

Bilateral Maxillary Sinus Cholesterol Granuloma : A Rare Entity

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Summary

Cholesterol granuloma in the paranasal sinuses is rare. It is more common in the mastoid antrum and temporal bone air cells in chronic middle ear disease. A case of bilateral maxillary sinus cholesterol granuloma that mimics chronic maxillary sinusitis is reported. This is the first reported case of cholesterol granuloma of the maxillary sinus in the Malaysian literature.

Key Words: Cholesterol Granuloma; Maxillary Sinus; chronic sinusitis.

Introduction

It is common to find cholesterol granuloma in the mastoid antrum and air cells of temporal bone, but it is very rare in the maxillary sinus. The term cholesterol granuloma is used to describe a histological entity consisting of granulation tissue in which large numbers of cholesterol crystals act as a powerful irritant and provoke foreign body giant cell formation. The important factors for development of this disease are disturbed ventilation, impaired drainage and haemorrhage into a bony cavity with subsequent hemolysis and accumulation of cholesterol from red cell membranes. The main symptoms, clinical findings and radiological appearances are similar to chronic maxillary sinusitis.

Case report

A 26 year old Indian male presented with headache of one year duration associated with bilateral interchangeable nasal blockage and facial pain. There was no history of epistaxis, trauma or facial numbness. Nasal endoscopy revealed a deviated nasal septum with bony spur to the left and enlarged adenoids in the nasopharynx. There was no other abnormality noted.

The rest of the ear, nose and throat (ENT) examination was normal.

Computed tomography scan (CT scan) of brain and paranasal sinus revealed normal brain architecture with polypoidal mucosal thickening of maxillary sinuses associated with fluid level (Figure 1). A similar finding was also noted in the left sphenoid sinus (Figure 2).

The patient underwent bilateral inframeatal antrostomies followed by sublabial antrostomies to remove the cystic polypoidal lesions of both maxillary sinuses by an ENT specialist elsewhere. The histopathology report showed evidence of chronic sinusitis with cholesterol granuloma (Figure 1). The underlying stroma was edematous and densely infiltrated by lymphoplasmacytic cells and occasional eosinophils. A few fragments showed foci of cholesterol granuloma accompanied by foreign body giant cells and focal areas showed fibrosis, hemosiderin-laden macrophages and granulation tissue (Figure 3). A nasopharyngeal biopsy was performed and reported as adenoiditis.

There was tremendous improvement in the headache with occasional nasal stuffiness at one year post surgery.

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Fig 1: CT scan axial view shows soft tissue opacity of both maxillary sinuses.



Fig 2: CT scan coronal view shows soft tissue opacity in the left sphenoid



Fig 3: Microscopic finding of the biopsied tissue of maxillary sinus showing foci of cholesterol granuloma accompanied by foreign body giant cells and focal areas show fibrosis, hemosiderin-laden macrophages and granulation tissue.

Discussion

Cholesterol granuloma of the paranasal sinuses is rare. Cholesterol granuloma is usually associated with chronic middle ear disease and is common in the mastoid antrum and air cells of the temporal bone. The term cholesterol granuloma is used to describe a histological entity consisting of granulation tissue in which large numbers of cholesterol crystals act as a

powerful irritant and provoke foreign body giant cell formation. Graham and Michaels in 1978 initially presented five cases of cholesterol granuloma in the maxillary antrum¹. On literature review over the past 26 years, only 24 cases were reported involving the maxillary sinus. Cholesterol granuloma of the maxillary sinus is commoner than of the frontal sinus. Alternatively, the cholesterol granuloma may be found in the intima layer of atheromatous arteries, testes and has also been described following haemorrhage into thyroid adenomas¹.

Cholesterol granuloma of the maxillary sinus symptomatically mimics chronic sinusitis. The common presenting symptoms are nasal obstruction, headache and pain surrounding the eyes¹. Plain sinus x-ray may show evidence of cyst or opacity. CT scan may show evidence of chronic sinusitis in the form of a soft tissue mass or mucosal thickening. Occasionally bone erosion of the medial wall of the maxillary sinus may be seen¹. Histopathology is essential to confirm the diagnosis.

The histopathology report of cholesterol granuloma reveals dense masses of cholesterol crystals appearing as clefts surrounded by foreign body giant cells, plasma cells, foam cells and lymphocytes². The intermixed cleftlike spaces represent cholesterol crystals that have dissolved due to alcohol in the staining procedure.

It has been suggested that the pathogenesis of paranasal cholesterol granuloma is due to three factors: disturbed ventilation, impaired drainage and

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haemorrhage into a bony cavity with subsequent hemolysis and accumulation of cholesterol from red cell membranes². Paranasal sinus drainage obstruction will lead to increase intrasinus pressure causing venule haemorrhages while still allowing arterial flow to the sinus mucosa. This will subsequently contribute to large localized haemorrhages. The lymphatic drainage may be insufficient to completely remove the lipid components of the red blood cells that subsequently become cholesterol crystals.

The mode of treatment is surgery. The choice of surgery is either external approach via Caldwell luc operation or internal approach via endoscopic sinus surgery. In six cases that were reported by Leon et al in 1998, five had Caldwell luc surgery performed and one underwent intranasal antrostomy. All patients were

asymptomatic during follow ups. However, currently endoscopic sinus surgery is more popular. The use of endoscopic techniques for this disease was first described by Marks and Smith³ in 1995. Complete excision of cyst is possible via extended middle meatus antrostomy using angled telescope and giraffe forcep. If complete excision is not possible, wide drainage through the natural ostium is helpful.

Conclusion

Maxillary sinus cholesterol granuloma is rare. Definite diagnosis is based on histopathological report because the clinical and radiological findings may mimic chronic sinusitis. Complete excision of cyst with wide drainage through the natural ostium is the treatment of choice.

References

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