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CASE REPORT / ПРИКАЗ БОЛЕСНИКА

An atypical groin mass in a middle-aged woman – inguinal leiomyoma as a rare clinical entity

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SUMMARY
Introduction Leiomyomas are benign smooth muscle tumors that rarely occur outside the uterus. Inguinal canal leiomyomas are particularly uncommon and may resemble hernias, endometriosis, lymphadenopathy, or other soft tissue lesions, making preoperative diagnosis difficult.
Case outline We report the case of a 47-year-old woman with a painless right inguinal mass, first noticed approximately 1.5 years before surgery and progressively enlarged without associated systemic symptoms. Examination revealed a mobile, well-defined, non-tender lesion. Ultrasound showed a heterogeneous, predominantly hypoechoic, vascular mass. Computed tomography demonstrated a hypodense lesion with heterogeneous enhancement and preserved surrounding fat planes. Magnetic resonance imaging revealed a well-circumscribed, partially cystic mass without infiltration or fatty or hemorrhagic components. Its proximity to the round ligament and arterial supply from a branch of the inferior epigastric artery raised the possibility of leiomyoma, endometriosis, or another benign soft tissue tumor. Due to progressive growth and uncertain etiology, the mass was surgically removed in late 2024. Gross examination showed an encapsulated, whitish, elastic lesion. Histology demonstrated a mesenchymal proliferation without atypia or necrosis. Positive staining for α-smooth muscle actin, caldesmon, desmin, estrogen receptors, and progesterone receptors, together with a Ki-67 index below 1%, established the diagnosis of leiomyoma. Two postoperative abdominal ultrasound examinations, including both inguinal regions, showed no evidence of local recurrence. The patient remains asymptomatic.
Conclusion Inguinal canal leiomyoma should be considered in the differential diagnosis of a slowly growing groin mass. Imaging defines its extent and relationship to adjacent structures, while histopathology and immunohistochemistry establish the definitive diagnosis and guide treatment.
Keywords: leiomyoma; inguinal canal; groin mass; differential diagnosis; case report

INTRODUCTION

Leiomyomas are among the most frequent benign tumors of the female genital tract, affecting nearly one in three women of reproductive age [1]. While they usually develop within the uterine myometrium and may lead to abnormal bleeding, pelvic pain, or infertility, their extragenital occurrence is uncommon. Rarely, they have been described in sites such as the broad ligament, the round ligament, and, in exceptional cases, the inguinal canal [2].

The diagnostic challenge of inguinal leiomyomas stems from their ability to mimic far more prevalent conditions, including inguinal hernia, lymphadenopathy, cyst of the canal of Nuck, or endometriosis [3]. Because of their rarity and nonspecific presentation, reaching a preoperative diagnosis is often difficult. Multimodal imaging – most notably ultrasound (US), computed tomography (CT), and magnetic resonance imaging (MRI) – can help refine the differential diagnosis, yet histopathological and immunohistochemical evaluation remain essential for definitive confirmation [4].

Awareness of this entity is crucial, since overlooking it may lead to misdiagnosis and even unnecessary oncological treatment. This report describes the case of a 47-year-old woman with an inguinal canal leiomyoma, emphasizing the radiological findings, surgical outcome, and histopathological correlation, and discussing the key considerations that distinguish this rare lesion from other groin masses.

CASE REPORT

A 47-year-old woman presented with a progressively enlarging, painless mass in the right inguinal region. She denied systemic symptoms such as weight loss, fever, or night sweats. On physical examination, the lesion was mobile, well-circumscribed, and non-tender, with no signs of overlying skin changes.

Laboratory analyses revealed normal hematological and biochemical parameters. Tumor markers, including carcinoembryonic antigen, α-fetoprotein, human epididymis protein 4, and cancer antigen 15-3, were within reference ranges.

US examination demonstrated a heterogeneous, predominantly hypoechoic, well-circumscribed mass with internal vascularity (Figures 1 and 2). CT imaging revealed a hypodense lesion with heterogeneous post-contrast enhancement and preserved fat planes relative to surrounding musculature and iliac vessels (Figures 3 and 4).

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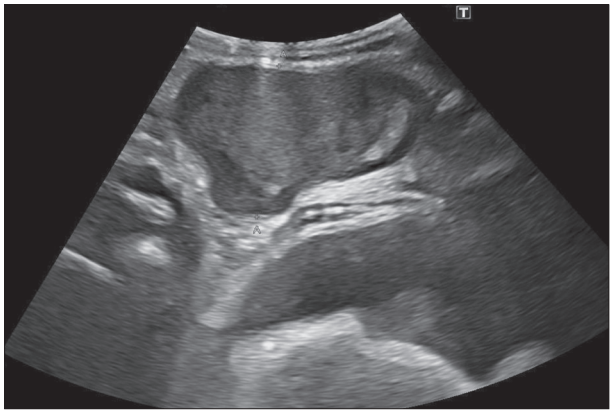


Figure 1. Lobulated soft tissue mass in the right inguinal region with heterogeneous structure – convex probe

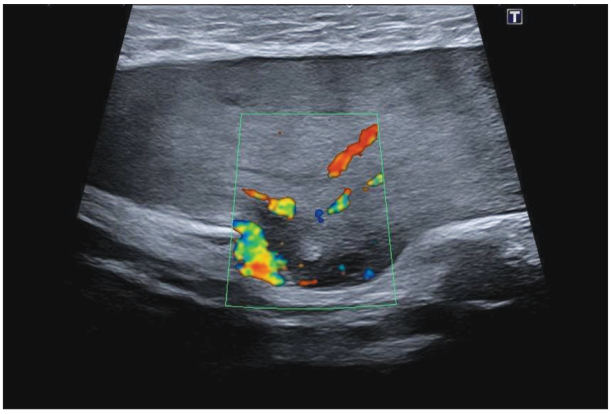


Figure 2. Well-defined hypoechoic lesion, moderately vascularized in Doppler mode – imaged with a linear probe

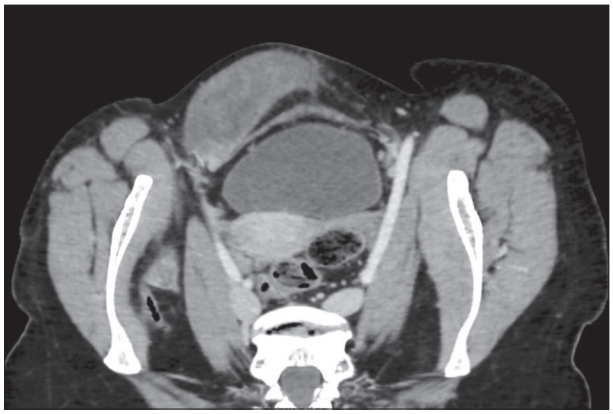


Figure 3. An axial CT image obtained after intravenous contrast administration shows a sharply defined, hyperdense lesion in the right inguinal region, exhibiting moderate post-contrast enhancement

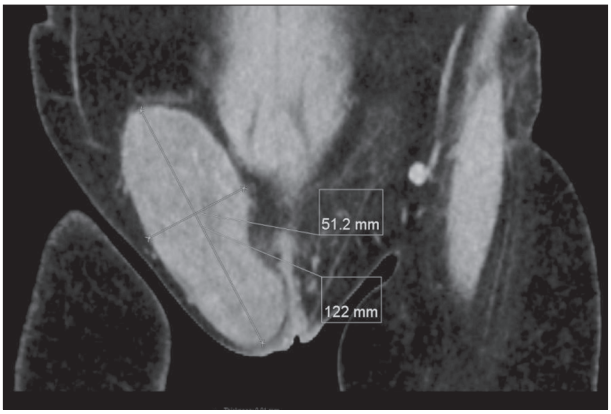


Figure 4. A coronal CT image obtained after intravenous contrast administration shows a sharply contoured heterodense lesion, measuring 120 × 50 mm, in the right inguinal region, with extension into the perineum

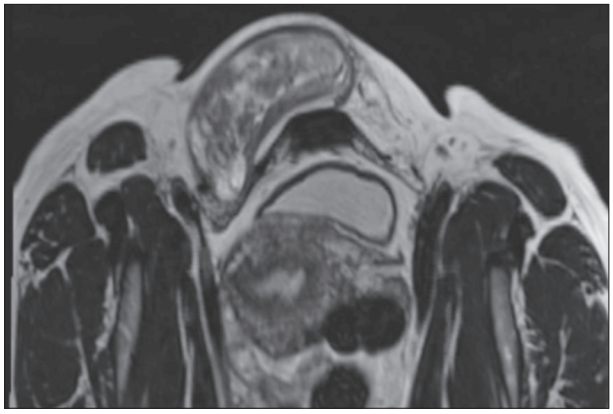


Figure 5. An axial T2-weighted turbo spin-echo sequence demonstrates a subcutaneous, right inguinal, oval-shaped, sharply contoured lesion with heterogeneous signal intensity and areas of cystic degeneration

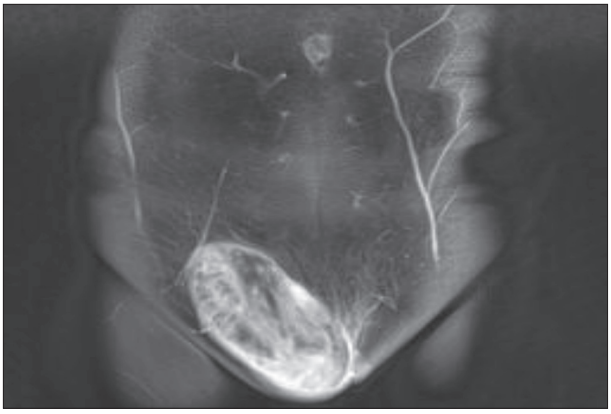


Figure 6. A coronal T1-weighted volumetric interpolated breath-hold examination sequence with fat suppression demonstrates an oval, sharply contoured lesion with heterogeneous signal intensity and solid and cystic components in the right inguinal area, showing moderate post-contrast enhancement of the solid component; the lesion measures 120 × 45 mm in the coronal plane

MRI confirmed a well-encapsulated, partially cystic mass, hyperintense on T2-weighted sequences, without evidence of infiltration or intraperitoneal extension (Figures 5 and 6).

Summary across modalities: across all imaging modalities (US, CT, and MRI), the lesion in the right inguinal region consistently appeared as a well-circumscribed, encapsulated, heterogeneous mass with partially cystic components, showing internal vascularity and heterogeneous post-contrast enhancement. Importantly, fat planes separating the lesion from adjacent iliac vessels and surrounding musculature were preserved, and there were no imaging signs of invasion or intraperitoneal extension. The imaging constellation favored a benign soft tissue tumor, with leiomyoma considered among the leading differential diagnoses, along with other benign inguinal lesions such as a canal of Nuck cyst or endometriosis.

Surgical management: Following preparation of the surgical field, a right oblique inguinal incision was made. After careful dissection of the inguinal canal, the mass was completely excised. Gross examination revealed an encapsulated lesion measuring 100 × 65 × 40 mm, whitish in color, with a smooth, glistening surface and elastic consistency.

Histopathology: microscopic evaluation revealed a mesenchymal proliferation of moderate cellularity composed of uniform spindle cells with eosinophilic cytoplasm and elongated nuclei with blunt ends. No atypia, necrosis, or significant mitotic activity was identified. The stroma showed focal hyalinization and mild myxoid changes. Immunohistochemistry demonstrated positivity for α-smooth muscle actin (α-SMA), caldesmon, desmin, estrogen receptors, and progesterone receptors, with negativity for SOX10 and S100. Ki-67 was expressed in < 1% of tumor cells. The final diagnosis was leiomyoma.

DISCUSSION

Extragenital leiomyomas are exceedingly uncommon, and when located in the inguinal canal, they pose a considerable diagnostic challenge. Most of the reported cases occur in women of reproductive age, likely due to the hormonal responsiveness of these tumors [5]. The proximity to the round ligament and the expression of estrogen and progesterone receptors in our case support the role of hormonal influence.

Clinically, inguinal leiomyomas are frequently mistaken for more common pathologies such as hernias, lymphadenopathy, canal of Nuck cysts, or endometriosis [6]. Imaging plays a pivotal role in narrowing the differential diagnosis. US often demonstrates a solid, vascularized mass, while CT and MRI can provide better definition of lesion margins and the relationship with adjacent structures [7]. However, as in our case, imaging cannot always reliably distinguish between leiomyomas and other benign or malignant soft tissue tumors.

Histopathological examination remains the gold standard for diagnosis. Typical features include uniform spindle cells arranged in fascicles, absence of significant atypia, and low mitotic activity. Immunohistochemistry is invaluable in confirming smooth muscle differentiation (α-SMA, desmin, and caldesmon positivity) and excluding other spindle cell neoplasms such as schwannomas or sarcomas [8].

Surgical excision is the treatment of choice, with an excellent prognosis and minimal recurrence risk when margins are free. Reported recurrence is exceedingly rare, supporting the benign nature of this entity [9].

Notably, a comprehensive review of the literature identified no reported cases of round ligament leiomyoma recurrence over the preceding 25 years, reinforcing the favorable long-term outcome following complete surgical excision [10]. Consistent with these findings, our patient underwent two postoperative ultrasound examinations, including targeted examination of both inguinal regions, which showed no evidence of local recurrence. The patient remains asymptomatic and in good general condition.

Therefore, accurate recognition of this rare lesion can prevent unnecessary radical or oncological procedures.

Heightened awareness of this entity among radiologists, gynecologists, and surgeons is essential to prevent misdiagnosis and unnecessary oncological interventions, and this entity should remain an integral consideration in the differential diagnosis of inguinal masses in women.

Ethics: All procedures performed were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments and comparable ethical standards. Written consent to publish all material presented was obtained from the patient.

Conflict of interest: None declared.

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Атипична маса у препонској регији код жене средњих година – ингвинални лејомиом као редак клинички ентитет

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САЖЕТАК

Увод Лејомиоми су бенигни тумори глатке мускулатуре који се најчешће јављају у утерусу, док је њихова екстрагенитална локализација изузетно ретка, нарочито у ингвиналном каналу. Због клиничке сличности са хернијом, ендометриозом, лимфаденопатијом и мекоткивним лезијама, представљају дијагностички изазов. Препознавање ове неуобичајене локализације важно је за избегавање погрешне дијагнозе и неадекватног лечења.

Приказ болесника Приказујемо 47-годишњу болесницу са безболном масом у десној ингвиналној регији, први пут уоченом приближно годину и по дана пре операције, која је постепено расла без системских симптома. Клиничким прегледом идентификована је покретна, јасно ограничена и индолентна формација. Ултразвуком је приказана хетероехогена, доминантно хипоехогена, васкуларизована маса. Компјутеризована томографија показала је хиподензну промену са нехомогеним постконтрастним појачањем и очуваним околним масним плановима. Магнетном резонанцом уочена је добро ограничена, делимично цистична маса, без инфилтрације околних структура, масног или хеморагичног садржаја. Због блиског односа са округлим лигаментом материце и васкуларизације из гране доње епигастричне артерије, разматрани су лејомиом, ендометриоза и други бенигни мекоткивни тумори. Услед прогресивног раста и нејасне етиологије, промена је хируршки одстрањена крајем 2024. године. Макроскопски је била инкапсулирана, беличаста, еластичне конзистенције. Патохистолошка анализа показала је мезенхималну пролиферацију без атипије и некрозе. Позитивност на *α-SMA*, калдесмон, дезмин, естрогенске и прогестеронске рецепторе, уз *Ki*-67 испод 1%, потврдила је дијагнозу лејомиома. Два постоперативна ултразвучна прегледа абдомена, укључујући обе ингвиналне регије, нису показала знаке локалног рецидива. Болесница је без тегоба.

Закључак Случај истиче значај интегрисаног клиничког, радиолошког и патохистолошког приступа у процени атипично локализованих тумора меких ткива. Правовремено препознавање бенигне природе промене омогућава одговарајуће лечење и избегавање непотребних онколошких процедура код тумора који клинички имитирају малигне или инфламаторне ентитете.

Кључне речи: лејомиом; ингвинални канал; препонска маса; диференцијална дијагноза; приказ случаја