

CASE REPORT

Endonasal Endoscopic Excision of a Large Keratinizing Odontogenic Tumor of Maxillary Sinus

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ABSTRACT

Odontogenic keratinizing tumor is a developmental odontogenic cyst and deserves special attention owing to its biologic behavior, propensity for recurrence and peculiar histologic features. Conventionally external approaches have been used for their excision. However, advent of nasal endoscope has provided a new avenue for complete visualization and removal of these cysts with minimum morbidity and reduced chance of recurrence. Endoscopic management of a case of large keratinizing odontogenic tumor of maxillary sinus removed endonasally is described.

Keywords: Maxillary sinus, Mucopyocele, Endoscope.

How to cite this article: Dutta A. Endonasal Endoscopic Excision of a Large Keratinizing Odontogenic Tumor of Maxillary Sinus. Clin Rhinol An Int J 2014;7(2):80-82.

Source of support: Nil

Conflict of interest: None declared

CASE REPORT

A 26-year-old male presented with history of painful swelling right cheek which was gradually increasing for the past 1 month. There was history of loose tooth right upper 3rd molar for the same duration. There was no history of epistaxis, nasal obstruction, rhinorrhea, proptosis, diplopia. ENT examination showed diffuse swelling right cheek obliterating the right malar prominence. The swelling extended from the right infraorbital rim to right gingivobuccal sulcus. On examination there was mild deviated nasal septum to the right and there was reduced air entry right nostril. Nasal endoscopy showed displaced right uncinate process and right lateral nasal wall was displaced medially. Investigations MRI PNS showed a large well-encapsulated, lobulated cystic mass occupying the right maxillary antrum (Fig. 1) superiorly reaching the orbit; inferiorly eroding the floor and extending into gingivobuccal sulcus; extend-

ing into cheek with erosion of medial wall into the nasal cavity. The impression was of a benign cystic mass with mucopyocele. Fine needle aspiration cytology showed benign squamous cells and sheets of acellular squamous cells suggestive of a keratinous cyst. Patient was started on Injection Augmentin 1.2 gm intravenous 12 hourly and then taken up for endoscopic clearance of right maxillary sinus with excision of the cyst after taking written informed consent. A 0°, 4 mm nasal endoscope was used to visualize the middle meatus. Right uncinate process of ethmoid was removed using a backbiting forceps and cyst was visualized inside the right maxillary sinus (Fig. 2). It was multiloculated with pus pockets with purulent discharge (Fig. 3). Septae between the loculations were broken and the entire cyst wall was removed using angled forceps and microdebrider and cyst cleared. Entire maxillary sinus mucosa was removed using angled curettes and microdebrider. Wide maxillary antrostomy using the microdebrider was done and entire maxillary sinus was visualized using 30 and 45° telescopes to check the completeness of resection. An angled diamond burr attached to the microdebrider was used to saucerise the bony right maxillary sinus cavity. Nasal packing was done with merocel. Patient also underwent extraction of right 3rd upper molar on table. His postoperative recovery was uneventful. Histopathological examination showed stratified squamous epithelia with underlying fibrocollagenous stroma and benign mucus glands with numerous chronic inflammatory cells around mucinous glands with cystic space lined by cuboidal ciliated epithelium in deeper tissue (Fig. 4). Diagnosis was suggestive of a keratinizing odontogenic tumor. Patient has been on follow-up for the last 2 years with nasal endoscopy 3 monthly and is asymptomatic and there has been no recurrence till date.

DISCUSSION

Odontogenic keratinizing tumors are believed to arise from remnants of dental lamina and account for 5 to 15% of all oral cysts.¹ The most common site is the posterior portion of the body or ramus region in the mandible. Other locations are the anterior portion of the maxilla, the maxillary third molar area and rarely in the maxillary antrum.

Odontogenic keratocysts are generally symptomless and found on routine radiography. Symptoms of pain and

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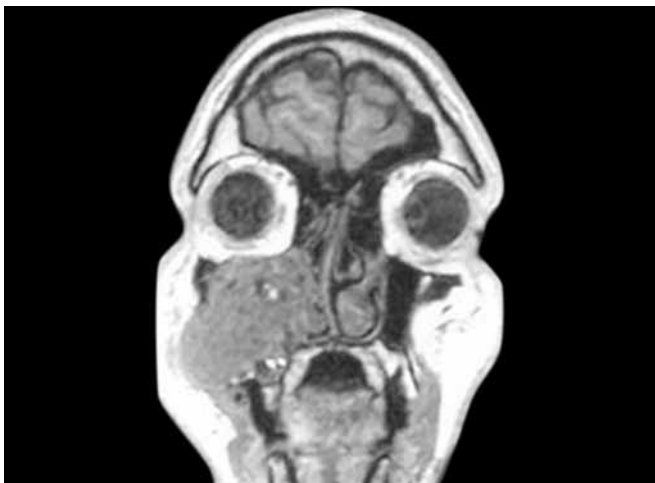


Fig. 1: MRI PNS showing the mass right maxillary sinus

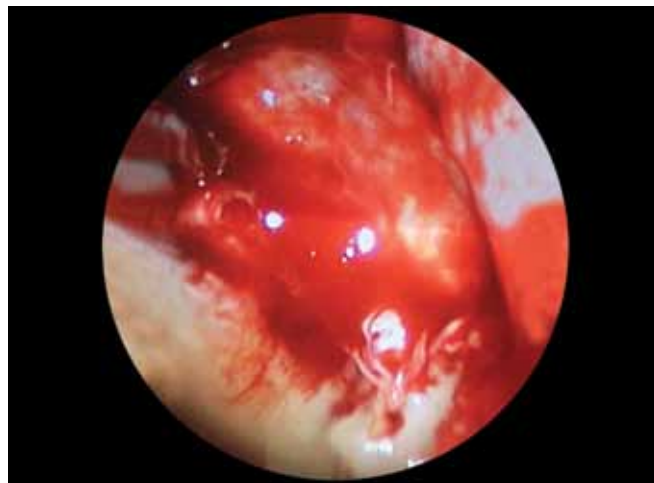


Fig. 2: Endoscopic picture of the cyst inside the right maxillary sinus

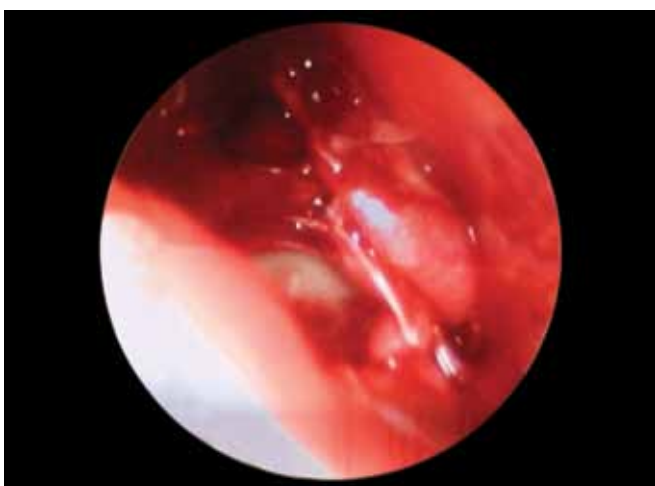


Fig. 3: Endoscopic picture of the multiloculated cyst showing multiple septae

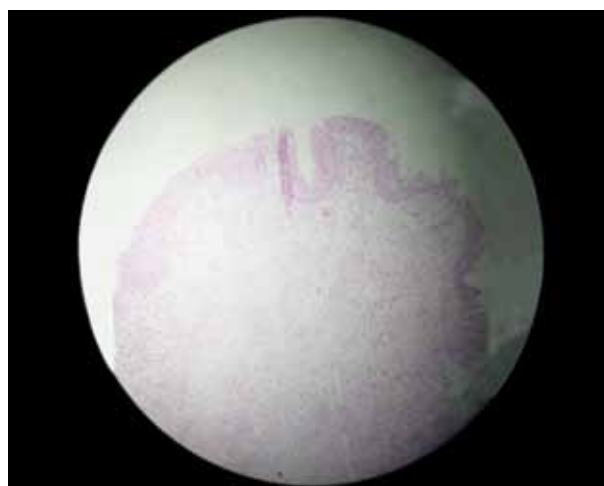


Fig. 4: Microscopic section of the cyst showing the characteristic histologic findings (H & E stain) low power

swelling occur if infected and may cause displacement of teeth and destruction of orbital floor which may cause proptosis, diplopia. The major difference between odontogenic keratocysts and other jaw cysts are their potentially aggressive behavior. They have an active epithelial lining with a more rapid rate of proliferation than that of radicular cysts. Vencio EF et al² reported a case in which the keratocyst was found to be destroying the maxillary sinus floor. Rarely transformation of parakeratinized odontogenic keratocyst into invasive squamous cell carcinoma with invasion into orbit has been reported.³ In our case the cyst exhibited aggressive behavior owing to the presence of a mucopyocele with the keratocyst.

Odontogenic keratocysts have an unusually high recurrence rate which ranges from 5 to 62%.⁴ High recurrence rates can be owing to the fact that the lesion may be multilocular making complete removal difficult or there may be microscopic satellite cysts present around the main cyst. The cyst lining being thin and friable may be left behind during enucleation and the residual epithelium may proliferate and

cause recurrence. Use of a nasal endoscope allows complete visualization of all the walls of maxillary sinus after complete removal aiding follow-up and reduces the chance of recurrence which was done in this case.

Management of odontogenic keratinizing tumor involves surgical excision which has been done using external approaches like Caldwell Luc. Large lesions require extensive dissection leading to perioperative morbidity in the form of oroantral fistula, loss of surrounding dentition and chronic rhinosinusitis. These complications can be avoided by doing an endoscopic endonasal excision. Transnasal endoscopic removal of large dentigerous cyst of maxillary sinus has been reported using endoscopic approach through the middle meatus.⁵ Seno S et al⁶ have described endoscopic sinus surgery for odontogenic maxillary cysts in 13 patients with no recurrence at 13 months follow-up.

Endoscopic endonasal approach permits better instrumentation and involves creation of a large middle meatal antrostomy allowing better visualization and follow-up and avoids the morbidity associated with external approaches.

It is especially useful in the pediatric age group as it does not interfere with the craniofacial development.⁷ An endoscopic approach was used in this case to achieve complete clearance of disease, reduce the morbidity and create a wide middle meatal antrostomy which would permit good visualization at follow-up.

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