A case of subfascial lipoma in the lateral space of neck: US and CT findings

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KEYWORDS

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Abstract Lipomas in the head and neck region usually occur in the immediate subcutaneous tissue. They are extremely rare under the muscular band of neck. We present a case of a 53-year-old woman with a subfascial lipoma located in the anterior lateral space of neck. The diagnosis of the lesion was reached by clinical examination and confirmed by ultrasonography (US) and computed tomography (CT) imaging. The lesion with surrounding capsule formation and lipofibromatous changes underwent open surgery.

Sommario I lipomi del collo e della testa in genere si verificano nel tessuto sottocutaneo superficiale. Quelli sottofasciali intramuscolari sono molto rari. Riportiamo di seguito il caso di una donna di 53 anni con un lipoma sottofasciale localizzato nello spazio antero-laterale del collo. La diagnosi della lesione è stata ottenuta con esame clinico e confermata con Ecografia (US) e Tomografia Computerizzata (TC). La lesione, caratterizzata da capsula e aspetto fibrolipomatoso, è stata escissa con intervento chirurgico.

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Introduction

Lipomas are the most common benign mesenchymal tumors with a prevalence rate of 2.1 per 1000 people [1]. Lipomas of the neck are rare tumors that may present as slowly growing non-tender masses in the lateral neck. Most of them are small; however, those exceeding 10 cm have occasionally been encountered in different anatomic locations [2]. Small lipomas (<4 cm) can be extracted

through a small incision, and scarring is not a major concern. Open surgery is the preferred approach when the lesion is surrounded by a thick capsule or fibrosis, and when a network of dense connective tissue within the lesion is evident [2]. Therefore, accurate pre-operative evaluation by means of ultrasound (US) and computed tomography (CT) or magnetic resonance imaging (MRI) is required. We present the US and CT findings of a subfascial lipoma located in the anterior lateral space of the neck.

Case report

A 53-year-old healthy woman with a slow-growing, painless swelling of the neck was referred to our department. At

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Fig. 1 At physical examination an oval lesion measuring approximately 2 cm with soft-elastic consistency at palpation, indistinguishable from the floors below the hook but moving during movements of swallowing was observed.

clinical examination (Fig. 1), an oval lesion measuring approximately 2 cm with soft-elastic consistency at palpation, indistinguishable from the floors below the hook but moving during movements of swallowing was observed. The patient therefore underwent US examination (Figs. 2 and 3) which confirmed the presence of a subfascial, oval, well-marginated nodule located in the anterior lateral space, isoechoic to the subcutaneous fat tissue, with some linear hyperechoic horizontal striae. The lesion measured 22×8 mm, and at color Doppler no signal flow was evident within it. Following the sonogram, a CT scan was recommended to confirm the lipomatous nature of the lesions and to better define the location and the position of the lesions and the surrounding anatomical structures.

Pre-contrast CT scan of the neck confirmed the presence of a lesion of the anterior cervical space which presented CT density of the fat (Fig. 4). The patient underwent surgical excision of the lesion with the pre-operative diagnosis of lipoma of the neck.

Fig. 2 US examination showed a 2 cm, oval-shaped, well-marginated lesion, isoechoic to the subcutaneous soft tissue with some linear hyperechoic horizontal striae.

Fig. 3 At color Doppler no signal flow was evident within the lesion.

A horizontal incision was made at the anterior region of the neck over the lesion, which comprises the subcutaneous skin and fascial plane. Below the platysma muscle a lipomatous overgrowth was evidenced, capsulated but adhering to the planes by a deep muscular fibrous stalk; it was excised and the lesion was removed.

At macroscopic examination the lesion measuring 1.5×2 cm appeared well-demarcated from the surrounding structures but strictly adjacent to the surrounding muscles. Final diagnosis at histopathological examination was lipoma of the anterior space of the neck strictly adjacent to the muscles of the region.

Discussion

Superficial lipomas typically appear as compressible, palpable soft-tissue masses in the subcutaneous tissue not adherent to the overlying skin. Lipomas show male and family predominance and are more common in the fifth and sixth decades. The etiology of lipomas is still unknown.

Fig. 4 Pre-contrast CT scan of the neck confirmed the presence of a lesion of the anterior cervical space. The lesion, well-marginated, presented CT density of the fat.

They can be sporadic or may be a part of an inherited disease. Endocrine/dysmetabolic and genetic theories have been suggested. In recent years, acute trauma has been reported to be related to lipoma formation. In our case, the patient had no systemic disease or related family history, and no specific predisposing event had occurred.

The malignant transformation of lipoma to liposarcoma is quite uncommon. It is also reported that the intramuscular location of a lipoma is a risk factor for malignancy [1]. In our patient the lesion non infiltrated the muscle planes, but was strictly adhered to the muscular fascia [3].

US as been reported to be useful in discriminating neck masses of thyroid origin from masses of non-thyroid origin like the lipoma presented here. Lipomas of the neck are rare tumors that may present as slowly growing non-tender masses in the lateral neck. The differential diagnosis of a non-tender mass in the lateral neck includes lymphadenopathies, branchial cleft cysts, salivary gland tumors, aneurysm of the carotid artery, neurogenic tumors, dermoid cysts, thyroglossal cysts, vascular leiomyoma and ectopic thyroid nodules [4]. The patient's history, the temporal evolution of the mass in particular, and the palpation of the possibly pulsating tumor may give a diagnostic hint. However, evaluation by imaging modalities is necessary to establish a prompt diagnosis. B-mode US is an inexpensive, non-invasive, easily repeatable diagnostic tool for investigating these lesions and it is therefore increasingly used as the first imaging step. Combined with color Doppler imaging, a correct diagnosis of lateral neck masses can be made in most affected patients. At US examination, lipomas have a wide range of appearances [5]. Typically, they present as elliptical, oval or round-shaped, well marginated, compressible masses containing short linear reflective striations running parallel to the skin. However, their internal echogenicity may vary from hyperechoic to hypoechoic or mixed compared to the muscle, depending on the degrees of connective tissue and other reflective interfaces (such as cellularity, fat and water) within the mass [5–7]. Although many lipomas have a well-circumscribed appearance with an identifiable thin capsule, a significant number of them (12–60%) have ill-defined borders blending imperceptibly with the surrounding

subcutaneous fat [8]. Most superficial lipomas do not present substantial internal vasculature at color and Power-Doppler imaging, a finding that may suggest a benign mass [5–8]. Some lipomas, like the one studied in our case, grow in the deep subcutaneous tissue in close contact with the fascia. When reporting on these masses the radiologist should not lead the surgeon to believe that the lesion can be easily excised, because deep subcutaneous lipomas may adhere to the fascia. To define the exact location and extent of lipomas and thoroughly plan the surgical intervention, multiplanar imaging procedures like CT and MRI are required. Digital subtraction angiography (DSA) was in the past used to confirm the diagnosis and it is still used to perform pre-operative embolization of malignant tumors.

In conclusion, radiologists should be aware of the US and CT findings in deep-seated lipomas and they must accurately define the exact location of the lesion in order to facilitate a safe surgical planning.

Conflict of interest statement

The authors have no conflict of interest.

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