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Case Series

Surgical Ciliated Cyst of the Maxilla: A Case-Series of Three Cases

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ARTICLE INFO

Article history:

Received: 29 November, 2021

Accepted: 18 December, 2021

Published: 29 December, 2021

Keywords:

Surgical ciliated cyst

sinus

pathology

ABSTRACT

The surgical ciliated cyst is an iatrogenic lesion occurring after surgeries in which the Schneiderian membrane has been exposed, such as in orthognathic surgery or maxillary sinus procedures. This lesion has been infrequently documented in western countries. In this case series, we present three cases of surgical ciliated cysts of the maxilla.

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Introduction

Surgical ciliated cysts, also called post-operative maxillary cysts, are benign, frequently iatrogenic cysts of the jaws that develop after maxillofacial surgical procedures. These cysts develop after inadvertent implantation of the epithelial lining of the maxillary sinus into adjacent maxillary bone following procedures such as the Le Fort I osteotomy, Caldwell-Luc antrostomy, and complex surgical extraction of posterior maxillary teeth [1]. Surgical ciliated cysts are characterized radiographically by well demarcated, unilocular radiolucencies of varying sizes located in the surrounding bone but separate from the sinus [2]. Additionally, there have been reports of rare but well-documented surgical ciliated cysts being found in the mandible, presumably caused by surgical instruments contaminated with sinus membrane epithelium used in orthognathic procedures involving maxillary and mandibular bones simultaneously [3]. The surgical ciliated cyst is a rare form of pathology, and there have been only 10 case reports from western countries in the literature over the last 15 years. However, these cystic lesions are more common in Japan, which was hypothesized to be due to either ethnic differences, misdiagnosis, or underdiagnosis [1, 4].

Surgical curettage is the mainstay for the treatment of surgical ciliated cysts. The intent of this article is to present three additional cases diagnosed at the Dental College of Georgia at Augusta University of this relatively rare iatrogenic lesion and review the relevant literature.

Case Reports

Case Report I

Case I is a 26-year-old Caucasian male who received an open reduction and internal fixation of a Lefort I fracture after an automobile accident. The patient subsequently reported to the Oral and Maxillofacial Surgery Clinic at the Dental College of Georgia six months post-operatively with complaints of pain and swelling in the left mid-face region. Clinical examination revealed slight fullness in the left mid-face region. Upon intraoral examination, there was an expansion of both buccal and palatal cortical plates in the left maxillary premolar/molar region with mobility of teeth 12, 14, and 15 (Figure 1). The panoramic radiograph depicts a well-demarcated radiolucency associated with the fixation plate and screws on the left zygomatic buttress (Figure 2). Resorption of the

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maxillary posterior teeth roots was also noted. Total enucleation of the lesion was performed with removal of the adjacent maxillary hardware and submission of the specimen for pathologic report (Figures 3 & 4). This case was signed out as an inflamed surgical ciliated cyst.



Figure 1: Expansion of buccal and lingual cortical plates.



Figure 2: Arrow depicting well-demarcated radiolucency associated with surgery site.



Figure 3: Fixation screws floating in the lesion in left maxilla.

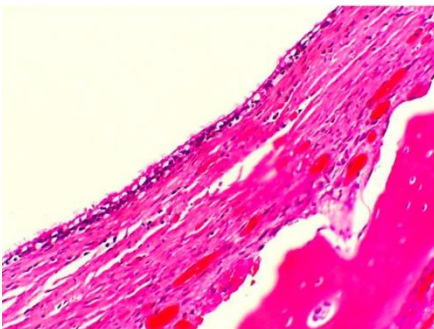


Figure 4: Histologic examination with HE staining revealed a soft tissue specimen consisting of multiple sections of a moderately cellular fibrous capsule lined by ciliated columnar epithelium with peripheral layers of bone, adherent periosteum, and muscle.

Case Report II

Case II is of a 39-year-old Caucasian female who received a Lefort I osteotomy to correct a maxillary deficiency. The patient reported 1-year post-operatively complaining of pain and tenderness of both cheeks. Radiographs reveal bilateral radiolucencies associated with fixation plates and screws placed during the previous orthognathic surgery (Figure 5). Treatment was total enucleation of the lesion with the removal of the associated hardware and submission of the specimen for pathologic report (Figure 6). The case was signed out as a surgical ciliated cyst.

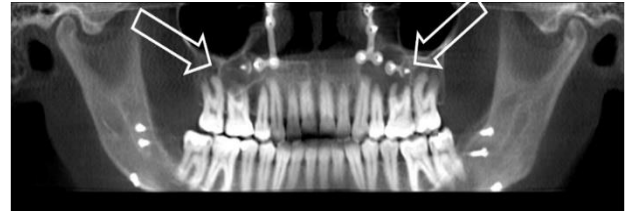


Figure 5: Arrows depicting well-demarcated bilateral radiolucencies associated with hardware from Lefort I osteotomy.

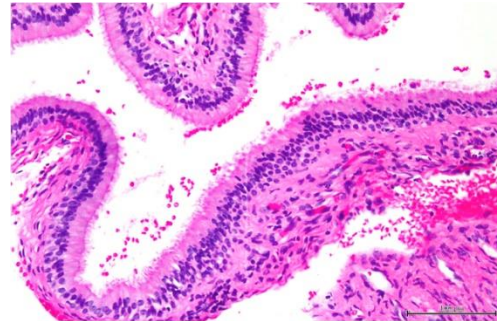


Figure 6: Histologic examination with HE staining revealed a densely collagenized fibrous connective tissue capsule lined by respiratory epithelium. The fibrous capsule is thickened and supports hemorrhagic foci and aggregates lymphocytes, histiocytes, and hemosiderin laden macrophages.

Case Report III

A 53-year-old Hispanic female presented with a 10mm radiopaque solitary unilocular lesion in the left maxillary sinus present for about 5 years (Figure 7). The patient had an unremarkable medical history but did have a left Caldwell-Luc sinus lift in 2014. Curettage of the lesion was performed, revealing a well-defined bony cavity with communication to the sinus membrane (Figure 8). The case was signed out as a surgical ciliated cyst (Figure 9).



Figure 7: Panoramic radiograph showing a 10mm radiopaque solitary unilocular lesion in the left maxillary sinus.



Figure 8: Surgical exposure of the cyst lining in the left maxillary sinus.

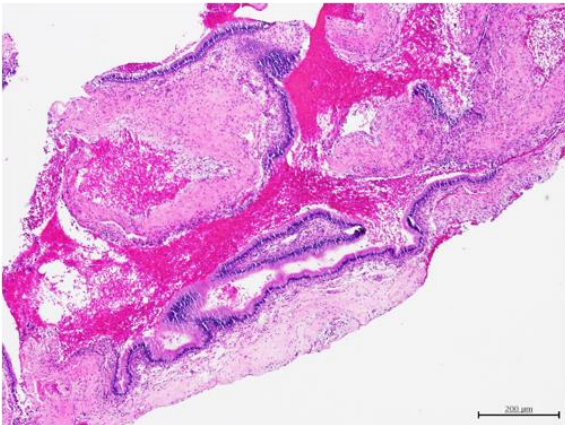


Figure 9: Histologic examination revealed a soft tissue specimen consisting of a fibrous capsule lined by respiratory epithelium.

Discussion

It is widely understood that the development of surgical ciliated cysts is due to the entrapment of sinus mucosa in the bone surrounding the wound created during orthognathic surgeries, maxillary sinus surgeries, or other procedures involving exposure of the Schneiderian membrane [1]. Although they normally occur in maxillary bone, there have been some reports of surgical ciliated cyst in the mandible as well [3]. Radiographically, they appear as well defined, unilocular radiolucencies associated with, but separate from, the maxillary sinus. Histologically, they are characterized by moderately cellular fibrous capsules lined by ciliated columnar epithelium consistent with the Schneiderian membrane. Despite a low number of surgical ciliated cysts reported in the literature from the western hemisphere, the surgical ciliated cyst should be considered in the differential diagnosis of cystic lesions occurring after surgical procedures in which the maxillary sinus lining has been breached, such as those listed above [4-14].

Cases of surgical ciliated cysts can present with or without symptoms. Signs and symptoms include pain, tenderness, and swelling of the midface region. The mainstay treatment for surgical ciliated cysts is enucleation and curettage. If the size of a surgical ciliated cyst increases to the point of damaging surrounding structures, marsupialization is indicated. Recurrences of surgical ciliated cysts are not well documented

in the literature. Further research is required to explain the low number of cases of surgical ciliated cysts diagnosed in the western hemisphere and the recurrence rate of this pathologic entity.

Conflicts of Interest

None.

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