general anesthesia. Appropriate field treatment was provided for endoscopic transnasal surgery. The operation was started

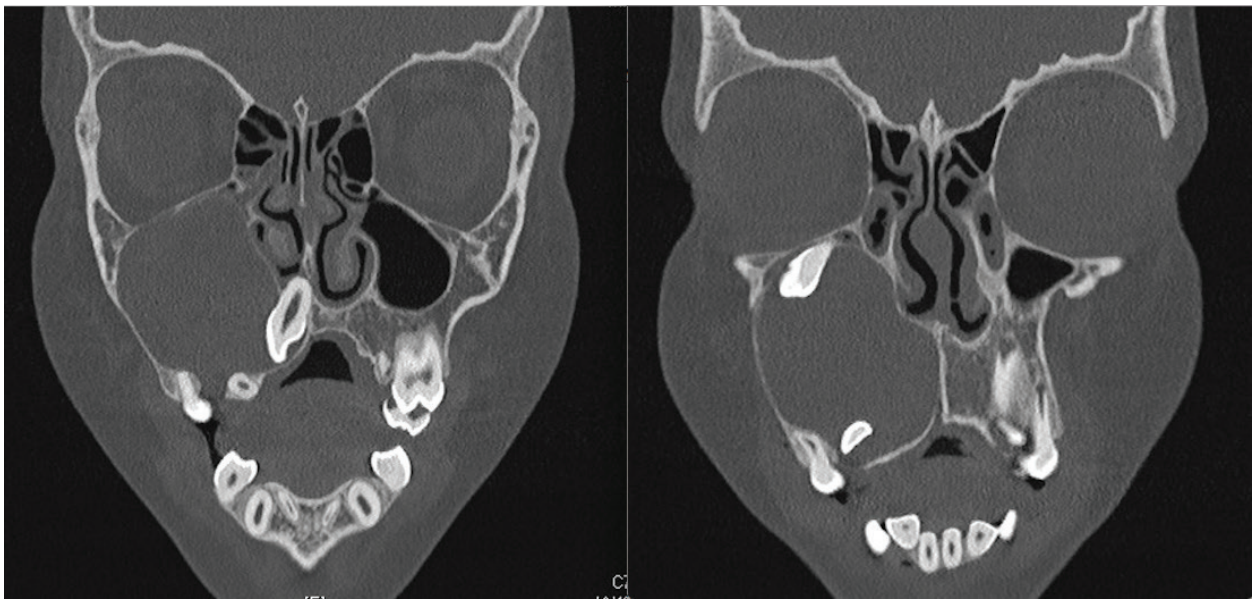

Figure 2: Computerized Tomography Imaging of Cyst

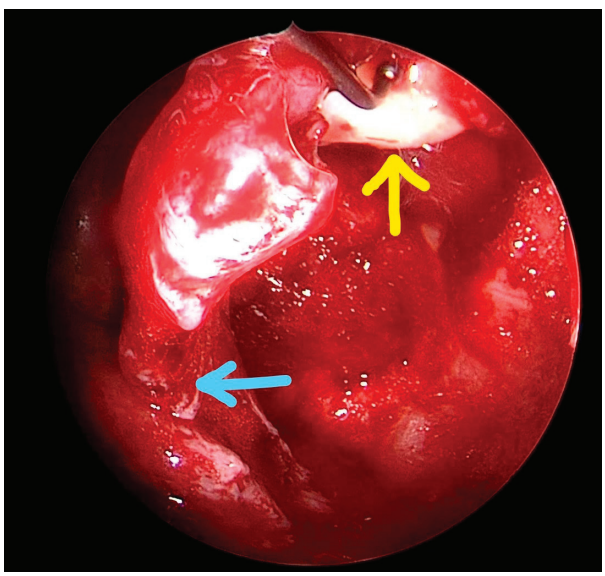

Figure 3: Endoscopic view of maxillary sinus (70 degree) Blue arrow: cyst wall, Yellow arrow: tooth on the orbital base

from the right nasal cavity with a 0 degree endoscope. The anterior 1/2 of the inferior turbinate and the anterior 1/3 of the middle turbinate were excised for visualization. Uncinectomy was performed and wide maxillary antrostomy was performed. The cyst wall was released from the maxillary sinus. The teeth at the base of the sinus and against the medial wall were removed with a 45-degree endoscope. The tooth at the base of the orbit was visible with a 70-degree endoscope and was removed. Then the entire cyst wall was removed (Figure 4).

DISCUSSION

Dentigerous cysts are most commonly seen in the mandible and secondarily in the maxilla. Generally the transoral route is preferred for dentigerous cysts located in the maxilla rather than the endoscopic route (2, 3). However, we did not prefer the transoral route for this cyst; it can cause serious weakening of the anterior and lateral wall of the maxillary sinus. Our main concern was to avoid creating bone fenestration inside the mouth as the result of an uncontrolled fracture or post-surgical

Figure 4: Postoperative Cyst wall and teeth

fistula formation. For all these reasons, we chose to remove the cyst by the endoscopic method.

In addition to the question of the transnasal versus oral approach to dentigerous cysts, another controversy is the removal or marsupialization of the entire cyst. With marsupialization, the cyst wall is sutured to the oral mucosa by mouthing. It is performed particularly in young patients to protect the permanent tooth germs in the cyst and significantly reduces postoperative morbidity. The most important point here is to leave the pathological cyst tissue behind because ameloblastoma, intraosseous mucoepidermoid carcinoma, or intraosseous squamous cell carcinoma may develop from the dentigerous cyst. Also, enucleation of especially enlarged cysts brings the risk of pathological fracture (4). However, many authors have stated that spontaneous bone regeneration is seen after enucleation, especially in young patients, and that grafting is not required in many patients (4, 5).

Patient's age and the location and size of the cyst play an important role in the choice of treatment. Furthermore, the most accurate way to choose the appropriate treatment is to make the treatment decision with a multidisciplinary approach.

Ethics Committee Approval: Not obtained because it was a case report.

Informed Consent: Written informed consent was obtained from the patient's family for this case report.

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