# Warthin's tumor as "Earring" lesion of parotid gland: a case report

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## ABSTRACT

**Background**: Earring lesions in the neck region comprises spectrum of different pathologies. Papillary cystadenoma lymphomatosum (PCL) is one of such entity which falls in this spectrum. The cystic lesions of the tail of parotid gland can lead to utter confusion over the diagnosis especially about the site of origin. The exact anatomy has to be delineated for the correct location and the diagnosis. The wrong location and diagnosis can lead to many iatrogenic complications. The cross-sectional imaging plays a pivot role. Computerized tomography and Magnetic Resonance imaging can diagnose the entity fairly to the exact diagnosis.

**Case Presentation:** We present 41-year female who presented with this type of pathology with small swelling at the angle of left mandible. She reported because of cosmetic reasons and was subjected to CT and MRI. Coronal sections were able to delineate the lesion in both Contrast enhanced computerized tomography (CECT) and Magnetic resonance imaging (MRI). The lesion after histological analysis turned out to be Warthin's tumor.

**Conclusion:** Ear ring lesions remain undiagnosed if not evaluated by cross-sectional radiological imaging. The concern becomes greater because of the malignant potential of these neoplasms.

Keywords: Earring lesion, PCL, CT, MRI, malignant.

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## Introduction

Parotid masses differentiation is a challenging task for both the radiologists as well as the clinicians because of some being having malignant potential. The importance of these types of lesions is emphasized as there can be the damage of marginal branches of mandibular nerve during surgical maneuver [1]. It is very important to understand the anatomy of the gland before opining the specific pathology (Figure 1). Warthin's tumor was named after the pathologist Alderd Scott Warthin in 1929. The lesion may not be visible or palpated because of the size and location. These are located in superficial lobe of the parotid gland and deep lobe is not involved. This is the second most common tumor of the superficial lobe. The correct diagnosis can avoid damage to the facial nerve and other iatrogenic effects.

### **Case Report**

A 41-year-old female (Figure 2) presented to Otorhinolaryngology Outpatient Department with the swelling on the left side of the face of 2 years duration. The swelling had increased in size for the last 6 months without any pain. There was history of slight pain after eating something sour in taste.

There was no history of any trauma or fever related to these complaints. Locally, there was small soft fluctuating swelling immediately under the lobule of the left ear. No skin changes were noticed. Systemic examination was unremarkable. All the blood parameters were within the normal limits. Plain skiagram of the face and neck region did not reveal any soft tissue or bony pathology (Figure 3).

The patient was subjected to ultrasonography. There was cystic swelling present in the tail of the left parotid gland just below the ear lobule. This was well-defined region without any echoes from within it. All the surrounding structures were normal. Right parotid gland was unremarkable. Color flow imaging (CFI) did not show any blood flow within this lesion (Figure 4).

She was further evaluated by contrast enhanced computed tomography of the face and neck region. The encapsulated lesion was well demarcated from the rest of the parotid gland. The surrounding gland had shown normal enhancement. The location was confirmed in the tail region of the gland (Figure 5).

Magnetic resonance imaging study revealed well-defined mass in the tail region which was hypointense on T1WI and hyperintense in T2WI. Short tau inversion recovery (STIR) sequence had shown this as shining hyperintense lesion (Figures 6–8).



**Figure 1.** Diagramatic representation of parotid gland and surrounding structures. (a) Main gland (red star) with tail of the superficial lobe (red arrow). Anterior boundary is by masseter muscle in close relation to the mandibular nerve. The layout of parotid duct should also be understood before surgery (white hollow arrow). (b) Parotid gland is seen in green color with nerve traversing through it (white solid arrow). The tumor location for the ear ring lesion is marked by grey region in the tail region of the gland.



**Figure 2.** Photo of 41-year-old female enface and profile with left parotid swelling below the ear lobule (horizontal and vertical blue arrows).



**Figure 3.** Plain X-ray face and cervical region. (a) Lateral and (b) anteroposterior views. There was no evidence of underlying bony or soft tissue abnormality. No calcification seen in both the parotid regions.

Fine needle aspiration cytology (FNAC) was performed and this turns out be as Warthin's tumor. Histopathology had shown multiple cystic spaces with epithelial papillary infoldings. These were surrounded by two uniform



**Figure 4.** Ultrasonography (USG) of the left side of the face including parotid gland. (a) Long axis US image with high frequency linear probe (7 MHz) shows cystic lesion present in the tail region of superficial part of lobe (white hallo arrow). (b) CFI shows no flow in the lesion (inverted hallo arrow).



**Figure 5.** Contrast enhanced computerized tomography. (a) Axial section shows a well-defined "ring like" lesion behind the left mandible (vertical arrow). The lesion shows cystic component surrounded by the enhancing thin capsular wall. (b) Coronal section shows earring type of lesion below the external auditory meatus (horizontal arrow). (c) Left parasagittal section of the head and neck region shows the supero-inferior extent of the earring lesion (horizontal white arrow).



**Figure 6.** Magnetic resonance images. (a) T1WI axial section shows a well-defined hypointense lesion near the angle of the left mandible (vertical arrow). (b) T1WI coronal section shows the superoinferior extent of hypointense lesion (horizontal arrow).

rows of epithelial cells. The epithelium had lymphoid stroma with germinal center formation. The patient had been advised surgical excision and now on follow up for the same.

## Discussion

Hamilton et al. [1] describes the tail as inferior 2 cm of the superficial lobe of the parotid gland. Earring lesions in the tail of the parotids have to be differentiated from those masses which are either arising from sub mandibular



**Figure 7.** Magnetic resonance images. (a) T2WI axial section shows hyperintense lesion near external auditory meatus (vertical arrow). (b) T2WI coronal section shows the superoinferior extent of hyperin tense lesion with well-defined outline (horizontal arrow).



**Figure 8.** MR STIR images. (a) Axial section shows well-defined hyper intense cystic lesion (yellow arrow). (b) Coronal section sows "earring" type of hyperintense well defined lesion (red arrow). (c) Left parasagittal section shows the lesion at the angle of left mandible (green arrow).

gland or reflected by regional lymph nodes. These lesions are well encapsulated. Superficial layer of deep cervical fascia covers the parotid gland and this is suspended with zygomatic arch. The carotid space is separated from the gland by posterior digastric muscle. The differential diagnosis includes a long list of benign pathologies such as pleomorphic adenoma, Warthin's tumor, infectious process, venous malformations, Sjogren disease, lymphatic malformation, lipoma, HIV lymphoepithelial lesion, first brachial cleft cyst and less likely lesions such as oncocytoma, sarcoid and lymph nodes [2]. Pleomorphic adenomas have 2%-25% chances of malignant degeneration. Malignant lesions at this site could be Non-Hodgkin lymphoma, metastasis, mucoepidermoid carcinoma and undifferentiated carcinomas. The pediatric age group had common atrio-venous malformations at this site [3-5]. Warthin's tumor is also called as papillary cystadenoma lymphomatosum. This is benign tumor of cystic in consistency. This does not come with any alarming symptomatology [6,7]. The incidence is more common among the smokers. This requires to be differentiated from oncocytoma and sebaceous lymphadenoma [8,9]. The working diagnosis can be achieved by cross-sectional imaging. Ultrasonography with CFI will highlight the consistency and the vasculature of the tumor. Contrast enhanced computerized tomography (CECT) and contrast enhanced Magnetic resonance imaging (MRI) further shows the tissue characterization and the relationship to the adjoining structures. Diffusion Weighted Imaging with apparent diffusion coefficient further helped in segregating pleomorphic adenomas from other parotid tumors. FNAC is the initial step for confirming the diagnosis but sometimes histopathological specimen can only be the final answer [10]. The management requires complete surgical excision [11]. There is no incidence of recurrence.

#### Conclusion

The evaluation of the parotid masses is a very challenging task because of their wide range of nature. This requires thorough evaluation for the management purpose. Crosssectional imaging plays a pivot role in knowing the anatomical details and some features pointing their nature as per benign or malignant pathologies.

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#### **List of Abbreviations**

CECT Contrast enhanced computerized tomography MRI Magnetic resonance imaging CFI Color flow imaging FNAC Fine needle aspiration cytology STIR Short tau inversion recovery

#### **Conflict of Interest**

There is no conflict of interest.

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#### **Consent for publication**

Written consent of the patient was taken.

#### **Ethical approval**

Ethical approval is not required at our institution to publish an anonymous case report.

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### Summary of the case

Patient	1	41-years old female	
Final Diagnosis	2	Warthin's tumor	
Symptoms	3	Swelling and mild pain in the left side of the face	
Medications (Generic)	4	Symptomatic	
Clinical Procedure	5		
Specialty	6	Radiology	