

Cholesterol granuloma of the jaws: report of two cases

Pages with reference to book, From 15 To 17

Alper Alkan, Osman Etoz (Department of Oral and Maxillofacial Surgery, Erciyes University, Faculty of Dentistry, Kayseri, Turkey.)

Celal Candirli (Karadeniz Technical University, Faculty of Dentistry, Trabzon, Turkey.)

Murat Ulu (Izmir Katip Celebi University, Faculty of Dentistry, Izmir, Turkey.)

Ezher Hamza Dayisoğlu (Necmettin Erbakan University, Faculty of Dentistry, Konya, Turkey.)

Abstract

Cholesterol granuloma (CG) is a foreign body reaction to the deposition and inadequate drainage of cholesterol crystals that are frequently found in association with chronic middle ear diseases but an uncommon entity in maxillary sinuses. The clinical symptoms are non-specific and depend on the localization and extent in each individual case. Bone erosion may be seen in cholesterol granuloma showing expansive growth. The differential diagnosis of CG includes cysts, mucocoeles and neoplasms. Radiological and histopathological findings are essential for diagnosis of CG. In this report it is aimed to introduce two new CG cases with its clinical, histopathological and radiological findings

Keywords: Benign Tumour, Cholesterol Granuloma, Maxillary Sinus.

Introduction

Cholesterol granuloma (CG) is a histopathologically used term which describes numerous cholesterol clefts that are often surrounded with foreign-body giant cells, foam cells and macrophages filled with haemosiderin.¹⁻³

Although there is no clear pathogenesis, inadequate lymphatic drainage mechanism resulting from lipid components of erythrocytes membrane, accumulation in a confined space and occurrence of cholesterol crystals may play a role.⁴ CG can be seen in various areas of the body - especially within the mastoid antrum and air cells within the temporal bone — and mainly associated with chronic middle ear diseases, however it is extremely rare in paranasal sinuses and almost 40 cases of maxillary sinus CG have been reported.^{5,6} We present two cases of CG which existed within maxillary sinus.

Report Of Cases

Case-1

A 57 year-old man with hypertension (200/120 mmHg) was referred to our clinic with complaint of asymptomatic slow-growing vestibulo-palatinal expansion in the posterior maxilla. He had a history of trauma in the maxillofacial area about twenty years ago.

Panoramic radiograph of the patient revealed a well-defined radiolucent area with a diameter of almost 5 cm. Focal radiopaque appearance was evident (Figure-1).



Figure-1: Panoramic radiograph of the patient revealed a well-defined radiolucent area and radiopaque mass in the center of the lesion in the right maxillary sinus.

Computed tomography (CT) findings showed radiolucent lesion in right maxillary sinus with opacification at the centre of lesion and destruction of the cortical bone, extending through the right nasal cavity. Under local anesthesia the lesion was completely removed. Histopathological analysis of the lesion demonstrated cholesterol clefts with surrounding foreign body giant cells confirming the diagnosis of CG (Figure-2).

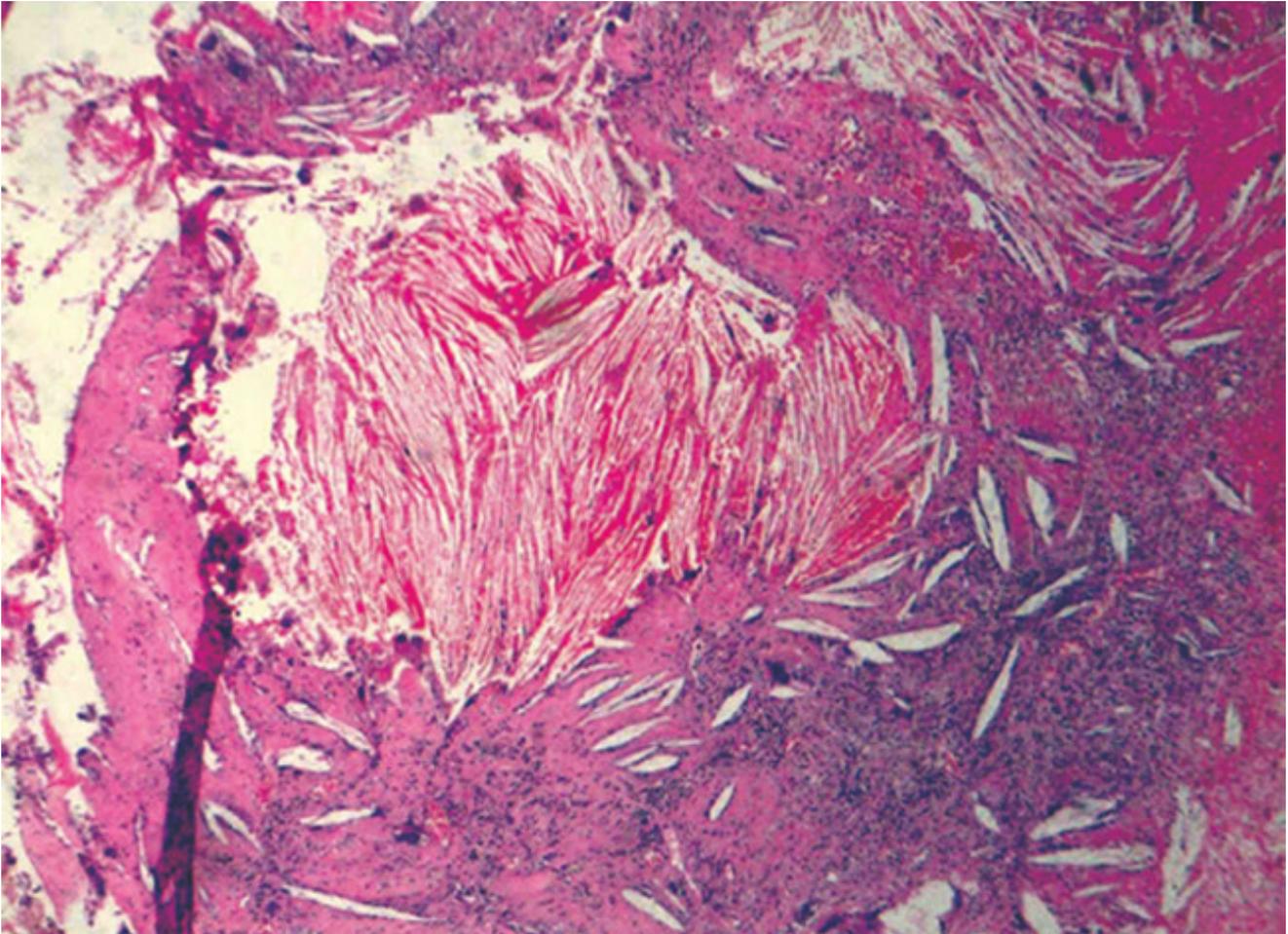


Figure-2: Histopathological analysis of the lesion demonstrated numerous cholesterol clefts with surrounding foreign body giant cells, inflammatory cells (H&E 10x).

There was no sign of recurrence during the follow-up period.

Case-2

A 67 year old woman was referred to our clinic complaining of painful expansion in her posterior maxillary region without any history of trauma and/or possible etiologic factor. Panoramic radiograph revealed a radiolucent lesion in her left maxillary sinus (Figure-3).



Figure-3: Panoramic radiograph revealed a radiolucent lesion in her left maxillary sinus. Under local anaesthesia, the lesion was excised. Microscopic evaluation of the lesion revealed cholesterol clefts with surrounding foreign body giant cells. Final diagnosis was made as CG based on histologic examination.

Discussion

CG of the maxillary sinus was first reported by Graham and Micheal in 1978.⁷ Paranasal sinus CG is usually associated with a history of headache, rhinitis, nasal obstruction and nasal discharge.⁵ Histologic examination of CG shows cholesterol clefts surrounded by foreign body giant cells, foam cells, macrophages and lymphocytes. Although etiology of CG is not clear, impairment of drainage, poor ventilation, and bleeding into a bony cavity are the most favoured hypothesis about pathogenesis of CG.⁸ These factors may be related with inflammation or trauma.⁹ The origin of cholesterol is considered to be the cell membrane of erythrocytes destroyed during haemorrhage.³ In the present report, the first patient had increased blood pressure which may be thought as a contributing factor for micro-bleeding causing CG development. However the second patient was free of any systemic disease.

Trauma is considered as another possible cause for CG development as the first patient had had previous history of a traffic accident about 20 years ago. This may support the relation between maxillary sinus CG and trauma. However the second patient had no history of a possible etiological factor for CG development.

CG shows similar characteristics as allergic and inflammatory disease of the maxillary sinus such as; sinus mucocele and sinus retention cyst and conventional radiographic images may not be usually helpful for definite diagnosis. Nevertheless preoperative radiological inspection, particularly assessment with CT, is essential to determine borders of the tumour. Final diagnosis of CG is made after histopathologic examination.¹⁰

In some patients, focal opacifications may be specific in the radiograph. In the present report, radioopaque focus within maxillary sinus was evident in both patients.

Clinical appearance of CG may show cyst-like expansion of the related antrum bony walls. Although

hard tissue destruction is an uncommon feature of CG, in the first patient, the right lateral nasal wall was destroyed with concomitant expansion in the posterior palatal and vestibular bone.² Management of CG is performed with surgical enucleation through lateral approach as well as trans-nasal endoscopic techniques have been used. Following successful enucleation of tumour the prognosis is good and recurrence is rare. One year follow-up after enucleation, in both cases showed complete healing without any signs of recurrence.

Conclusion

CG is an uncommon benign tumour of the maxillary sinus which is characterized by tumoural expansion and possible mixed appearance. Although definitive diagnosis can be made only after histopathologic examination, clinical and radiological features of the lesion should be carefully evaluated to differentiate with other pathologies and to decide appropriate treatment.

References

1. Astarci HM, Sungu N, Samim EE, Ustun H. Presence of cholesterol granuloma in the maxillary and ethmoid sinuses. *Oral Maxillofac Surg* 2008; 12: 101-3.
2. Leon ME, Chavez C, Fyfe B, Nagorsky MJ, Garcia FU. Cholesterol granuloma of the maxillary sinus. *Arch Pathol Lab Med* 2002; 126: 217-9.
3. Kikuchi T, So E, Ishimaru K, Miyabe Y, Abe K, Kobayashi T. Endoscopic sinus surgery in cases of cholesterol granuloma of the maxillary sinus. *Tohoku J Exp Med* 2002; 197: 233-7.
4. Tzerbos FH, Mavrogeorgis A, Kavantzias NG, BOLLAS N. A cholesterol granuloma in the maxillary sinus: report of case. *J Oral Maxillofac Surg* 1994; 52: 1205-7.
5. Ramani P, Murugesan K, Chandrasekar T, Anuja N. Cholesterol granuloma of maxillary sinus. *Int J Oral Maxillofac Surg* 2006; 35: 1063-5.
6. Chao TK. Cholesterol granuloma of the maxillary sinus. *Eur Arch Otorhinolaryngol* 2006; 263: 592-7
7. Graham J, Michaels L. Cholesterol granuloma of the maxillary antrum. *Clin Otolaryngol Allied Sci* 1978; 3: 155-60.
8. Almada CB, Fonseca DR, Vanzillotta RR, Pires FR. Cholesterol granuloma of the maxillary sinus. *Braz Dent J* 2008; 19: 171-4.
9. Bella Z, Torkos A, Tiszlavicz L, Iván L, Jóri J. Cholesterol granuloma of the maxillary sinus resembling an invasive, destructive tumor. *Eur Arch Otorhinolaryngol* 2005; 262: 531-3.
10. Ko MT, Hwang CF, Kao YF, Lui CC, Huang CC, Peng JP. Cholesterol granuloma of the maxillary sinus presenting as sinonasal polyp. *Am J Otolaryngol* 2006; 27: 370-2.