Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Surgery

A Rare Entity in Salivary Pathology: Parotid Gland Lipoma – Case Report and Literature Overview

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DOI: https://doi.org/10.36347/sjmcr.2026.v14i03.017 | **Received:** 13.01.2026 | **Accepted:** 07.03.2026 | **Published:** 13.03.2026

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Abstract **Case Report**

The lipoma is a common benign tumor of mesenchymal origin that forms in any area where fat is typically found. Their appearance in the head and neck is generally uncommon, particularly in the parotid region, where they can be found near the parotid capsule, inside the capsule, or within the glandular tissue. The clinical diagnosis is often challenging, because of a limited clinical suspicion. CT scan and MRI are the preferred modalities for differentiating pathological entities of the parotid gland while histopathology is required to establish the definitive diagnosis. The treatment of these lipomas remains surgical, although this is not universally agreed upon.

Keywords: Lipoma, Parotid gland, benign, MRI, enucleate.

1. INTRODUCTION

Lipomas are benign tumors of the soft tissues, typically found in the upper back, abdomen, and shoulders [1]. Their occurrence in the parotid region is uncommon, representing less than 1.5% of cases [2]. We report the case of a patient with a lipoma of the superficial lobe of the right parotid gland, which was effectively enucleated without any damage to the facial nerve.

Through this case and a review of the literature, we discuss the different clinical, diagnostic, and therapeutic aspects of this rare condition.

2. CASE REPORT

We present the case of a 59-year-old male with chronic smoking, not quit, presents to the consultation for the appearance of a painless mass in the right parotid region, progressively increasing in size over the past 4 years.

The clinical examination reveals a well-defined mass, soft in consistency, painless on palpation, approximately 30 mm in its long axis, without any inflammatory signs in the area and a negative Nélaton sign.

The rest of the clinical examination was unremarkable, notably no cervical lymphadenopathy.

The ultrasound shows an elongated, well-defined lesion, slightly hypoechoic compared to the muscle, not exhibiting color Doppler encoding, containing linear hyperechoic trabeculations, with posterior enhancement, measuring 33x15 mm in diameter.

On magnetic resonance imaging (MRI), There is a multiloculated lesion arising from the superficial lobe of the right parotid gland. The lesion demonstrates high signal intensity on both T1- and T2-weighted sequences, shows no diffusion restriction, and is suppressed on T1 fat-saturated sequences. Its dimensions are approximately 4.0 × 2.0 × 4.3 cm." **(Figure 1)**. Moreover, no locoregional cervical lymphadenopathy or other related anomalies were observed.

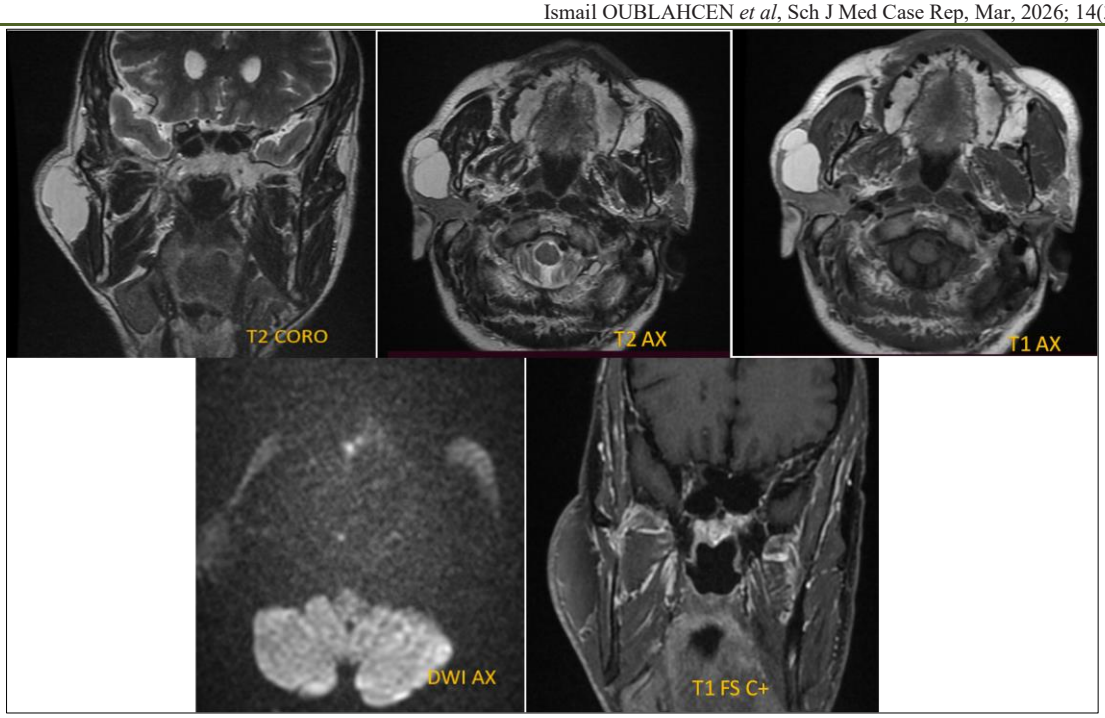

Figure 1: Cervical MRI showing the typical features of a parotid lipoma

The intensity pattern observed was identical to that of the fatty tissue. The tumor was situated in the superficial lobe of the parotid gland and was distinctly separated from the subcutaneous fatty tissue by the parotidomasseteric fascia. An attempt was made to enucleate the tumor. Following a preauricular sigmoidal skin incision, a skin flap was lifted just above the parotidomasseteric fascia. The parotid gland and part of the yellowish surface of the tumor were then revealed. The tumor was fully enucleated without any exposure of the facial nerve (**Figure 2, 3**).

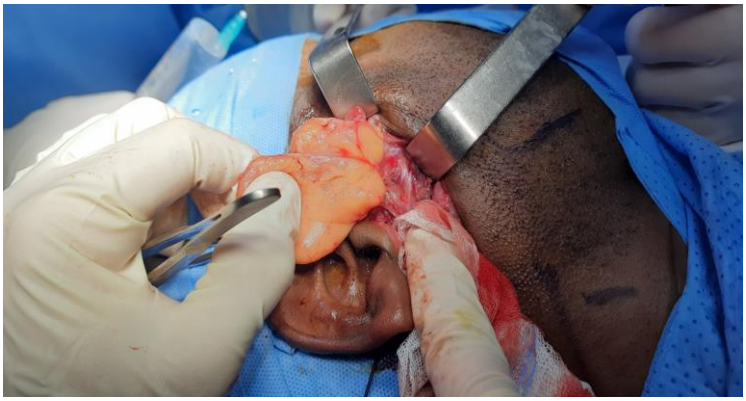

Figure 2: Enucleation of the right parotid lipoma during surgery

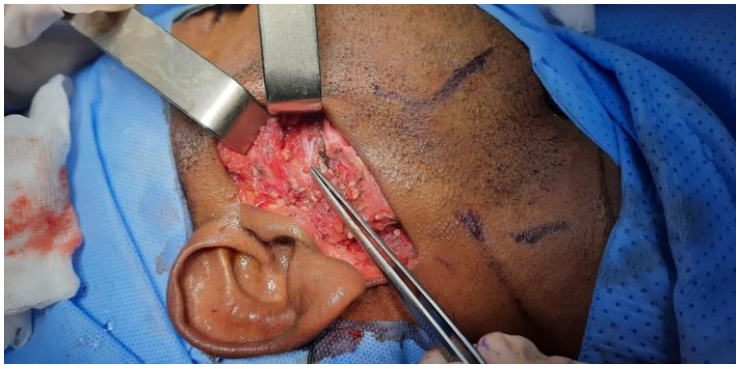

Figure 3: Facial nerve exposure after complete excision of the lipoma

The specimen was a soft, yellowish, well-circumscribed mass (**Figure 4**). Histological examination confirmed the diagnosis of lipoma.

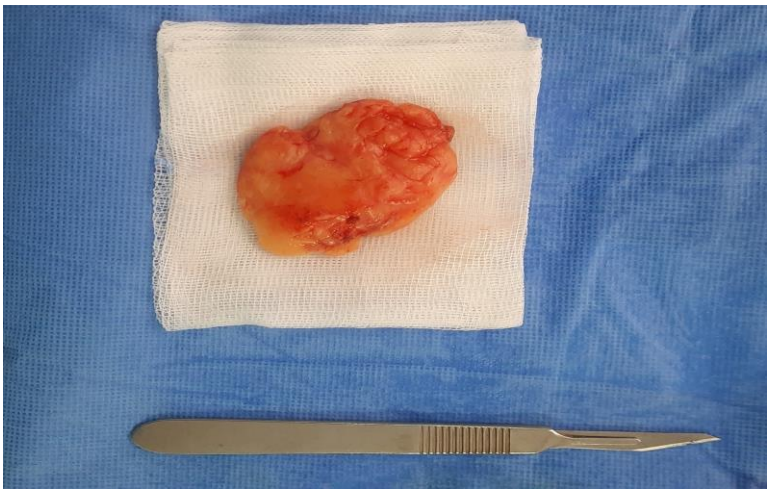

Figure 4: Excised specimen of right parotid lipoma placed on a surgical gauze

3. DISCUSSION

Lipomas are benign tumors derived from mature mesenchymal adipocytes and represent the most prevalent type of soft tissue mesenchymal neoplasms in adults. However, lipomas arising from a major salivary gland are uncommon [3,4]. They are seldom seen in the first 20 years of life, with most cases occurring in the fifth and sixth decades, as fat accumulation increases in individuals who lead sedentary lifestyles or lack regular physical activity.

Typically, lipomas are more prevalent in people with obesity and may enlarge during periods of rapid weight gain. However, once the initial growth phase has passed, they tend to grow very little, if at all. On the other hand, in cachectic individuals or during fasting periods, the size of the lipoma typically remains unchanged, indicating that the fat within these lesions is mostly unavailable for the body's overall metabolic processes [5].

These tumors are observed in patients ranging from 6 months to 72 years of age, but are most commonly seen in the 5th and 6th decades of life, occurring five to ten times more frequently in men than in women [6].

The clinical presentation is nonspecific. Parotid lipomas commonly appear as slow-growing, asymptomatic nodular masses, with most involving only the superficial lobe [7]. They develop from the fatty tissue of the gland. Our case involves a 59-year-old male patient, which is consistent with the literature.

Diagnosing this condition clinically is challenging, as it lacks distinct signs that would differentiate it from other benign parotid gland tumors. In the absence of additional preoperative investigations, this benign presentation is frequently mistaken for a Warthin tumor or pleomorphic adenoma [8]. Typically asymptomatic, there may be a deformation of the pre-auricular contour. When they become large, occasional fleeting pains are sometimes reported [9]. It is important to note that only surgical excision will lead to a conclusive diagnosis [10].

Preoperative imaging is essential for accurately determining the nature of lesions:

Ultrasound is the initial examination conducted because of its non-invasiveness and ease of access. It enables the visualization of the lipoma as a rounded or oval mass with variable echogenicity, depending on the boundaries between the fatty tissue and the connective components. It typically appears hypoechoic or, more characteristically, homogeneous or mildly heterogeneous and avascular. However, the role of ultrasound is limited when it comes to assessing the depth of the lesion and its relationship with surrounding structures [11].

CT scan is useful for diagnosis as it helps confirm the intra-parotid location and determines its fatty nature with a negative density between -50 and -100 Hounsfield units [11].

MRI was performed to obtain this information, which clearly separated the lipomatous nodule from the parotid parenchyma and the surrounding fatty tissue, confirming that it is the most suitable imaging method for this type of tumor[12]. The normal parotid gland contains a significant amount of fat and can be easily seen on both CT scans and MRI. Therefore, both of these techniques are effective in determining whether a mass in this area is located within the gland or outside of it [13]. The lipoma appears as a mass of variable size, most often unilateral, with or without thin septa, and a signal similar to subcutaneous fat, showing hyperintensity on

both T1 and T2 images. This mass is surrounded by a thin hypointense rim delineating its borders from the adjacent tissues, a distinction that cannot be made from CT images. The injection of gadolinium-based contrast agents shows no enhancement [14].

Imaging criteria, especially in MRI, exhibit high sensitivity and specificity in diagnosing intra-parotid lipomas. However, a definitive diagnosis can only be established through histopathological examination. As in the present case, a correct clinical and instrumental evaluation of the parotid gland mass was conducted using both ultrasound and MRI, leading to a successful preoperative diagnosis of lipoma.

The preferred treatment is excision, as these tumors typically do not recur [15,16]. Excision allows for the preservation of nerve function [17,18-5]. Specifically, excision or enucleation is the optimal approach when the tumor is situated immediately below the parotidomasseteric fascia. However, some studies suggest that a superficial parotidectomy or total parotidectomy may be necessary [20,21]. Preoperative diagnosis is easily confirmed with CT and MRI, and these tumors generally do not recur. Given the rare occurrence of liposarcoma [15,22,23], superficial parotidectomy may be considered excessive when the lipoma is confined to the superficial lobe.The recurrence rate of intra-parotid lipomas following surgery is approximately 5%.[6]

Conclusions

The parotid gland exhibits a wide range of pathologies, including benign and malignant tumors, as well as inflammatory and infectious conditions, whether canalicular or parenchymal. Intraparotid lipoma is a benign and rare condition that is scarcely reported in the literature, which makes this case particularly noteworthy. Imaging, especially multimodal MRI, plays a key role in establishing a definitive diagnosis.Treatment relies exclusively on surgery, which remains the gold standard for management.

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