

Lipoma of the Parotid Gland Extending from the Superficial to the deep Lobe: Case Report

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ABSTRACT

Lipoma is a benign mesenchymal tumor composed largely of fat tissue. It is one of the most common of all neoplasms, but its occurrence in the parotid gland is extremely rare.

Case Report: we present in this article a clinical case of a lipoma of the superficial lobe of the parotid gland

Discussion: The clinical diagnosis of parotid lipomas is difficult since they are most often asymptomatic or, when symptomatic, manifest only as a painless swelling of the parotid gland. Magnetic resonance imaging is the most accurate in preoperative diagnosis. The diagnosis is confirmed by histological examination. In their surgical management, parotid lipomas should be considered as any other parotid tumor since we cannot exclude malignancy. Surgical complete resection should be performed, with preservation of the facial nerve.

Keywords: Lipoma; Parotid gland; Superficial parotidectomy; Facial nerve

Introduction

Lipoma is one of the most common mesenchymal soft tissue tumors. Over 10% arise in the head and neck region, especially in the posterior cervical triangle and forehead¹. Only exceptionally do they occur in the oral cavity, pharynx, larynx, and parotid gland. In this article, we describe a clinical case of superficial lobe parotid lipoma, and discuss the different diagnostic and therapeutic modalities.

Case Report

A 47-year-old woman, with no medical past history, was referred to our department for a right preauricular swelling

that had been slowly growing for 1 year. The patient had not experienced pain or any other symptoms (**Figure 1**).

Clinical examination revealed an obviously visible mass located in the region of the right parotid gland near the angle of the mandible, mobile, well-circumscribed, measuring 7 cm, with a firm consistency and no inflammatory signs or skin changes overlying it. There were no associated lymph nodes. No signs of peripheral facial nerve palsy were identified. The patient was, besides, obese with a BMI of 41 kg/m². The rest of the clinical examination didn't reveal any abnormalities.

On magnetic resonance imaging (MRI), a 31x26x30 mm oval-shaped lesion with well-defined contours was identified in

the inferior part of the superficial lobe of the right parotid gland. It was partially extended to the deep lobe. The lesion exhibited homogeneity and very high intensity on T1-weighted images, high intensity on T2-weighted images, and low intensity on diffusion-weighted images. The lesion was not enhanced after gadolinium injection. This intensity pattern was identical to that of the fatty tissue (**Figure 2**).



Figure 1: Patient's preoperative view reveals a swelling of the right parotid gland.

Therefore, the images suggested the diagnosis of parotid lipoma.

Under general anesthesia, superficial parotidectomy with preservation of facial nerve was performed. Surgery began with a modified Blair's incision, the parotid gland was then exposed. After identifying the facial nerve trunk and its branches, the fatty mass was completely excised together with part of the adjacent superficial lobe from which it was originating (**Figure 3**).

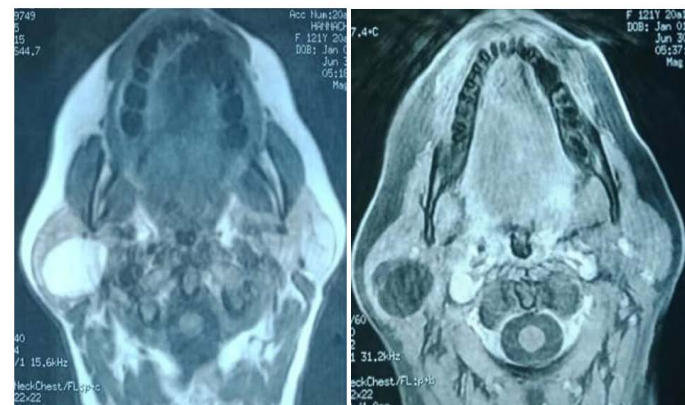


Figure 2: MRI images show the fatty mass in the right parotid gland.

During surgery, frozen section was sent to decide further course of action. Gross examination of the specimen sent disclosed a mass of adipose tissue measuring 4,5x 3,3 x1,1 cm surrounded by salivary gland tissue. Thus, the frozen section examination reported that the mass is likely a parotid lipoma, negative for malignancy.

A redon drain was inserted for 48 hours, and the wound was closed in layers. The patient sustained no postoperative complications.

A postoperative detailed histopathological examination of

the resected specimen confirmed that the mass was indeed a parotid lipoma.

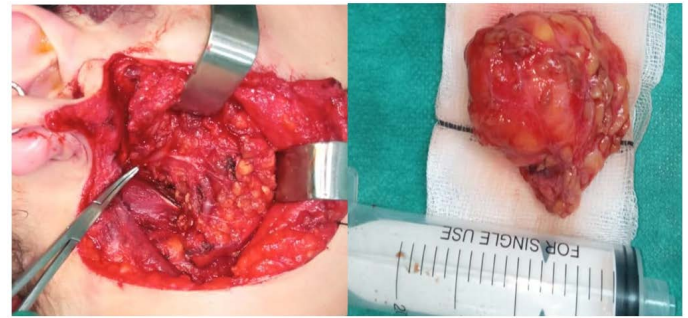


Figure 3: Intraoperative view after superficial parotidectomy with preservation of the facial nerve.

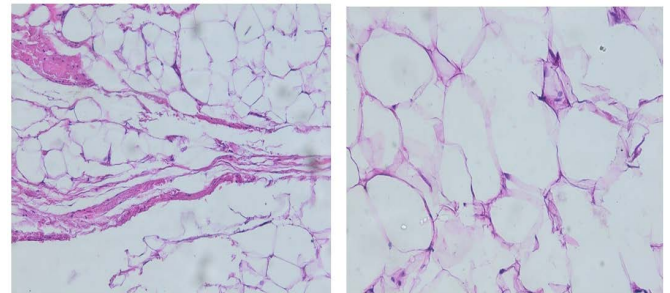


Figure 4: Histological section of parotid gland lipoma.



Figure 5: Patient's postoperative photos show a normal facial nerve function.

Discussion

Although lipomas are the most frequently occurring soft tissue mesenchymal tumors, their location in the parotid gland is quite uncommon with a range of 0.6 to 4% of all parotid gland masses²⁻⁴. Very few parotid lipomas have been reported in the literature and most of them are single case reports. The largest series to date, to our knowledge, is about 70 cases².

Lipomas can be seen in a broad age range from 6 months to 72 years, but they occur mainly in adults in the fifth to the sixth decade of life, and are less frequent in the pediatric population^{2,4-6}. The age range in the largest series is 7.4 to 89.5 years².

Parotid lipomas have a predilection to males with a male to female ratio of 3:1 in most studies^{2,5}. A wider gap (10:1) has been noted in an older large series⁴.

The literature suggests that risk factors of lipomas include heredity, obesity, diabetes, endocrine disorders, corticosteroid therapy, trauma, and radiation⁷. The patient in our case was morbidly obese.

Parotid lipomas occur in equal frequency on the right and left sides and are rarely found to be bilateral. The majority of them arise from the superficial lobe, the deep lobe is rarely involved^{1,8}.

Clinical diagnosis of parotid lipomas is difficult, as they manifest with few symptoms, especially those originating in the deep lobe. Generally, they appear as slow-growing asymptomatic masses, soft, well-circumscribed, mobile, compressible, and painless. Their size varies from 1 to 8 cm^{7,9}. They are not known to be associated with any skin changes or other salivary gland lesions. Besides, neurological deficits are remarkably rare^{2,4} with only one case of facial palsy reported¹⁰.

When diagnosis is based only on clinical findings, parotid lipoma is seldom considered in the initial differential diagnosis of a parotid mass. The most commonly reported clinical diagnoses before any imaging are pleomorphic adenoma and Warthin tumor^{2,5}.

Ultrasonography (US) is usually the first imaging modality used to explore parotid gland tumors. Thus, knowledge of the sonographic semiology of lipomatous tumors is fundamental. Lipomas are typically well-defined elliptical compressible masses, generally hyperechoic to adjacent muscle with the longest diameter parallel to the skin surface. They show no evidence of posterior enhancement or attenuation and no flow on color Doppler sonography. Lipomas have also been described as hypoechoic or isoechoic. Therefore, ultrasonography is not highly specific^{11,12}.

Computed tomography (CT) is extremely useful in preoperative diagnosis of parotid lipomas. The classic appearance of lipoma in CT is a circumscribed homogenous hypodense mass with few septations. Since fat is the only soft tissue with a density less than water, lipomas show a characteristic low CT attenuation number ranging from -150 to -50 Hounsfield Units. This typical fat attenuation enables the diagnosis of lipoma. Nevertheless, in case of fibrolipoma, a high density may be observed on the CT scan, due to the increased amount of fibrotic tissue in that subtype of lipomas^{13,14}. Moreover, lipomas do not enhance after contrast material administration except in cases of angioliipomas. CT scan helps also to define the location and extent of the tumor. However, it does not significantly help to differentiate the lipoma from the surrounding adipose tissue^{2,6,8}.

Magnetic resonance imaging (MRI) remains the best diagnostic modality of parotid lipomas. Not only does it enable a more accurate preoperative diagnosis, but MRI has also proved to be superior to CT in localizing and defining tumor margins.

Typically, lipomas display high signal on T1-weighted images, low signal on T2-weighted images and can be definitively diagnosed as tumors of adipocytic origin on fat-suppressed or STIR sequences. Furthermore, the margin of a lipoma is distinctly delineated as a "black rim" allowing, thus, to distinguish lipomas from surrounding adipose tissue^{2,5,6}.

The weakness of imaging as a whole is its inability to definitively differentiate a lipoma from a liposarcoma. Only histopathological examination can establish the diagnosis with certainty¹¹.

Fine needle aspiration cytology, which is considered a relevant tool in the investigations of a parotid mass, has been described as inaccurate for the diagnosis of parotid lipoma, essentially because fat cells from lipomas are histologically indistinguishable from normal subcutaneous fat^{15,16}.

The surgical management of parotid lipomas requires the same approach as for any other parotid tumor, considering the existence of the facial nerve in the operative field, and the impossibility to definitively exclude malignancy. Thus, the aim of surgery is to perform, if possible, a complete resection of the mass with a margin of normal parotid tissue, and at the same time preserve the facial nerve.

The surgical technique depends mainly on the size and location of the lipoma. Most authors recommend superficial parotidectomy with dissection and preservation of the facial nerve for tumors located within the superficial lobe.

As for lipomas located in the deep lobe, total parotidectomy is generally preferred. Most surgeons recommend superficial parotidectomy with dissection of the facial nerve before removal of lesions in the deep lobe¹. For some tumors, the superficial lobe can be placed back over the facial nerve after resection of a deep lobe tumor, in order to prevent neurological deficits.

Enucleation or complete excision with a thin layer of normal parotid gland parenchyma have been suggested in cases of encapsulated intra or paraparotid lipomas². However, superficial parotidectomy is preferred by most investigators.

Although complete surgical excision is the gold standard for treatment of parotid tumors, the accuracy of the diagnosis made by imaging modalities in most cases has led some authors to propose long-term clinical and radiological surveillance as a way to manage small intraparotid lipomas.

Conclusion

Parotid lipoma is a rare benign lesion that should be considered among the differential diagnoses of a parotid mass. Appropriate imaging can be very accurate in preoperative diagnosis. Definitive diagnosis is only accomplished with histopathological review. Complete surgical excision should be performed meticulously to avoid postoperative facial palsy.

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