

## Petrous Apex Cholesterol Granuloma

Petrous Apex Kolesterol Granülomu  
Radyoloji

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### Özet

Kolesterol granülomu, kolesterolle reaksiyona giren granümatöz bir enflamasyondur. Temporal kemiğin hava hücrelerinde gelişebilir. Bu durum orta kulak boşluğunda, mastoid hücrelerde ve petröz apekte ortaya çıkabilir. Petröz apeksin en sık görülen iyi huylu lezyonlarından biri olarak tanımlanır. Burada petröz apekte kolesterol granülomu olgusunu klinik ve radyolojik bulgularla sunuyoruz.

**Anahtar kelimeler:** *Kolesterol granülomu, Petrous apeks, BT, MRG*

### Abstract

Cholesterol granuloma is a granulomatous inflammation in reaction to the cholesterol. It can develop in air cells of the temporal bone. This condition can occur in middle ear cavity, mastoid cells and petrous apex. It is described as one of the most common benign lesion of the petrous apex. Herein, we report a case of cholesterol granuloma in petrous apex with the clinical and radiological findings.

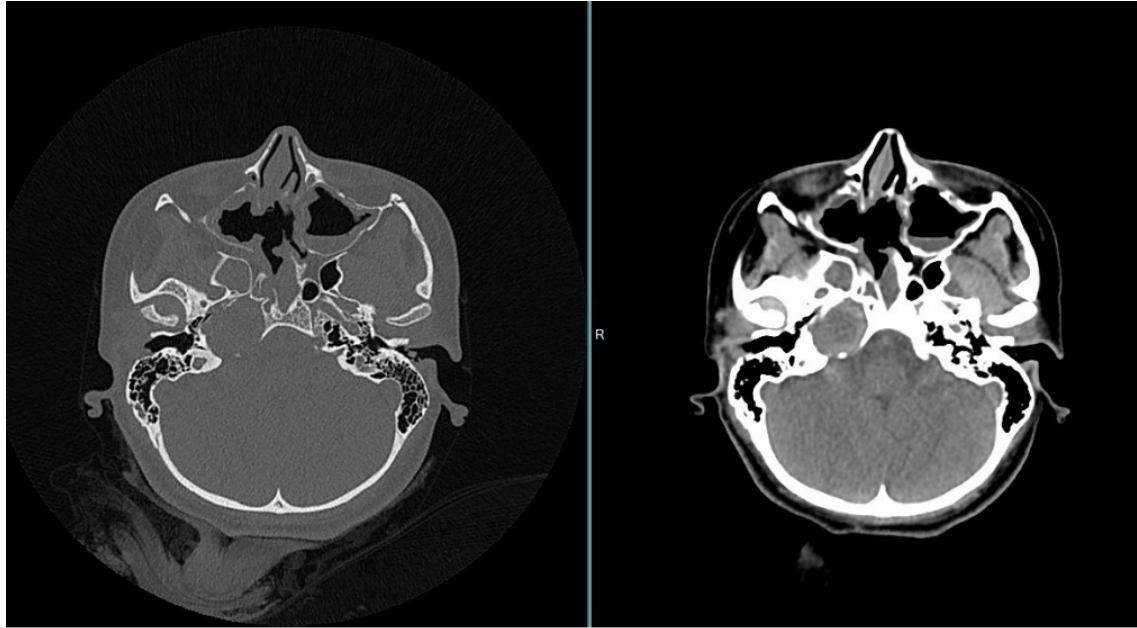
**Keywords:** *Cholesterol granuloma, Petrous apex, CT, MRI*

### Introduction

Cholesterol granuloma (CG) is a granulomatous inflammation in reaction to the cholesterol crystals and red cell extravasation. It can develop in air cells of the temporal bone with inadequate drainage. This condition can occur in middle ear cavity, mastoid cells and petrous apex<sup>1,2</sup>. It is described as the most common benign pathological lesion of the petrous apex<sup>1</sup>. Herein, we report a case of cholesterol granuloma in petrous apex with the clinical and radiological findings.

### Case Report

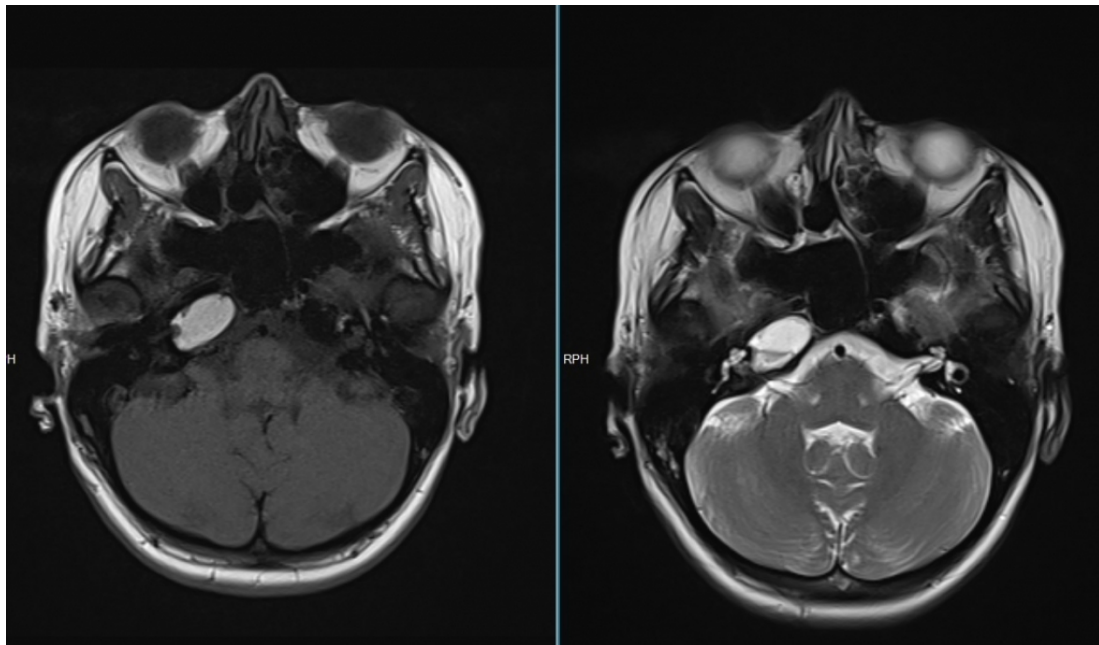
A 15-year-old woman had undergone CT scan after traumatic incident. Computed tomography (CT) scan revealed an ovoid, isodens mass of about 2 cm in the petrous apex. The lesion expanded petrous apex and smoothly eroded the surrounding bone (Figure 1).



**Figure 1**

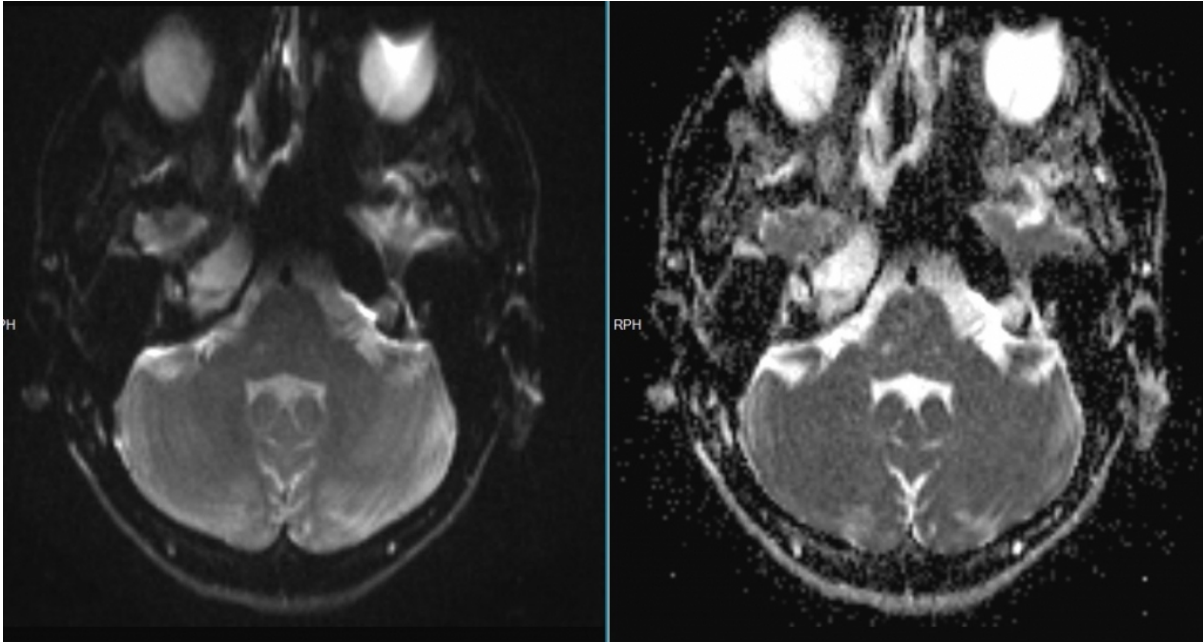
Computed tomography shows an an ovoid, isodens mass causing expansion and erosion in the petrous apex.

Due to these findings, the patient underwent contrast-enhanced temporal magnetic resonance imaging (MRI) scan. The lesion showed homogen hyperintensity on T1-weighted images and heterogen hyperintensity on T2-weight images without diffusion restriction (Figure 2a,b).



**Figure 2A**

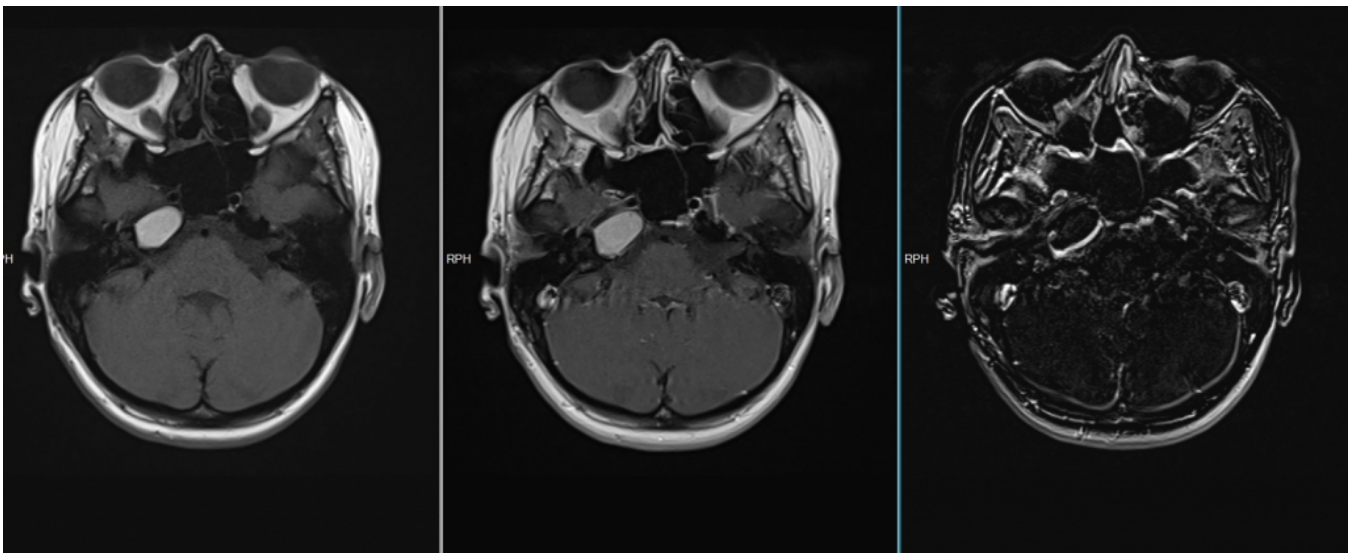
The mass homogen hyperintensity on T1-weighted images and heterogen hyperintensity on T2-weight images in the petrous apex was observed in ear MRI,



**Figure 2B**

The mass homogenous hyperintensity on T1-weighted images and heterogenous hyperintensity on T2-weight images in the petrous apex was observed in ear MRI, b.without diffusion restriction.

After contrast administration, it showed faint peripheral enhancement (Figure 3). Because our patient has no symptoms, surgical intervention was warranted. The lesion haven't showed any change during five-year follow-up.



**Figure 3**

After contrast administration,the mass showed faint peripheral enhancement.

## Case Discussion

Cholesterol granuloma in the external and middle ear cavity was first described by Manasse in 1894<sup>3</sup>. It is an osteolytic lesion with a chronic granulomatous reaction. It is not limited to the temporal bone, but can occur in

other locations too: central nervous system, frontal bone, orbital cavity, paranasal sinus, infratemporal fossa, thyroid gland, mediastinum, ovary and peritoneum <sup>4,5</sup>.

The pathogenesis of petrous apex CG has been related to two hypotheses: One, the obstruction-vacuum-theory where eustachian tube dysfunction is thought to be the underlying abnormality and the exposed marrow theory in which hyperplastic mucosa invades the underlying bone and exposes bone marrow, which in turn bleeds <sup>6</sup>.

For diagnosis, MRI findings of CG are unique. It shows high signal on both T1-weighted and T2-weighted images, which remains high after fat suppression due to chronic hemorrhage. Contrast administration is not required for diagnosis. Epidermoid and dermoid cysts show similar CT findings, but loss signal on fat suppression images and epidermoid cysts demonstrate restricted diffusion.

Petrous apex CG can present as hearing loss, dizziness, tinnitus. If symptomatic, surgical treatment is required. Because our patient has no symptoms, surgical intervention was warranted. The lesion haven't showed any change during five-year follow-up.

## Informed Consent

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## References

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## Information Presentation

30. TNRD Yıllık Toplantısında Poster Olarak Kabul Edildi