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Case Report

Parotid Gland Lipoma: A Case Report

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Abstract

Lipomas are rarely found in the parotid gland region. Because of their rarity at this site, they are not often considered in the differential diagnosis of parotid tumors. We here report a new case of a 45 years old female patient, presenting a mass in the parotid region that had progressed over the past 4 years. A soft, mobile and painless mass was detected on palpation. The patient underwent imaging examination (MRI) that enabled to retain the diagnosis of parotid lipoma.

Keywords: *Lipoma; Parotid Gland; MRI; Adipocytes*

Introduction

The majority of salivary gland tumors that arise from the parotid gland, such as pleomorphic adenoma and Warthin's tumor, are of epithelial origin. Mesenchymal tumors, in contrast, are rare. Parotid lipomas are uncommon, slow-growing, non-metastasizing mesenchymal neoplasms composed of mature adipose tissue with a fibrous capsule [1]. Approximately 25% of lipomas and their variants arise in the head-and-neck region and most of these occur subcutaneously in the posterior neck. Rarely, lipomas can develop in the parotid gland, with reported incidence ranges from 0.6 to 4.4% of all parotid tumors [2]. We present a case of lipoma arising from the fatty parotid gland.

Case Report

A 45 years old female with no notable pathological history consulted for swelling of the left parotid region that had been progressively evolving for four years. On clinical examination, a localized mass of soft consistency, mobile and painless, with a negative Nelaton's sign. There was no facial asymmetry, the rest of the clinical examination was unremarkable. A parotid MRI was performed, showing a localized process of the superficial portion of the left parotid gland, oval, well limited, with regular contours, homogeneous, high signal in T1 and T2, fat was suppressed, not enhancing after contrast, measuring 40x20x35 mm (Figure 1). The lesion shows low signal intensity on DWI and hypersignal in ADC mapping image (Figure 2). The tumor was completely enucleated without facial nerve exposure (Figure 3). Microscopic examination revealed a well-circumscribed aggregate of mature similarly-sized adipocytes surrounded by a thin fibrous capsule (Figure 4).

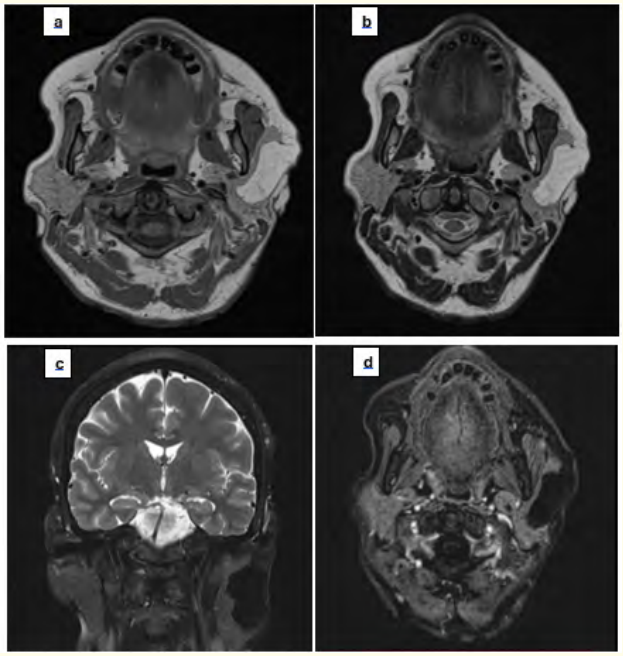

Figure 1: *Parotid MRI: Left parotid lesion, at the expense of its superficial portion, oval in shape, well limited, with regular contours, homogeneous, hyper signal in T1 and T2 (a, b), suppressed after fat saturation (c), not enhanced after gadolinium injection (d), measuring 40x20x35 mm.*

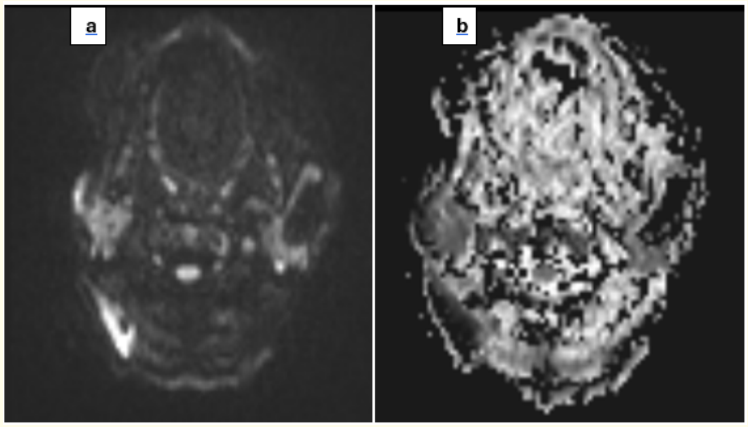

Figure 2: *(a) The lesion shows low signal intensity on DWI; (b) Axial ADC mapping image shows hyperintense left parotid mass.*

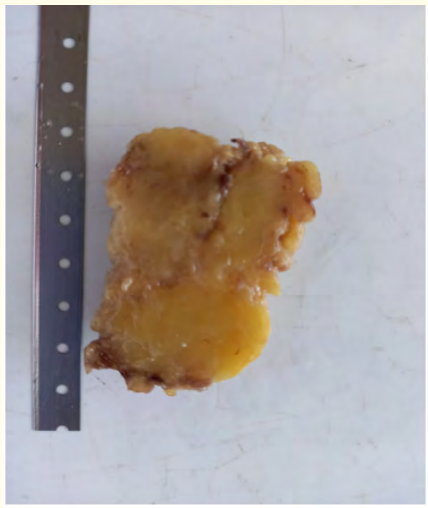

Figure 3: *The enucleated specimen: The enucleated tumor specimen was homogeneously yellow and soft.*

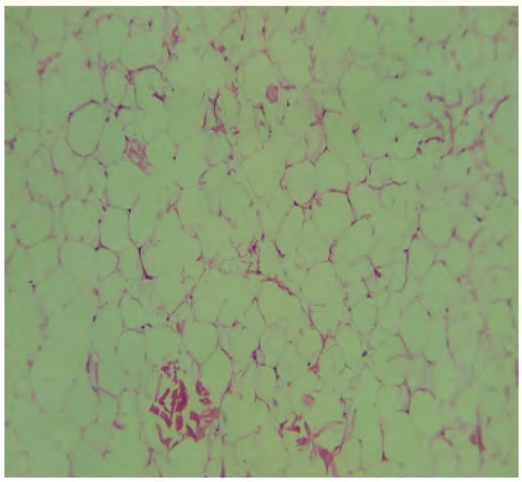

Figure 4: *Histological image of the tumor: A mass of lobules, uniform uni-vacuolated mature adipocytes surrounded by a thin fibrous capsule.*

Discussion

Parotid lipomas are benign mesenchymal tumors. Histologically, they are adipocytic proliferation enclosed in a fibrous capsule [1,2] and are often located in the superficial lobe [1]. They are rare, with an incidence reported between 0.6 and 4.4% of all parotid tumors [3,4]. They frequently occur in the fifth and sixth decades of life [2], with a clear male predominance (sex ratio 4/1) [5].

Many etiological factors have been described, such as hereditary factors, diabetes, obesity, corticosteroids, radiation therapy, and trauma [4,6].

Parotid lipomas are often asymptomatic, presenting as a painless swelling of the parotid gland, slow growing [3,6], and very soft in palpation in contrast to pleomorphic adenoma, which is characterized by a hard consistency [7].

Ultrasound is the first-line radiological examination. The sonographic appearance of lipomas is that of a well-limited, compressible, oblong, slightly hypoechoic mass containing echogenic partitions arranged parallel to the skin [8]. However, lipomas can be isoechoic or hypoechoic, making US non specific for making the diagnosis [17]

Computed tomography (CT) provides valuable assistance in the diagnosis, showing a homogeneous, well-encapsulated parotid lesion with fat density between -50 and -100 Hounsfield units, not enhancing after injection of iodinated contrast medium [5,9]. However, CT does expose the patient to ionizing radiation, which is avoided on MRI [18].

Our patient did not undergo an ultrasound or CT scan.

MRI is the examination of choice to explore pathologies of the parotid glands with high sensitivity and specificity compared to CT [5]. On MRI, lipomas appear as T1 high signal and T2 hyposignal comparable to subcutaneous fat [10], fat suppressing, not enhancing after gadolinium injection [2].

MRI allows an accurate topographic diagnosis to ensure better therapeutic management while avoiding postoperative complications [2].

In the study by Arslan., *et al*. accurate diagnoses were made in all patients based on imaging investigations, and the specificities of CT and MRI scans were 100% [2].

CT and MRI are more reliable than fine needle biopsy cytology [2]. Percutaneous biopsy is rarely performed because it has a high false negative rate, and interpreting the collected fragments is often difficult [5].

Certainty diagnosis is based on the study of histological sections of tissue fragments [5].

Pathologically, a true lipoma consists solely of mature adipocytes similarly-sized surrounded by a thin fibrous capsule [3]. Three variants of ordinary lipomas (spindle cell lipoma, angiolipoma, and pleomorphic lipoma) are extremely rare [14]. In our case, the findings are compatible with a diagnosis of ordinary lipoma.

Radiologically, the differential diagnoses of parotid lipoma are as follows.

Liposarcoma	Thick septa (more than 2mm), nodular areas of nonfatty tissue within the lesion, a total percentage of fatty tissue more significant than 25% of the lesion [11]
Oncocytic lipoadenoma	Heterogeneous mass on T1 and isosignal T2, with a lipomatous component fat suppressed [12]
Parotid lipomatosis	Diffuse fatty infiltration of the salivary gland, is usually bilateral and symmetrical [5]. It can be idiopathic or associated with hormonal or metabolic disorders, chronic alcoholism, malnutrition, or drug treatment [3].
Metastasis	Most common: Metastases from cutaneous squamous cell carcinoma and melanoma [15]. Intraparotid lymph node metastases, with ill-defined margins and a necrotic center [15]
Lipoblastoma	A rare and benign mesenchymal tumor that occur exclusively in infants and children [8]. T1 and T2 high signal with lower intensity than mature adipose tissue on T1-weighted images, enclosing fibrous trabeculae hyposignal in T1 and T2 [16]

Table: *Differential diagnosis of parotid lipoma.*

The treatment of these lipomas remains surgical, which is, however, not consensual [5]. Several techniques are discussed in the literature, including total parotidectomy, conservation of the parotid nerve, enucleation, or lumpectomy with safety tissue margins [5]. The recurrence rate of intra-parotid lipomas after surgery is around 5% [5].

Conclusion

Despite the rarity of parotid lipomas in clinical situations, they should be considered in the differential diagnosis of parotid masses. MRI is perfectly adequate in certainly diagnosis.

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