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Intradeltoid Myolipoma in a 52-Year-Old Man: A Case Report and Review of the Literature

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Abstract | **Case Report**

Background: Myolipoma of soft tissue is a rare benign mesenchymal neoplasm composed of an admixture of mature adipocytes and well-differentiated smooth muscle cells. It presents a significant diagnostic challenge owing to its nonspecific clinical and radiological features, which often overlap with those of malignant neoplasms such as well-differentiated liposarcoma. Intramuscular or intradeltoid localization is exceptionally uncommon, with very few cases documented in the literature. ***Case Presentation:*** A 52-year-old man presented with a slowly enlarging, painless mass in the right shoulder region. MRI demonstrated a well-circumscribed, oval lesion within the deltoid muscle measuring 17 × 25 × 34 mm, exhibiting homogeneous high signal on T1- and T2-weighted sequences with complete fat suppression, consistent with a lipomatous tumor. The mass was surgically excised. Histopathological examination confirmed a myolipoma: mature adipocytes intermingled with benign smooth muscle fibers, without atypia or mitotic figures. ***Conclusion:*** Intradeltoid myolipoma is a rare entity whose MRI characteristics closely mimic those of a simple lipoma. Complete surgical excision is both diagnostic and curative. Awareness of this entity is essential to avoid misdiagnosis and inappropriate management.

Keywords: myolipoma; intradeltoid; lipoma; shoulder; soft tissue tumor; MRI; surgical excision.

1. INTRODUCTION

Lipomatous tumors are among the most common soft tissue neoplasms encountered in orthopaedic and general surgery practice. The vast majority represent benign simple lipomas composed entirely of mature adipose tissue. However, a spectrum of rarer histological variants exists, among which the myolipoma occupies a distinctive and poorly understood niche [1,2].

Myolipoma is defined as a benign mesenchymal neoplasm characterized by the coexistence of mature adipocytes and well-differentiated smooth muscle cells in varying proportions [3]. First described by Meis and Enzinger in 1991, fewer than 100 cases have been reported in the English-language literature to date, making it an exceptionally rare entity [4]. The tumor most commonly arises in retroperitoneal, abdominal wall, or inguinal locations; intramuscular and intradeltoid presentations are especially uncommon [2,5].

The diagnostic significance of myolipoma lies in the radiological and clinical overlap it shares with well-differentiated liposarcoma, a locally aggressive malignancy that may appear deceptively benign on imaging. An accurate pre-operative or post-operative diagnosis is therefore critical to ensure appropriate surgical management and patient counseling [6,7].

We report herein a case of intradeltoid myolipoma in a 52-year-old man, managed at the Department of Orthopaedic and Trauma Surgery, Ibn Sina University Hospital, Rabat, Morocco. This case is presented alongside a focused review of the literature to highlight key clinical, radiological, and pathological features of this rare entity.

2. CASE REPORT

2.1 Clinical Presentation

A 52-year-old man (patient: Bedodane Brahim, born 07/04/1975) with no significant past medical history presented to our outpatient clinic with a longstanding, slowly enlarging mass in his right

shoulder. The mass had been present for approximately two years prior to consultation, was entirely asymptomatic, and had not been associated with any trauma, weight change, or constitutional symptoms. There was no personal or family history of malignancy.

Physical examination revealed a soft, well-defined, and mobile subcutaneous lesion situated in the posterior-superior aspect of the right deltoid region. The overlying skin was normal, with no erythema, warmth, or fixation. The lesion measured approximately 3–4 cm in clinical estimation. There was no regional lymphadenopathy, no neurological deficit, and shoulder range of motion was fully preserved.

2.2 Imaging

Magnetic resonance imaging (MRI) of the right shoulder was performed on 07/04/2025 at CHR Rabat (MAGNETOM Amira MR XA50) for further characterization of the mass. Coronal fat-suppressed proton density (DP FS BLADE CORO) sequences were obtained.

The MRI demonstrated a well-circumscribed, oval intramuscular lesion within the right deltoid muscle, measuring 17 × 25 × 34 mm. The lesion exhibited homogeneous high signal intensity on both T1- and T2-weighted sequences, with complete signal suppression on fat-saturated sequences, confirming its fatty composition. Post-contrast sequences showed no pathological enhancement. The lesion contained thin internal septa measuring less than 2 mm, without nodular or thick septal components. The surrounding rotator cuff tendons, long head of the bicep's tendon, glenoid labrum, and osseous structures were entirely normal.

The imaging conclusion was consistent with a simple intramuscular lipoma. No features suggestive of malignancy — such as thick septa, nodular solid components, or reduced fat content — were identified.

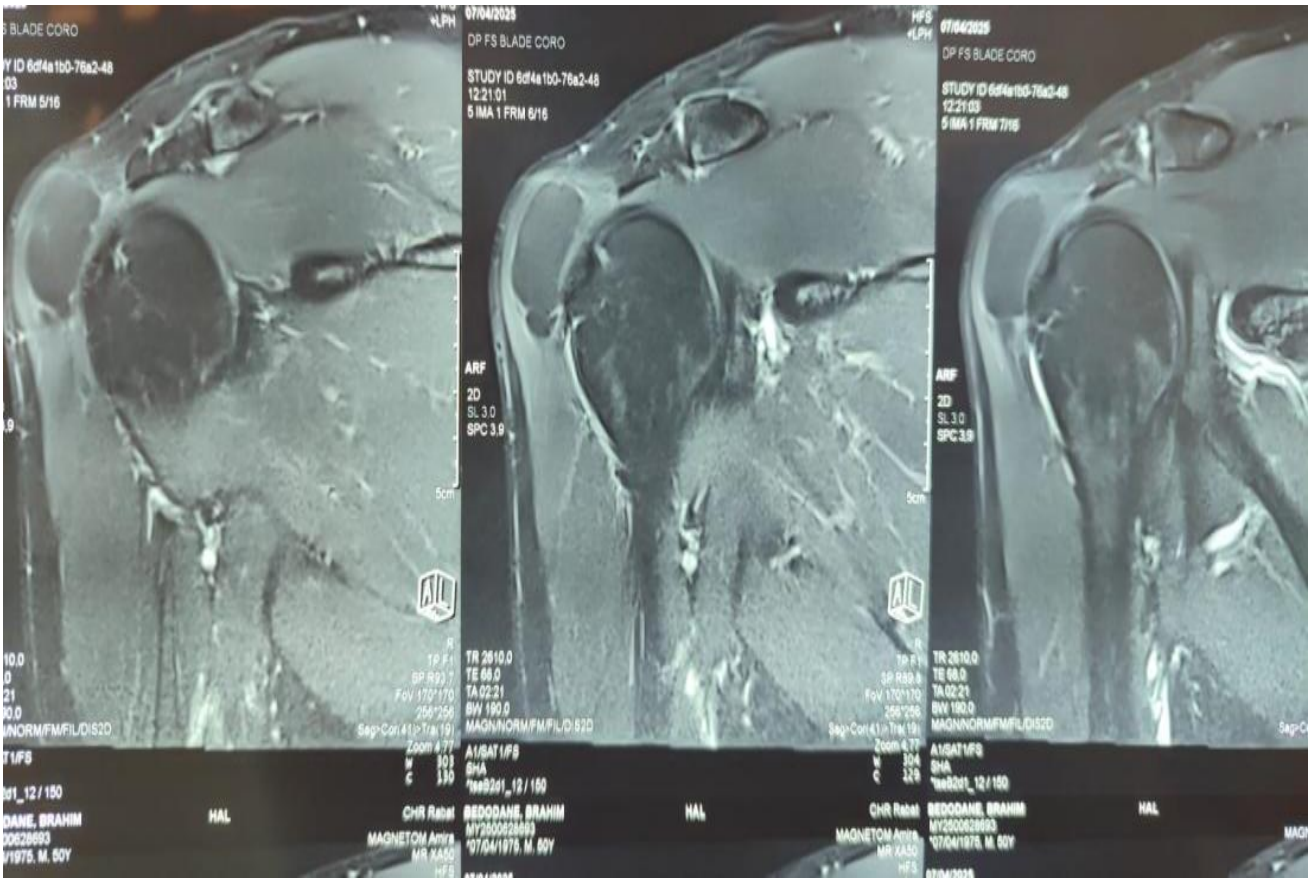


Figure 1. Coronal fat-suppressed MRI sequences of the right shoulder demonstrating a well-circumscribed, homogeneous fatty intramuscular lesion within the deltoid muscle, with complete fat suppression, thin internal septa, and no pathological enhancement

2.3 Surgical Management

Given the patient's request for definitive diagnosis and cosmetic improvement, elective surgical excision was performed. Under general anesthesia, a direct approach over the posterior deltoid was utilized. Intraoperatively, a well-encapsulated, soft, yellowish mass was identified within the deltoid muscle fascia, dissecting easily from the surrounding muscle fibers without infiltration. Complete en-bloc excision was achieved.

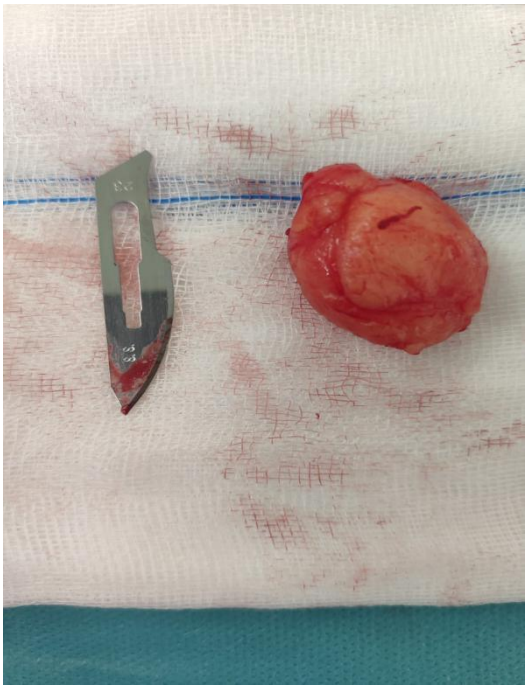


Figure 2. Gross specimen photograph of the excised mass placed beside a scalpel blade (No. 23) for size reference, demonstrating a well-encapsulated, lobulated, yellowish-red soft tissue tumor

Figure 3. Excised specimen placed in a container prior to dispatch for histopathological analysis

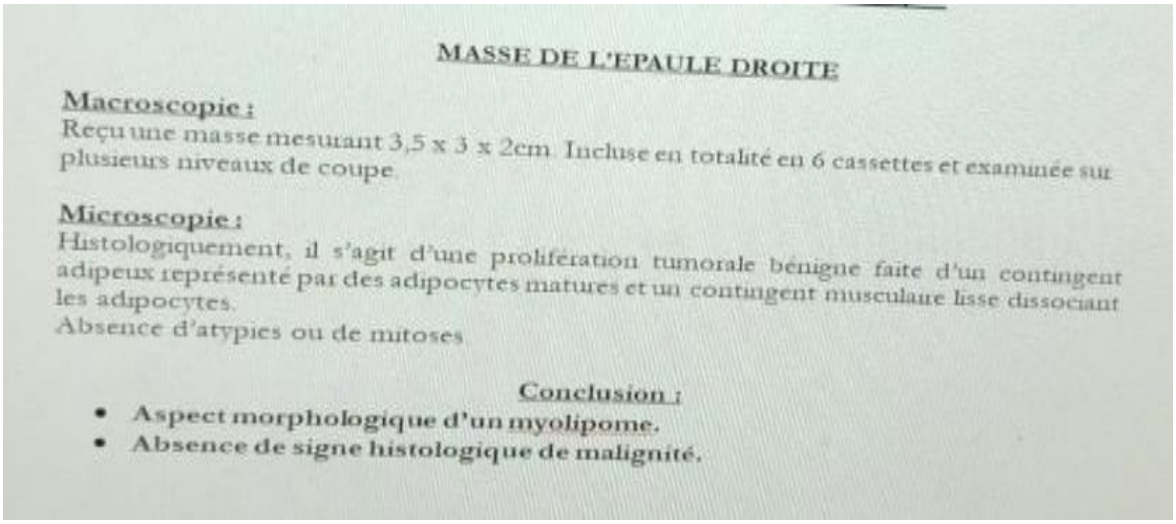
2.4 Histopathological Findings

The surgical specimen was submitted for histopathological analysis on 09/10/2025 (Reference: CMY25JH273) to the Anatomie Pathologique Department, Centre Hospitalier Régional de Rabat (Pr Aaboudech, Dr Ziriab; report dated 14/10/2025).

Macroscopy: A mass measuring 3.5 × 3 × 2 cm was received. It was embedded in its entirety in 6 cassettes and examined at multiple levels of sectioning.

Microscopy: Histological examination revealed a benign tumoral proliferation composed of two components: a fatty contingent represented by mature adipocytes, and a smooth muscle contingent dissociating the adipocytes. There was a complete absence of cytological atypia and mitotic figures.

Conclusion: The morphological features were consistent with a myolipoma. There was no histological evidence of malignancy.



MASSE DE L'EPAULE DROITE

Macroscopie :
Reçu une masse mesurant 3,5 x 3 x 2cm. Incluse en totalité en 6 cassettes et examinée sur plusieurs niveaux de coupe.

Microscopie :
Histologiquement, il s'agit d'une prolifération tumorale bénigne faite d'un contingent adipeux représenté par des adipocytes matures et un contingent musculaire lisse dissociant les adipocytes.
Absence d'atypies ou de mitoses.

Conclusion :
- Aspect morphologique d'un myolipome.
- Absence de signe histologique de malignité.

Figure 4. Histopathological report (Compte rendu anatomo-pathologique, CHR Rabat, 14/10/2025) confirming the diagnosis of myolipoma: benign tumoral proliferation composed of mature adipocytes and smooth muscle cells, without atypia or mitoses

2.5 Outcome

The post-operative course was uneventful. The patient was discharged on the day following surgery. At follow-up, the wound had healed completely, shoulder function was fully preserved, and the patient reported complete resolution of the cosmetic complaint. No adjuvant therapy was required. The patient was informed of the benign, curative nature of complete excision, with an exceptionally low risk of local recurrence.

3. DISCUSSION

Myolipoma of soft tissue is a rare benign neoplasm first formally described by Meis and Enzinger in 1991, characterized histologically by the admixture of mature adipose tissue and well-differentiated smooth muscle cells [4]. It is classified within the World Health Organization (WHO) classification of soft tissue tumors as a benign lipomatous tumor variant [3]. The pathogenesis remains incompletely understood; some authors have proposed a metaplastic differentiation of mesenchymal precursor cells, while others suggest a distinct cell lineage [4,8].

The typical demographic profile for myolipoma encompasses adults in the fourth to sixth decade of life, with no significant gender predilection for the intramuscular variant [2,4]. Our patient, a 52-year-old man, aligns precisely with this profile. The most commonly reported anatomical sites include the retroperitoneum, abdominal wall, and inguinal region; intramuscular locations, particularly within the deltoid, are exceedingly rare [2,5,9]. A systematic review of the available literature identified fewer than fifteen cases of intramuscular myolipoma reported to date, of which deltoid localization represents only a small subset.

The clinical presentation is typically that of a slow-growing, painless, well-circumscribed soft tissue mass, as observed in our patient. This indolent behavior frequently leads to delayed presentation, as patients often seek medical attention only when the mass becomes cosmetically bothersome or reaches a considerable size.

The role of MRI in the pre-operative evaluation of lipomatous soft tissue tumors is paramount. Imaging features that support benignity include: a well-circumscribed border, homogeneous fat signal on T1- and T2-weighted sequences, complete suppression on fat-saturated sequences, absence of post-contrast enhancement, and only thin internal septa (< 2 mm) [6,7,10]. All of these features were present in our case, and the pre-operative imaging conclusion was that of a simple intramuscular lipoma. The post-operative histological finding of a smooth muscle component re-classified the lesion as a myolipoma — a distinction that cannot reliably be made on imaging alone, since both entities share identical radiological appearances [7,11].

This inability to differentiate myolipoma from simple lipoma — or, more critically, from well-differentiated liposarcoma — on MRI alone underscores the indispensable role of histopathological examination. Well-differentiated liposarcoma, the principal differential diagnosis, typically displays thick septa (> 2 mm), nodular or non-adipose components, incomplete fat suppression, and post-contrast enhancement [6,7]. In ambiguous cases, fluorodeoxyglucose positron emission tomography (FDG-PET) or image-guided core needle biopsy may be considered prior to surgical planning [12].

Complete surgical excision remains the gold standard for the management of intramuscular lipomatous tumors, serving simultaneously as the definitive diagnostic and therapeutic modality. The prognosis of myolipoma after complete excision is excellent: no malignant transformation has been reported in the literature, and the risk of local recurrence following complete resection is negligible [2,4,13]. This

outcome profile is identical to that of simple lipoma and is substantially superior to the management challenges posed by well-differentiated liposarcoma, which carries a significant risk of local recurrence and requires wide surgical margins and long-term oncological surveillance.

This case therefore reinforces several key clinical lessons: (1) MRI is the imaging modality of choice for characterizing soft tissue lipomatous tumors but cannot reliably distinguish between benign variants or exclude well-differentiated liposarcoma in all cases; (2) histopathological examination of excised specimens is mandatory for definitive diagnosis; (3) complete surgical excision of well-circumscribed, MRI-confirmed lipomatous tumors is both safe and curative; and (4) clinicians and pathologists should be aware of the existence of rare myolipoma variants to avoid diagnostic confusion with either simple lipoma or malignant liposarcoma.

4. CONCLUSION

We report a rare case of intradeltoid myolipoma in a 52-year-old man, managed successfully by complete surgical excision. The lesion presented as a slowly enlarging, asymptomatic shoulder mass with MRI characteristics indistinguishable from a simple intramuscular lipoma. The definitive diagnosis of myolipoma was established histopathologically, revealing the characteristic admixture of mature adipocytes and benign smooth muscle cells without atypia. Complete excision was curative, with no evidence of recurrence at follow-up.

This case highlights the diagnostic challenge posed by rare benign lipomatous variants and confirms that complete surgical excision remains the treatment of choice. Increased awareness of myolipoma as a distinct pathological entity is essential to ensure appropriate surgical management and accurate patient counseling regarding the excellent prognosis associated with this rare tumor.

Patient Consent Statement

Written informed consent was obtained from the patient for publication of this case report and the accompanying clinical, radiological, and histopathological images. A copy of the written consent is available for review upon request by the Editor of this journal.

Conflict of Interest

The authors declare no conflicts of interest.

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