

# Branchial Cyst of Parotid

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**Abstract:** Branchialcyst of parotid are a rare form of benign parotid cysts and are also known as Benign Lymphoepithelial Cysts of the Parotid. They comprise less than 1% of all branchial anomalies. They are difficult to diagnose on aspiration cytology and a correct diagnosis is established via histopathology of the excised specimen. Although pleomorphic adenomas are the most common parotid tumors, it is prudent to consider other differential diagnosis such as Mucoepidermoidtumors, Carcinomas, Lymphoepithelial cyst, etc. Inconsistent radiological and cytology findings can confuse the surgeon about the correct diagnosis of the case. Here we present such a case of Branchial cyst of parotid.

**Keywords:** Branchial; Cyst; Parotid; Parotidectomy

## 1. Introduction

Benign cysts of the parotid gland are rare and can be congenital, acquired, or occasionally may arise from surrounding structures [1]. Branchialcyst of parotid are a rare form of benign parotid cysts and are also known as Benign Lymphoepithelial Cysts of the Parotid [2]. First branchial cleft cysts (FBCCs) are extremely rare causes of parotid swellings and comprise less than 1% of all branchial anomalies [3]. Usually they are misdiagnosed due to their rarity and unfamiliar clinical signs and symptoms [4]. They are difficult to diagnose on aspiration cytology and a correct diagnosis is established via histopathology of the excised specimen [2].

## 2. Case Report

A 28 year old male presented to the hospital with complaints of swelling in front of the left ear since 6 months & mild pain since a month. There was no history of change in the size of the swelling on chewing or swallowing. On examination the swelling was firm in consistency with restricted mobility. No swelling was palpable inside the oral cavity on bi-digital examination. No signs of Facial nerve palsy were noted. There were no swellings noted on the opposite side of face, neck or other parts of the body. Ultrasonography showed a well circumscribed rounded mass which was hypoechogenic in the parotid gland, possibly suggestive of a pleomorphic adenoma. Fine needle aspiration cytology reported the lesion to have a malignant glandular epithelial neoplasm composed of various proportions of mucous, epidermoid and intermediate cells with columnar, clear cell, and oncocytic features suggestive of mucoepidermoid carcinoma of the parotid gland. Other Pre-operative routine blood investigations were within normal limits. Patient underwent a superficial parotidectomy (FIGURE 1, 2). A well circumscribed tumor of 4x3cm involving the superficial lobe of the parotid gland was dissected and excised in toto (FIGURE 2). The Fascio-venous plane of Patey was preserved (FIGURE 3). On Histopathology of the specimen, sections showed Cyst lined by columnar & mucinous epithelium composed of dense chronic inflammatory infiltrate, cholesterol clefts, surrounding sero-mucinous acini were normal with no atypiasuggestive of Lymphoepithelial cyst/Branchial cyst of

the parotid gland (FIGURE 4). Patient is now disease free and in coming for regular follow up since the last 6 months.

## 3. Discussion

In 1923, Frazier suggested the possibility of a remnant of the first branchial cleft [5]. Of 90 cases of branchial defects reported in 1929 only one was suggestive of being an anomaly of the first branchial cleft [6].

Although the general subject of branchial cleft anomalies is adequately covered in the literature, anomalies of the first branchial cleft are still very unusual. It is even rarer to find a report of branchial cysts contained within the parotid gland [7].

Branchial cleft anomalies are caused by incomplete regression of the cervical sinus of "His" during the 6<sup>th</sup> and 7<sup>th</sup> weeks of embryologic development. They can be cysts, sinuses or fistulae. Cystic type of anomalies is more common rather than fistula or sinus type. Cystic type can occur clinically from the first to fourth branchial cleft [3].

Clinical presentation of a first branchial cleft abnormality includes a swelling in the preauricular region (24%), parotid (35%) or cervical region (41%). Although congenital in origin, first branchial cleft cysts (FBCCs) can present later in life. FBCCs are rare causes of parotid swellings, accounting for <1% of all the branchial cleft abnormalities [8].

Lecene, in 1908, reported two unilocular cysts of the parotid gland of branchial cleft origin for the first time [9].

The first branchial cyst of the parotid gland was described by Hildebrandt in 1895 [10].

These Lymphoepithelialcysts may be single or multiple and may undergo inflammatory changes with the production of sinuses similar to those springing from thyroglossal and branchogenic remains [11]. Branchiogenic cysts appear clinically between the ages of 10 and 30 years [12].

In the 1980's, the association between branchial cyst of the parotid gland and HIV infection was first reported and since

then, once the diagnosis of a branchial cyst is established, HIV testing is recommended [13, 14]

Superficial parotidectomy followed by histopathological confirmation is the standard diagnostic and therapeutic intervention for such cysts [15].

#### 4. Conclusion

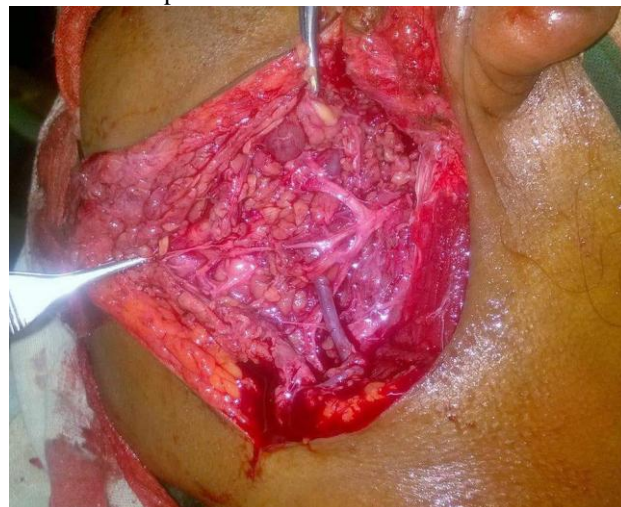
Although pleomorphic adenomas are the most common parotid tumors, it is prudent to consider other differential diagnosis such as Mucoepidermoidtumors, Carcinomas, Lymphoepithelial cyst, etc. Inconsistent radiological and cytology findings can confuse the surgeon about the correct diagnosis of the case. A keen eye should be kept on the involvement of the facial nerve and deeper structures to aid in complete excision and prevent recurrence of the cyst. Special consideration should also be given to associated conditions like HIV infection, in which Branchial cysts are commonly found. Regular patient follow up is a must to look for recurrence.



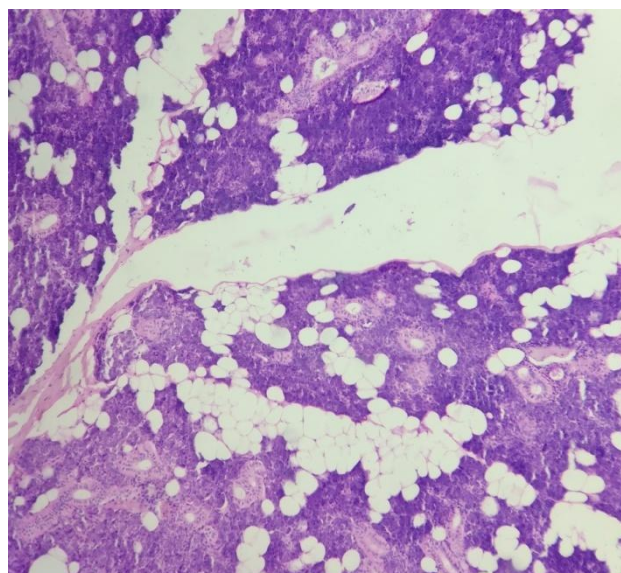
**Figure 1:** Lazy S Incision Placed over the Parotid Swelling



**Figure 2:** Well Circumscribed Tumor of 4x3cm Involving the Superficial Lobe of the Parotid Gland



**Figure 3:** Fascio-Venous Plane of Patey, Intact Facial Nerve and Branches



**Figure 4:** Histopathology Showing Cyst Lined by Columnar & Mucinous Epithelium Composed of Dense Chronic Inflammatory Infiltrate, Cholesterol Clefts Suggestive of Branchial Cyst Of Parotid.

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