Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology 31 (2019) 208–211

Contents lists available at ScienceDirect

Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology

journal homepage: www.elsevier.com/locate/jomsmp

Case Report

Intramuscular lipoma involving the masticator space: A case report

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ARTICLE INFO

Keywords:
Intramuscular lipoma
Masticator space
Head and neck lipoma
Lipoma imaging

ABSTRACT

Intramuscular lipoma of the head and neck is particularly unusual. We present a rare case of intramuscular lipoma arising from left masseter muscle adjacent to the superficial lobe of the parotid gland and involving the masticator space, spreading to the upper compartment of temporo-mandibular joint (TMJ). Wide excision of the entire lesion was performed under general anesthesia. The postoperative course was uneventful and there was no evidence of recurrence 1 year post-operatively.

1. Introduction

Lipomas are the most common mesenchymal neoplasms of the soft tissues in adults, characterized by proliferation of mature white adipocytes without atypia. They usually present as well-circumscribed, painless, rubbery, solitary nodules, and are relatively common in the extremities. In the head and neck, lipomas are rare, and account for 1–4% of all benign tumors [1,2]. Presence of intramuscular lipoma of the head and neck is particularly unusual and only few cases of intramuscular lipoma that has arisen in the temporal muscle and in the masseter muscle have been reported [3–5]. We present a rare case of a intramuscular lipoma arising from left masseter muscle adjacent to the superficial lobe of the parotid gland and involving the masticator space, spreading to the upper compartment of temporo-mandibular joint (TMJ).

A search of the PUBMED online database yielded only two others case reports of a lipoma involving the masticator space [6,7] but neither of the two cases report a simultaneous engagement of masseter muscle, spreading to the upper compartment of temporo-mandibular joint (TMJ).

2. Case report

A 53-year-old man was referred to our unit hospital in May 2017 with a complaint of a swelling on his left cheek, involving the left TMJ, that he had first noticed about 2 years previously. The swelling had gradually increased in size and at the time of clinical examination measured 45 mm × 30 mm (Fig. 1A). The overlying skin and oral mucosa were normal in color and texture and there was no bruit or pulsation over the mass. The swelling extended from the posterior border of mandibular ramus toward the anterior border with intraoral extension (Fig. 1B) and a left clicking sound when opening the mouth. The swelling was more prominent with the teeth clenched and while contracting the masseter. There were no cervical lymphadenopathy or signs of neuroparalysis. The differential diagnosis included lipoma, liposarcoma, Schwannoma, neurofibroma, vascular malformation, condylar tumors [8], sebaceous cyst and lymphangioma [9]. Initial imaging study, ultrasonography and a computed tomographic (CT) scans, were prescribed by general practitioner. CT examination revealed a well-circumscribed mass with adipose tissue signal density measuring 42 × 27 mm in the left masticator space, without calcification inside and signs of bone erosion (Fig. 2). In the suspicion of lipomatous lesion, the diagnostic procedure was completed by magnetic resonance imaging (MRI), also to exclude damage of the TMJ meniscus. MRI showed a mass of 44 mm × 29 mm with homogeneous high signal intensity on axial T1-weighted and low intensity on T2-weighted images (Fig. 3). The mass involved the left masticator space, the masseter muscle and extended from the posterior border of mandibular ramus toward the anterior border, to the upper compartment of temporo-mandibular joint (TMJ) with a cranio-caudal extension of 50 mm. Because of the radiological images deposed for intramuscular lipoma, wide excision of the entire lesion was performed under general anesthesia, with a modified Blair's incision to reach the left TMJ. Macroscopically the tumor presented as a pale yellow lobulated soft mass (Fig. 4). It was easily

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https://doi.org/10.1016/j.ajoms.2019.02.003
Received 8 November 2018; Received in revised form 3 February 2019; Accepted 8 February 2019
Available online 15 March 2019

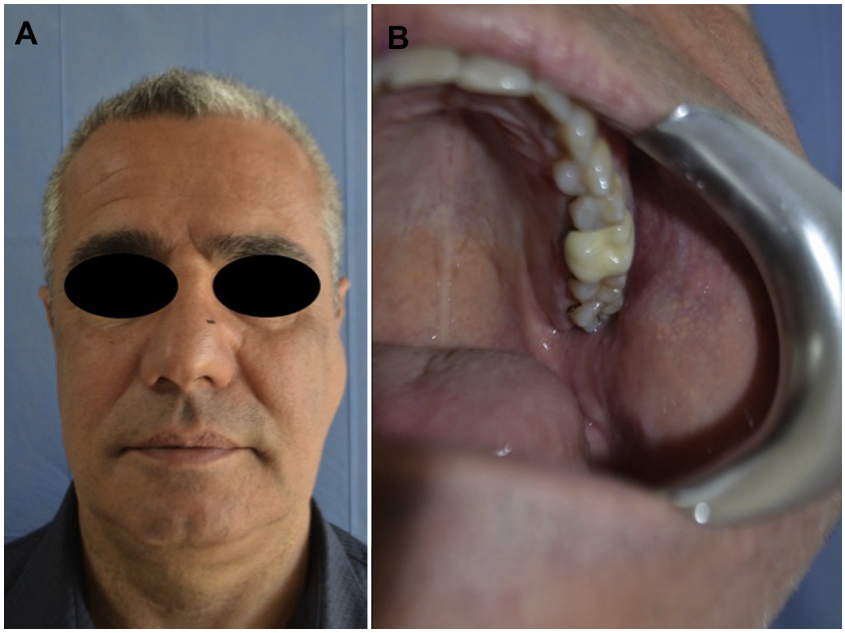

Fig. 1. Preoperative photographs: clinical examination shows swelling on left cheek, involving the left TMJ area (A), whit intraoral extension (B).

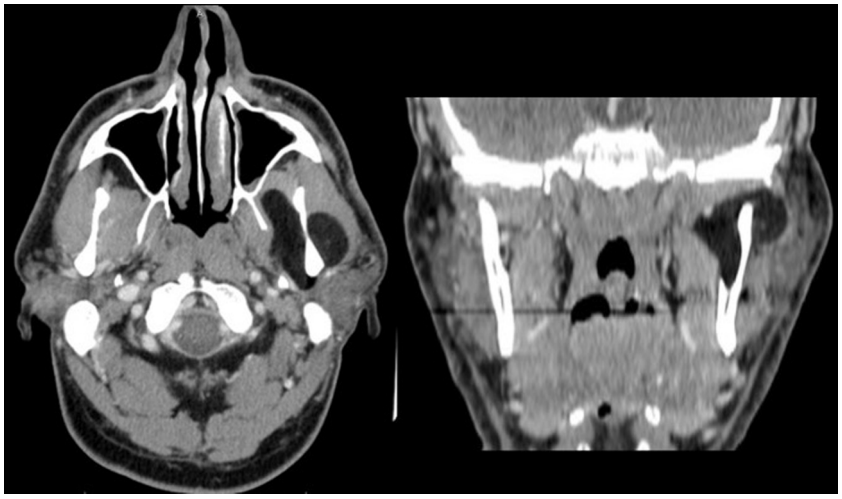

Fig. 2. Pre operative CT scan: revealed a well-circumscribed mass with adipose tissue signal density measuring 42 × 27 mm in the left masticator space.

separated from the surrounding soft tissues but it was firmly adherent to the muscles on the medial side, and complete excision required resection of part of the masseter and lateral pterygoid muscles, preserving the parotid gland with facial nerve. Intra operatively was performed a TMJ arthroscopy, which showed no dislocation of articular disk, so we proceeded only to arthrocentesis preserving the articulation.

Histological examination of formalin fixed and paraffin embedder tissue revealed a lesion composed of mature adipose tissue, in absence of nuclear atypia or mitotic activity.

Multivacuolates lipoblasts were not seen. Intermingled to the adipous cells were present striated muscle cells, and focally the tumour was peripherally delimited by striated muscle cells. A peripheral capsule was not evident. The diagnosis was of intramuscular lipoma (Fig. 5).

The postoperative course was uneventful and the patient was able to chew normally after 1 week of soft diet with no more left clicking sound opening the mouth. There was no evidence of recurrence 1 year postoperatively as also shown by the MRI examination (Fig. 6) and the scar was barely visible.

3. Discussion

Lipomas are the most common mesenchymal neoplasms of the soft tissues in adults, characterized by proliferation of mature white adipocytes without atypia. These tumors are usually slow growing and asymptomatic unless they cause mass effect on the adjacent neurovascular structure, and infrequently, may be associated with inherited disorders such as Madelung's disease, Gardner's syndrome or hereditary multiple lipomatosis [5].

Benign lipomas are classified as classic lipoma, chondroid lipoma, angiolipoma, myxolipoma and spindle cell/pleomorphic lipoma. When a lipoma infiltrate the adjacent muscle is called an infiltrating lipoma, which may be of two types: the common intermuscular variety and the rarer intramuscular form. Intra-muscular lipomas arise within skeletal muscle fibers at various locations, typically during middle to late adulthood. Presence of intramuscular lipoma of the head and neck is particularly unusual. An intramuscular lipoma should be differentiated from a well differentiated liposarcoma by both imaging and histopathological examination, and if invasion is detected on imaging or during surgical dissection, sarcomatous transformation should be

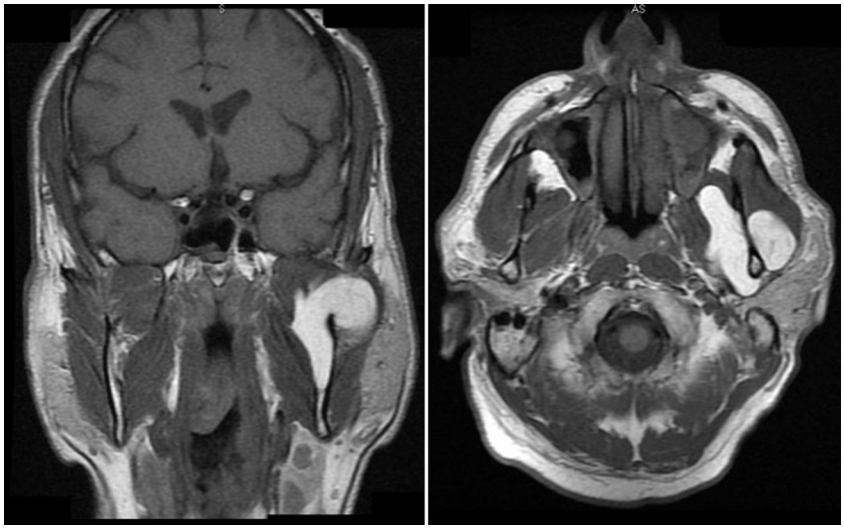

Fig. 3. Preoperative Magnetic resonance imaging: showing a mass of 44 mm × 29 mm in the left masticator space (T1-weighted image).

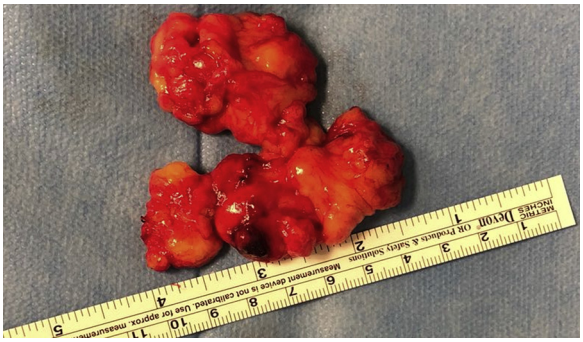

Fig. 4. Excised specimen: pale yellow lobulated soft mass. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

considered [10].

The preoperative CT scan and MRI [11,12] have a crucial role to correctly diagnose the nature and the location of lesions and to evaluate relations to important anatomic structures. Classical lipoma's CT imaging shows a hypodense and homogeneous, well delineated mass with few septations and less than water density with −50 to −150 Hounsfield densities which is characteristic of lipoma and do not typically show contrast enhancement. However, MRI remains the best diagnostic technique that can accurately diagnose lipomas preoperatively by comparing the signal intensity on T1- and T2-weighted images. On MRI images, fat has a typical signal intensity. On T1-weighted images, lipomas tend to have high signal intensity that diminishes with progressive T2 weighting. MRI can also clearly define the limits of lipoma from normal adipose tissue (subcutaneous tissue) with a "black-rim" around the mass.

Complete surgical excision is mandatory because of the infiltrative nature and potentially high rate of recurrence after inadequate surgery [13] the patients must be followed-up at regular intervals.

In our case the postoperative course was uneventful and there was no evidence of recurrence 1 year post-operatively.

4. Conclusion

Presence of intramuscular lipoma of the head and neck is particularly unusual and an intramuscular lipoma should be differentiated

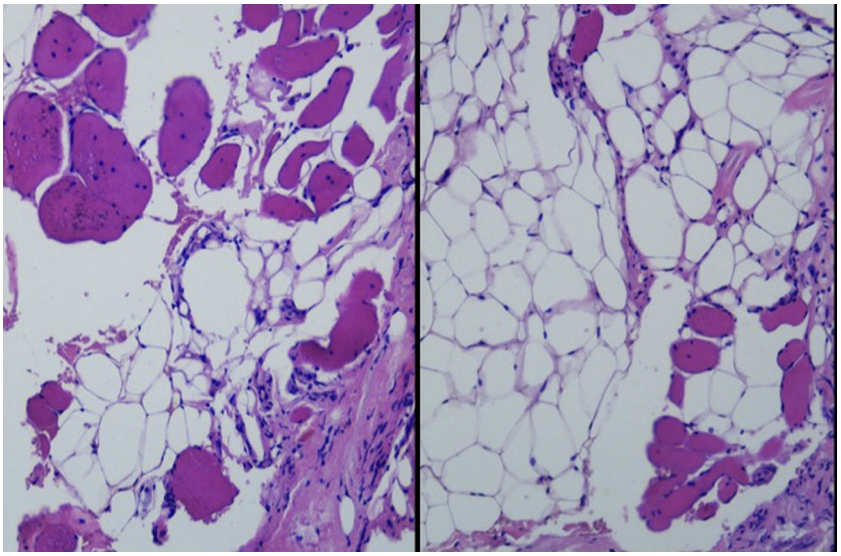

Fig. 5. The tumor was covered with an unclear capsule containing partially skeletal muscle fibers. Bundles of skeletal muscle fibers were apparent within the proliferation of adipose cells. No lipoblasts were present and there was a complete absence of cellular atypia (H&E staining 200×).

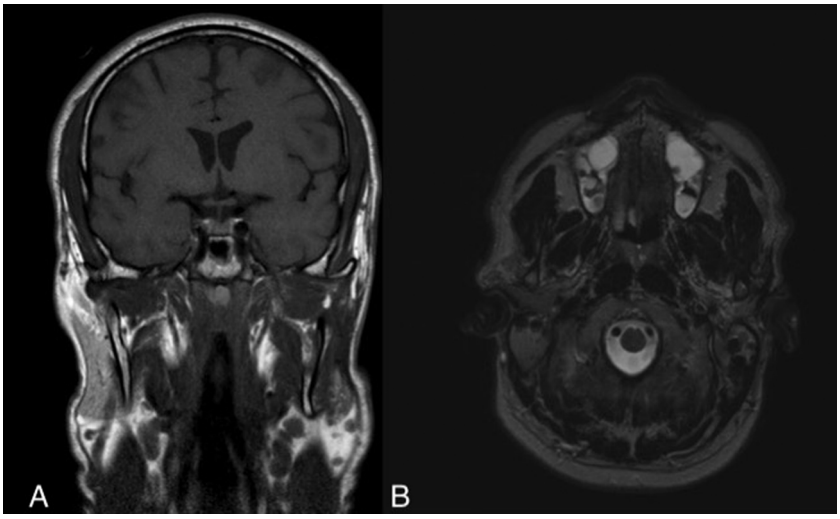

Fig. 6. Post-operative MRI scans: showing complete excision of intramuscular lipoma in coronal (6-A) and axial (6-B) scans with no evidence of recurrence 1 year post-operatively.

from a well differentiated liposarcoma. The clinical examination and preoperative CT scan and MRI have a crucial role to correctly diagnose the nature and the location of lesions. Complete surgical excision is mandatory because of the infiltrative nature and potentially high rate of recurrence after inadequate surgery.

Ethical approval

Not required.

Conflict of interest

None.

Acknowledgments

We thank Luigi Tucci MD of the Pathology Unit, of Pugliese-Ciaccio Hospital, 88100 Catanzaro, Italy, for assistance with histological readings and for comments that greatly improved the manuscript.

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