JOURNAL OF
CONTEMPORARY MEDICINE

DOI:10.16899/jcm.1288668
J Contemp Med 2023;13(4):720-723

Case Report / Olgu sunumu

Cholesterol Granuloma of the Maxillary Sinus in the Patient Operated With Prediagnosis of Sinonasal Polyp: A Case Report

Sinonazal Polip Öntanısıyla Ameliyat Edilen Hastada Maksiller Sinüs Kolesterol Granülomu: Olgu Sunumu

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Abstract

Cholesterol granuloma is a granulomatous reaction which develops against cholesterol crystals precipitating in the tissues and may be seen in any localization of the head-neck region. It has been first described by Graham and Michael in 1978 and it is rarely seen in this anatomical region. The pathogenesis of sinonasal Cholesterol granuloma is not clear. In this case report, we aimed to present a 69-year-old female patient with cholesterol granuloma originating from the maxillary sinus with clinical, radiological and pathological findings.

Keywords: Cholesterol granuloma, sinonasal polyp, maxillary sinüs

Öz

Kolesterol granülomu, dokularda çökelen kolesterol kristallerine karşı gelişen, baş-boyun bölgesinin herhangi bir lokalizasyonunda görülebilen granülomatöz bir reaksiyondur. İlk olarak 1978 yılında Graham ve Michael tarafından tanımlanmış olup nadiren bu anatomik bölgede görülmektedir. Sinonazal Kolesterol granülomunun patogenezi net değildir. Bu olgu sunumunda maksiller sinüsten köken alan kolesterol granülomlu 69 yaşındaki kadın hastayı klinik, radyolojik ve patolojik bulguları ile sunmayı amaçladık.

Anahtar Kelimeler: Kolesterol granülomu, sinonasal polip, maksiller sinüs

INTRODUCTION

Cholesterol granuloma (CG) is a granulomatous reaction which develops against cholesterol crystals precipitating in the tissues and may be seen in any localization of the head-neck region.[1,2] Even though, it is seen in the sinonasal region, it is most commonly encountered in the middle ear.[3] It is rarely found in the frontal and maxillary sinuses.[4] It has clinically and radiologically similar features with maxillary sinusitis.[5] Some mechanisms have been reported to explain the pathogenesis of cholesterol granuloma and deposition of cholesterol crystals in the sinonasal region. These mechanisms are impaired nasal drainage, impaired ventilation and haemorrhage.[1,5] It is histopathologically characterized with cholesterol crystals and surrounding giant cells, plasma cells, lymphocytes and deposition of hemosiderin.[6]

In this case report, we aimed to present a 69-year-old female patient with cholesterol granuloma originating from the maxillary sinus with clinical, radiological and pathological findings.

CASE REPORT

A 69-year-old female patient admitted to ear-nose-throat clinic with complaints of right nasal passage obstruction, lost smelling sense and nasal discharge. No feature was present in the history of the patient including no previous

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Received *(Geliş Tarihi)*: 27.04.2023 **Accepted *(Kabul Tarihi)*:** 30.05.2023

surgical operation. A polypoid lesion covering the right nasopharynx was detected by anterior rhinoscopy. In the paranasal sinus computed tomography (CT) imaging performed following, soft tissue density (antrochoanal polyp?) beginning from inside maxillary sinus on the right and extending to posterior nasal passage and a defective appearance on the medial wall of maxillary sinus at this level were noticed. (**Figure 1**). Functional endoscopic sinus surgery (FESS) was performed due to prediagnosis of antrochoanal polyp. The obtained material was sent to the pathology laboratory. The material was macroscopically 6×5×4 cm in size and brown-white in color with inflammatory characteristics and an appearance of irregular tissue pieces. The tissue specimens were taken and fixed in 10% buffered formalin, routine tracking procedures were applied to the tissues, 5µ-thick sections were prepared and these sections were stained with Haematoxylin-Eosin (H&E). The microscopic examination of the sections revealed a polypoid lesion with surface covered with respiratory epithelium (**Figure 2**). The stroma of the lesion was characteristically myxoid and showed increased vascularity. Cholesterol clefts in stroma and foreign body type giant cells around those clefts were noticeable (**Figure 3** and **4**). In the light of this evidence, the case was diagnosed with cholesterol granuloma of the maxillary sinus. Anterior rhinoscopy performed in the control examination one month after the surgery demonstrated septal synechia in the right lower concha in the midline nasal septum. Our patient is being followed-up without any recurrence.

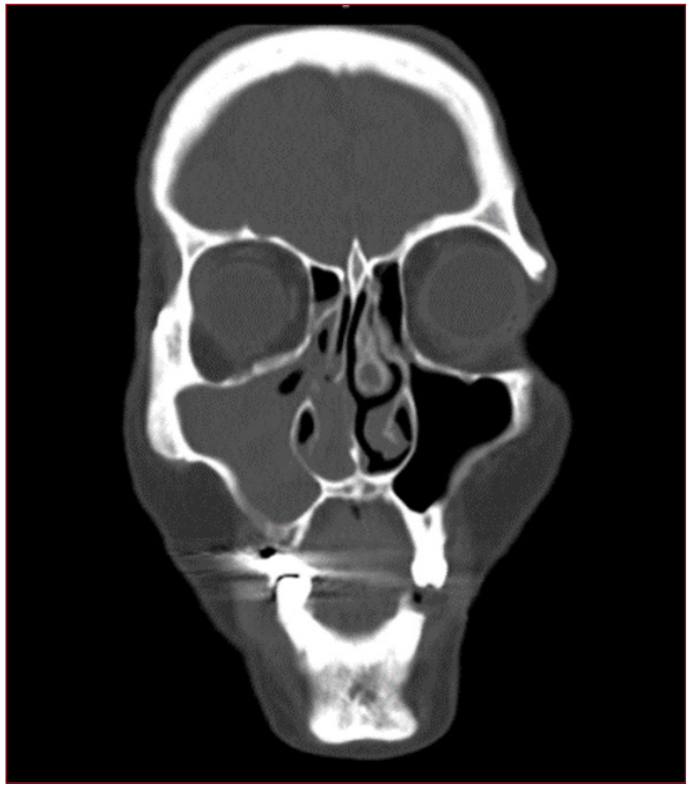

Figure 1. Coronal CT scan revealed opacification of the right maxillary sinüs and a soft tisue density mass in the nasal cavity

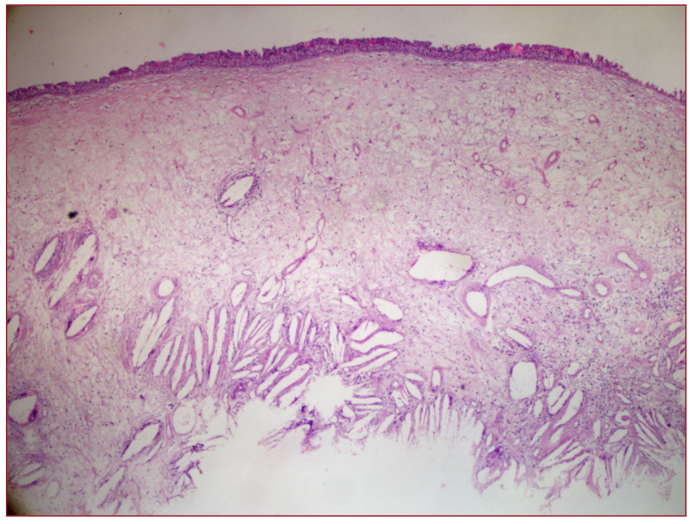

Figure 2. A polypoid lesion with surface covered with respiratory epithelium (H+E, x40)

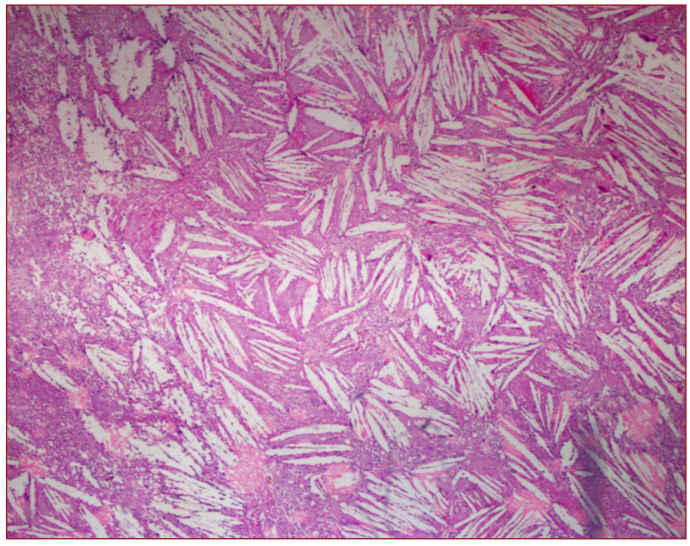

Figure 3. Cholesterol clefts in the stroma (H+E, x100)

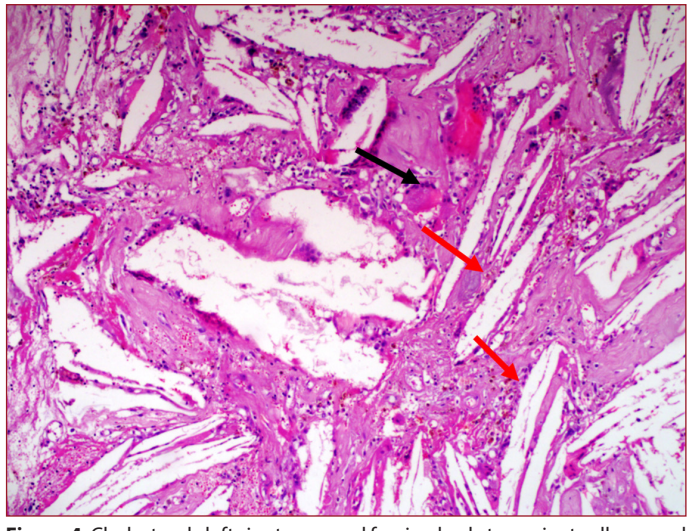

Figure 4. Cholesterol clefts in stroma and foreign body type giant cells around those clefts (black arrow giant cell, red arrow cholesterol clefts) (H+E, x400)

DISCUSSION

CG of the maxillary sinus has been first described by Graham and Michael in 1978 and it is rarely seen in this anatomical region.[3] It is discovered in a wide age range (22-85 years) and most often found in middle-aged males.[3,5,7] Male/female ratio is 3/1.[8] Although, it has no characteristic clinical and radiological symptom, the most frequent hospital admission causes of the patients are single-sided nasal obstruction, nasal discharge and pain.[3,5,7] However, its most specific symptom is clear golden-yellow nasal discharge.[7] It has been reported to be most commonly seen in frontal sinuses and followed by maxillary sinuses.[7,9] It is encountered in the right and left maxillary sinuses with similar rates.[5] Bilateral cases also have been reported in the literature.[10-12] Endoscopic findings may be similar with antrochoanal polyp, sinonasal polyp and mass.[3,7,10] Our case was a middle-aged female patient, the lesion was located in the right maxillary sinus and her complaint was nasal discharge consistently with the literature. Anterior rhinoscopy findings indicated characteristically polypoid lesion.

The pathogenesis of sinonasal CG is not clear.[7] Since sinonasal cholesterol granuloma is rarely found in the literature, it is suggested to have a similar pathophysiology with cholesterol granuloma usually found in the temporal bone, and to be granulomatous reaction against cholesterol crystals forming from the outer membrane of erythrocytes where cholesterol forms crystalline precipitation deposited in the sinus and subsequently initiating the reaction of macrophages and leukocytes.[5,13,14] Sinus obstruction may emerge due to causes such as haemorrhage, inadequate ventilation and decreased lymphatic drainage.[1,3,5,7] Direct trauma or surgery may induce events resulting in CG in the sinus.[5]

Radiographic examination is critical in the preoperative evaluation of sinonasal diseases. Sinonasal CG is radiologically encountered as cystic mass and sinus opacification in the CT. They may cause osseous erosion and opacification.[7] Magnetic resonance imaging (MRI) can provide more reliable results than CT. That results from the visibility of the characteristically increased signal activity in both T1- and T2- weighted images.[3,15,16] MRI should be performed to obtain more reliable data if CG is suspected. Mucosele, pyomucocele, cysts and neoplasms should be borne in mind in the differential diagnosis of CG because of their radiological evidence. The final diagnosis is based on histopathological evidence.[3] It is difficult to diagnose CG without histopathological examination since it manifests no characteristic clinical and radiological evidence.[7] Its characteristic histological evidence is multinuclear giant cells and cholesterol clefts surrounded by hemosiderin loaded macrophages. In also our patient, a soft tissue density suggesting image of a mass in the right maxillary sinus was detected in the CT examination and radiological prediagnosis was antrochoanal polyp. MRI was not performed in our patient.

Caldwell-Luc approach was the previously preferred method in the treatment of sinonasal CG. However, endoscopic sinus surgery is the method preferred in the first diagnosis and treatment of benign tumors in the present time.[3,7] Its availability to provide more favorable cosmetic results is the other reason for preferring FESS.[7] In also our patient, FESS was applied due to prediagnosis of antrochoanal polyp and final pathology was interpreted as CG. No recurrence was detected in the follow-ups of our patient.

CONCLUSION

It is difficult to diagnose CG preoperatively. Because CG has no characteristic clinical and endoscopic evidence and it is rarely seen in the maxillary sinus. Endoscopic approach is preferred for its treatment because of low recurrence rate, providing favorable cosmetic results and availability for complete excision.

ETHICAL DECLARATIONS

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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