


CASE REPORT

Open Access



Liposarcoma of the scalp mimicking a lipoma: a case report

Sethu Thakachy Subha^{1*} , Andrea Sanjurjo², Karen Masterson Poyet³ and Francis Marchal⁴

Abstract

Background: Liposarcomas are malignant tumours of adipocytic differentiation and their occurrence within the head and neck region is very uncommon. Lipomas are the most common types of benign mesenchymal tumours. The clinical, histological and imaging features of well-differentiated liposarcoma may resemble that of lipoma, causing challenges in the diagnosis. The management and prognosis of benign lipomas and well-differentiated liposarcoma are different.

Case presentation: A 73-year-old man presented with a painless soft mass in the left temporal region for 15 years with recent rapid growth. The scalp mass was clinically diagnosed as lipoma, while MRI suspected an atypical lipomatous lesion. Complete surgical resection was performed, and histopathological examination confirmed a well-differentiated liposarcoma.

The patient recovered completely and will be followed up with long-term surveillance.

Conclusion: This report is to highlight that clinicians must have a high index of suspicion for this rare entity when dealing with scalp masses and suspicious radiological findings, which can affect the overall management and prognosis.

Keywords: Lipoma, Liposarcoma, MRI, Well-differentiated liposarcoma

Background

Liposarcoma of the head and neck constitutes approximately 1% of all soft tissue sarcomas [1]. Liposarcoma is classified into four different histological subtypes: well-differentiated (also known as the atypical lipomatous tumour), dedifferentiated, myxoid and pleomorphic liposarcoma [2]. Well-differentiated liposarcoma (WDLS) is the most common subtype which is associated with indolent behaviour mimicking lipoma [2]. Both simple lipomas and WDLS are well-circumscribed fatty masses [3]. Well-differentiated liposarcoma commonly present as a slow-growing mass in the retroperitoneum and proximal extremities and seldom appear in the scalp area [2].

Well-differentiated liposarcoma has increased levels of regional recurrence and well-documented predisposition to delayed dedifferentiation into higher grade sarcomas with metastatic potential [3]. Due to these characteristics, well-differentiated liposarcoma need wide local excision as initial treatment and long-term follow-up. Herein this report, we describe a rare case of well-differentiated liposarcoma of the scalp clinically mimicking lipoma.

Case presentation

A 73-year-old man presented with a painless soft mass in the left temporal region, followed by his general practitioner during the last 15 years. The patient noticed an increase in its size for the past 6 months and consulted a head and neck surgeon. The physical examination revealed a non-tender, soft and mobile mass, apparently in the subcutaneous tissue of the left temporal region, compatible with a lipoma. There were no palpable cervical lymph nodes. An ultrasound concluded to a diagnosis

*Correspondence: sethu@upm.edu.my

¹ Department of Otorhinolaryngology, Universiti Putra Malaysia (UPM), 43400 Serdang, Selangor, Malaysia
Full list of author information is available at the end of the article

of lipoma. Due to rapid growth of the lesion and to delineate its relation to the frontal branch of the facial nerve, a magnetic resonance imaging (MRI) was performed. A discrete heterogeneous fatty lesion of 8×11 cm with well-defined contours, located under the superficial part of the left temporal muscle, extending from the zygomatic arch anteriorly to the retro-auricular region was seen, in contrary to the clinical impression that the lesion was located subcutaneously (Fig. 1). This lesion was showing a distinct area of enhancement in the central part with a signal which was not completely suppressed on the fat saturation sequences (Fig. 2). The diagnosis of atypical lipomatous lesion was rendered and a wide surgical resection was performed under general anaesthesia with facial nerve monitoring. Macroscopically, it was a bilobed mass with homogenous yellowish tissue without necrosis or haemorrhage (Fig. 3). The microscopic examination demonstrated patches of adipose tissue intersected by fibrous septae, atypical stromal cells and enlarged nucleus (Fig. 4). There were striated musculature fibres within and around the lesion. In situ hybridization study shows MDM2 amplification of cell signals (Fig. 5). Histopathological examination confirmed a well-differentiated liposarcoma. This patient had an uneventful postoperative period. The patient will be followed up with long-term surveillance.

Discussion

Well-differentiated liposarcomas are reported to be predominant among middle-aged males and often present as painless, slow-growing masses [3]. The lipoma is usually present as non-tender, mobile and well-defined mass and

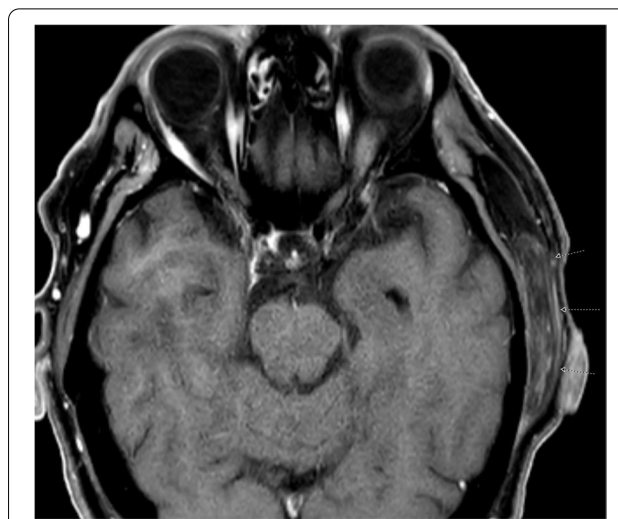


Fig. 2 Coronal T1 image with fat saturation after gadolinium injection showing enhancement of the septa within the lesion

seldom present diagnostic problems for the pathologist. However, deep-seated or lipomas with atypical characteristics can mimic as liposarcoma [4]. Well-differentiated liposarcoma needs to be differentiated from benign lipoma due to its indolent course and histopathological examination is necessary for definitive diagnosis [2].

Imaging studies are notably helpful to evaluate the size, extent and location of the tumour and its relationship with the adjacent neurovascular structures in the areas of the head [4]. Ultrasonographic findings may not always be accurate in lipomatous lesions like in our patient. Computerised tomography (CT) and magnetic resonance imaging (MRI) can contribute relevant

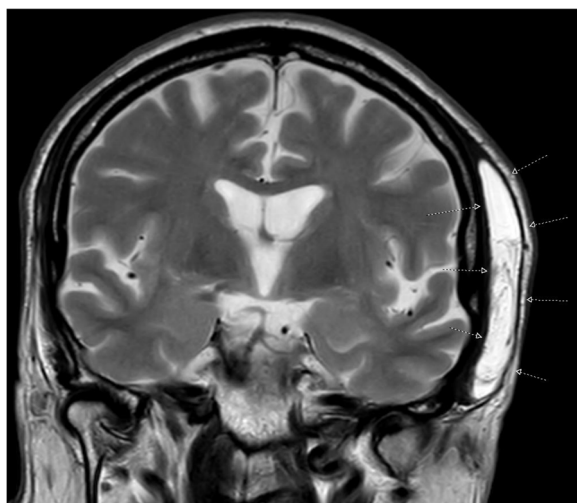


Fig. 1 Coronal T2-weighted MRI image shows prominent low signal foci in the mass lesion

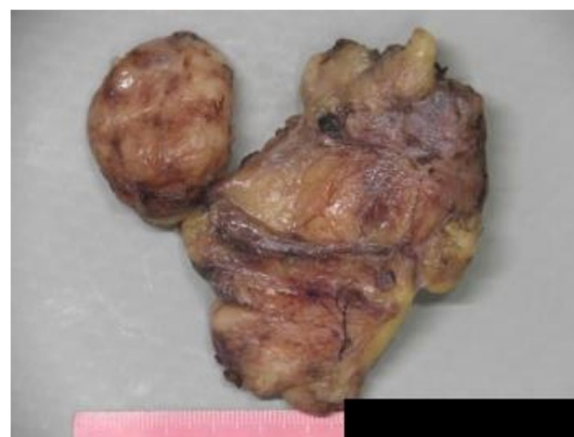


Fig. 3 Gross appearance of liposarcoma showing well-circumscribed mass with homogenous yellowish tissue (lipoma-like texture)

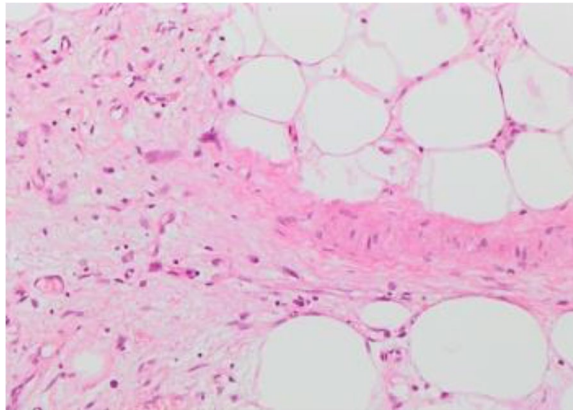


Fig. 4 Photomicrograph showing mature adipocytes intersected by fibrous septa with atypical stromal cells (haematoxylin and eosin, $\times 200$)

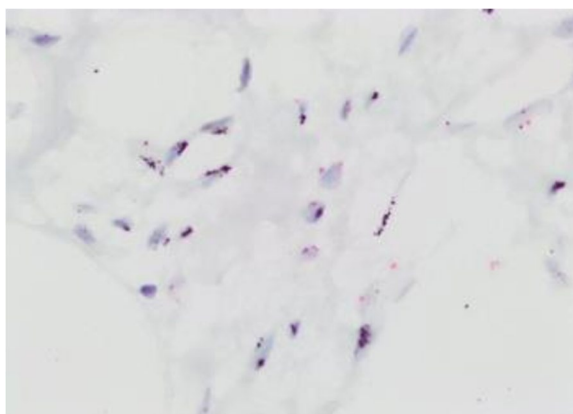


Fig. 5 MDM2 amplification by in situ hybridization (CISH, $400\times$)

features to differentiate a lipoma from liposarcoma prior to surgical intervention [5]. The MRI shows the delineation of soft tissue and clearly defines the borders of the lesion from the subcutaneous tissue compared to CT. Infiltrative margins are more obvious on MRI with fat suppression techniques [6]. Amid the numerous lipomatous lesions, the radiological differentiation between lipoma and well-differentiated liposarcoma is challenging [4]. A distinct, well-encapsulated, homogeneous fatty mass with few or no septa and minimal or no enhancement or high T2 signal is assuredly a lipoma [3]. Simple lipoma also consists of fibrous septa, muscle fibres, areas of blood vessels and inflammation. These non-adipose components may mimic features of well-differentiated liposarcoma. The radiological findings which are suspicious of liposarcoma are non-adipose masses, thickened or nodular septa (>2 mm thick),

prominent foci of low T2 signal and prominent areas of enhancement [3].

A study by Klijanienko et al. on fine-needle aspiration in liposarcoma demonstrated the difficulty to distinguish between lipomas and well-differentiated liposarcomas due to morphological overlap in cytological smears [7].

Macroscopically, liposarcomas are grossly well-circumscribed and not encapsulated neoplasms while lipomas are well-encapsulated masses. They may have a mucoid slimy surface with a bright yellow appearance mimicking a lipoma similar to our case [6]. The presence of atypical cells or vacuolated lipoblasts intermingled with fibroblasts-like spindle cells in the septa is the characteristic histological feature discerning well-differentiated liposarcomas from intramuscular lipomas [6].

The treatment modalities for lipomas can be divided into non-excisional and excisional techniques [5]. Most lipomas can be observed without treatment if the lipoma is small and asymptomatic. Excision is required in lesions of diagnostic dilemma, exponential growth, size of more than 10 cm, deep anatomical locations, associated pain or cosmetic issues [4].

Well-differentiated liposarcoma requires wide local excision with clear margins. Recurrence rates increase with incomplete excision, as they are often misdiagnosed as benign lipomas [4]. The extent of excision in head and neck lesions has been limited by the proximity of vital neurovascular structures which may impede the surgeons from wider resection with negative margins. Non-surgical treatment modalities like radiation therapy or chemotherapy are of limited use and remain controversial in liposarcomas. Well-differentiated liposarcomas are considered low-grade malignancies with little or no tendency to metastasis and good prognosis.

Conclusions

Our case report demonstrates that well-differentiated liposarcoma can mimic lipoma in its clinical presentation. Clinicians should be concerned about malignancy in patients with rapidly growing neck masses presenting clinically as lipomas. A rigorous clinical, radiological (preferably CT or MRI) and histopathological examination should be performed to avoid incomplete resection and thus prevent the recurrence of the tumour.

Abbreviations

CT: Computerised tomography; MRI: Magnetic resonance imaging; MDM2: Murine double minute 2; WDLs: Well-differentiated liposarcoma.

Acknowledgements

None

Authors' contributions

Concept - STS; design - STS, FM; supervision - FM; data collection and/or processing - STS, FM, AS, KM; literature search and writing manuscript - STS;

analysis and/or interpretation - FM, AS, KM; critical review - FM, AS, KM. The author(s) read and approved the final manuscript.

Funding

No funding

Availability of data and materials

Not applicable

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Verbal and written informed consent for publication was obtained from the parent of the patient. A copy of consent is available for the journal.

Competing interests

The authors declare that they have no competing interests.

Author details

¹Department of Otorhinolaryngology, Universiti Putra Malaysia (UPM), 43400 Serdang, Selangor, Malaysia. ²Viollier Weintraub SA, Avenue Eugène-Pittard 16, 1206 Geneva, Switzerland. ³Institute of Radiology, Clinique Générale Beaulieu, 20 Chemin de Beau-Soleil, 1206 Geneva, Switzerland. ⁴Department of ENT, Clinique Générale Beaulieu, Cours de Rive 16, 1204 Geneva, Switzerland.

Received: 24 September 2021 Accepted: 10 October 2022

Published online: 05 November 2022

References

1. Gollidge J, Fisher C, Rhys-Evans PH. Head and neck liposarcoma. *Cancer*. 1995;76(6):1051–8.
2. Piperi E, Tosios KI, Nikitakis NG, Kyriakopoulos VF, Tzerbos F, Koutlas IG et al (2012) Well-differentiated liposarcoma/atypical lipomatous tumor of the oral cavity: report of three cases and review of the literature. *Head Neck Pathol*. 6(3):354–363
3. Gaskin CM, Helms CA (2004) Lipomas, lipoma variants, and well-differentiated liposarcomas (atypical lipomas): results of MRI evaluations of 126 consecutive fatty masses. *Am J Roentgenol*. 182(3):733–739
4. Kim KS, Yang HS (2014) Unusual locations of lipoma: differential diagnosis of head and neck mass. *Aust Fam Phys* 43(12):867
5. Medina CR, Schneider S, Mitra A, Spears J, Mitra A (2007) Giant submental lipoma: case report and review of the literature. *Can J Plast Surg*. 15(4):219–222
6. McTighe S, Chernev I. Intramuscular lipoma: a review of the literature. *Orthop Rev (Pavia)*. 2014;6(4):5618.
7. Klijanienko J, Caillaud J, Lagacé R (2004) Fine-needle aspiration in liposarcoma: cytohistologic correlative study including well-differentiated, myxoid, and pleomorphic variants. *Diagn Cytopathol*. 30(5):307–312

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Submit your manuscript to a SpringerOpen[®] journal and benefit from:

- Convenient online submission
- Rigorous peer review
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

Submit your next manuscript at ► [springeropen.com](https://www.springeropen.com)
