СРПСКИ АРХИВ
ЗА ЦЕЛОКУПНО ЛЕКАРСТВО
SERBIAN ARCHIVES
OF MEDICINE

Address: 1 Kraljice Natalije Street, Belgrade 11000, Serbia
+381 11 4092 776, Fax: +381 11 3348 653
E-mail: office@srpskiarhiv.rs, Web address: www.srpskiarhiv.rs

Paper Accepted[1]

ISSN Online 2406-0895

Case Report / Приказ болесника

Perica Adnađević*, Marjana Đorđević, Violeta Đekić, Luka Zarić, Lejla Hajdarpašić

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

Атипична маса у препонској регији код жене средњих година: приказ случаја ингвиналног леиомиома као ретког клиничког ентитета

University Hospital Center Dr Dragiša Mišović – Dedinje, Department of radiology, Belgrade, Serbia

Received: November 23, 2025
Accepted: August 12, 2026
Online First: September 7, 2026
DOI: https://doi.org/10.2298/SARH251123069A

[1]**Accepted papers** are articles in press that have gone through due peer review process and have been accepted for publication by the Editorial Board of the *Serbian Archives of Medicine*. They have not yet been copy-edited and/or formatted in the publication house style, and the text may be changed before the final publication.
Although accepted papers do not yet have all the accompanying bibliographic details available, they can already be cited using the year of online publication and the DOI, as follows: the author's last name and initial of the first name, article title, journal title, online first publication month and year, and the DOI; e.g.: Petrović P, Jovanović J. The title of the article. Srp Arh Celok Lek. Online First, February 2017.
When the final article is assigned to volumes/issues of the journal, the Article in Press version will be removed and the final version will appear in the associated published volumes/issues of the journal. The date the article was made available online first will be carried over.

***Correspondence to:**
Perica ADNAĐEVIĆ
Rumska 20, 22411 Kraljevci, Serbia
e-mail: **peternix1976@gmail.com**

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

Атипична маса у препонској регији код жене средњих година: приказ случаја ингвиналног леиомиома као ретког клиничког ентитета

SUMMARY

Introduction Leiomyomas are benign smooth muscle neoplasms most commonly arising within the uterus. Extragenital manifestations are exceptionally rare, particularly in the inguinal canal, and often pose a diagnostic challenge due to their clinical resemblance to more common entities such as inguinal hernia, cyst of the canal of Nuck, endometriosis, or lymphadenopathy. Awareness of these unusual presentations is crucial to avoid misdiagnosis and inappropriate management.

Case outline We report the case of a 47-year-old woman who presented with a painless mass in the right inguinal region first noticed approximately 1.5 years before surgery with progressive enlargement during this period and no associated systemic symptoms. On examination the lesion was mobile well-circumscribed and non-tender. Ultrasound (US) revealed a heterogeneous predominantly hypoechoic mass with marked vascularity. Computed tomography (CT) demonstrated a hypodense lesion with heterogeneous post-contrast enhancement and preserved fat planes relative to adjacent vascular and muscular structures. Magnetic resonance imaging (MRI) confirmed a well-defined partially cystic mass without evidence of infiltration or fatty or hemorrhagic content. Given its proximity to the round ligament and vascular supply from a branch of the inferior epigastric artery the differential diagnosis included leiomyoma endometriotic lesion and other benign soft tissue tumors. Surgical excision was performed in late 2024 due to progressive growth and uncertain etiology. Macroscopically the lesion was encapsulated whitish and elastic. Histopathological evaluation revealed a low-cellularity mesenchymal proliferation without atypia or necrosis while immunohistochemistry (α-SMA+ Caldesmon+ Desmin+ ER+ PR+ Ki-67 < 1%) confirmed the diagnosis of leiomyoma. During postoperative follow-up two abdominal ultrasound examinations including targeted assessment of both inguinal regions showed no evidence of local recurrence. The patient is currently asymptomatic and in good general condition.

Conclusion This case underlines the importance of a multimodal approach that integrates clinical assessment, radiological imaging, and histopathological confirmation in evaluating atypically located soft tissue tumors. Early recognition of benign lesions such as inguinal canal leiomyoma facilitates appropriate surgical management and prevents unnecessary oncological interventions in masses that mimic malignant or inflammatory conditions.

Keywords: leiomyoma; inguinal canal; groin mass; differential diagnosis, case report

САЖЕТАК

Увод Леиомиоми представљају бенигне неоплазме глатке мускулатуре које се најчешће јављају унутар структуре утеруса. Њихова екстрагенитална локализација, нарочито у ингвиналној регији, изузетно је ретка и често представља дијагностички изазов због клиничке сличности са бројним другим ентитетима као што су хернија, циста Нуцковог канала, ендометриоза и лимфаденопатија. Свест о овој неубичајеној презентацији је од кључног значаја како би се избегла погрешна дијагноза и неадекватно лечење.

Приказ болесника Приказујемо случај 47-годишње болеснице која се обратила хирургу због безболне туморске масе у десној ингвиналној регији, коју је први пут уочила приближно годину и по дана пре операције и која је током периода постепено расла, без системских симптома.

Клиничким прегледом идентификована је мобилна, јасно ограничена и индолентна формација. Ради прецизне карактеризације спроведена је комплетна радиолошка дијагностика – ехотомографијом (*US*) је приказана хетероехогена, доминантно хипоехогена маса са израженом васкуларизацијом; на компјутеризованој томографији (*CT*) маса је описана као хиподензна са нехомогеном постконтрастном опацификацијом и очуваним масним планом према васкуларним и мишићним структурама, без знакова инвазије или интраперитонеалне пропагације. *MR* је потврдила добро ограничену, делимично цистичну масу без знакова инфилтрације околних структура и без масног или хеморагичног садржаја. Услед блиског односа са лигаментум ротундум и васкуларизацију из гране a. епигастрицае инфериор, у диференцијалној дијагнози разматрани су леиомиом, ендометриоидна лезија и други бенигни мекоткивни тумори.

С обзиром на прогресиван раст и нејасну етиологију, болесниц је оперисана крајем 2024. године. Макроскопски је лезија била инкапсулирана, беличаста и еластичне конзистенције. Патохистолошка анализа показала је мезенхималну пролиферацију ниске целуларности, без атипије и без некрозе, док је имунохистохемијски профил (α-*SMA*+, калдесмон+, десмин+, *ER*+, *PR*+, *Ki*-67 < 1%) потврдио дијагнозу леиомиома. Током постоперативног праћења урађена су два ултразвучна прегледа абдомена, укључујући и циљани преглед обе ингвиналне регије, без знакова локалног рецидива. Болесница је тренутно без тегоба и доброг општег стања.

Закључак Овај случај истиче значај свеобухватног, интегрисаног клиничког, радиолошког и патохистолошког приступа у евалуацији атипично локализованих тумора меких ткива. Правовремена препозната бенигност омогућава циљано лечење и избегавање непотребних онколошких процедура, посебно код тумора који клинички имитирају малигне или инфламаторне ентитете.

Кључне речи: леиомиом; ингвинални канал; препонска маса; диференцијална дијагноза; приказ болесника

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 pre-surgery 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 oncologic treatment. This report describes the case of a 47-year-old woman with an inguinal canal leiomyoma, emphasizing the radiologic 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 CEA, AFP, HE4, and CA 15–3 were within reference ranges.

Ultrasound 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). 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 toward 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 canal of Nuck cyst or endometriosis.

Surgical management: Following preparation of the surgical field, a right oblique inguinal incision was performed. 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-SMA, Caldesmon, Desmin, ER, and PR, with negativity for SOX10 and S100. Ki-67 was expressed in < 1% of tumor cells. The final diagnosis was leiomyoma.

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 shown material was obtained from the patient.

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. Ultrasound often demonstrates a solid, vascularized mass, while CT and MRI can provide better definition of lesion margins and 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, Caldesmon positivity) and excluding other spindle cell neoplasms such as schwannomas or sarcomas [8].

Surgical excision is the treatment of choice, with 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 oncologic procedures.

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

Conflict of interest: None declared.

REFERENCES

1. Arezzo F, Cazzato G, Loizzi V, Cataldo V, Mongelli M, Lombardi C, et al. Preoperative sonographic assessment of a leiomyoma of the round ligament. Acta Biomed. 2022;93(S1):e2022125. [DOI: 10.23750/abm.v93iS1.11717] [PMID: 35671098]
2. Tympa A, Grigoriadis C, Terzakis E, Goudeli C, Melemeni A. Leiomyoma of the uterine round ligament: A case report. Exp Ther Med. 2021;22(5):1285. [DOI: 10.3892/etm.2021.10720] [PMID: 34630640]
3. Kosaki R, Makino H, Tsumura S, Yamagishi S. A case of a round ligament leiomyoma which was difficult to diagnose preoperatively. J Jpn Surg Assoc. 2023;84(6):935–40. [DOI: 10.3919/jjsa.84.935]
4. Elloumi H, Sayari S, Ben Moussa M. Case report: A round ligament leiomyoma presenting as an uncomplicated left inguinal hernia. Saudi J Med. 2019;4(8):636–8. [DOI: 10.36348/sjm.2019.v04i08.016]
5. Byun GY, Koo BH, Lee SG, Kim MJ, Lee SR. Laparoscopic removal of rare variant of leiomyoma in the female inguinal canal: a report of two cases. J Surg Case Rep. 2019;2019(8):rjz 242. [DOI: 10.1093/jscr/rjz242] [PMID: 31462985]
6. Deol M, Arleo EK. Round ligament leiomyoma: a rare manifestation of a common entity. Clin Imaging. 2017;42:34–6. [DOI: 10.1016/j.clinimag.2016.11.003] [PMID: 27875759]
7. Zhao R, Du Z, Xu H, Liu L, Sun S, An Z, et al. Sonographic diagnosis of extraperitoneal round ligament leiomyoma in inguinal area. Adv Ultrasound Diagn Ther. 2020;4(3):239–42. [DOI: 10.37015/audt.2020.190037]
8. Zhang XS, Lin SZ, Liu YJ, Zhou L, Chen QD, Wang WQ, et al. Retroperitoneal leiomyoma located in the broad ligament: A case report. World J Clin Cases. 2022;10(32):12022–27. [DOI: 10.12998/wjcc.v10.i32.12022] [PMID: 36405292]
9. Fasih N, Prasad Shanbhogue AK, Macdonald DB, Fraser-Hill MA, Papadatos D, Kielar AZ, et al. Leiomyomas beyond the uterus: unusual locations, rare manifestations. Radiographics. 2008;28(7):1931–48. [DOI: 10.1148/rg.287085095] [PMID: 19001649]
10. Klingbeil KD, Polcari AM, Azab B, Franceschi D. Large, extra-abdominal leiomyoma of the round ligament with carneous degeneration. BMJ Case Rep. 2017;2017:bcr2017222454. [DOI: 10.1136/bcr-2017-222454] [PMID: 29170184]

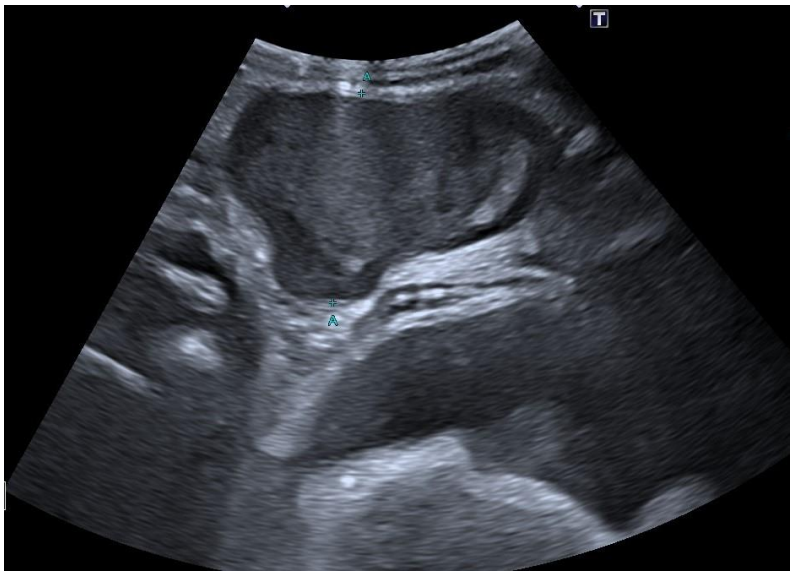

Figure 1. Lobulated soft tissue mass in the right inguinal region with heterogeneous structure – convex probe

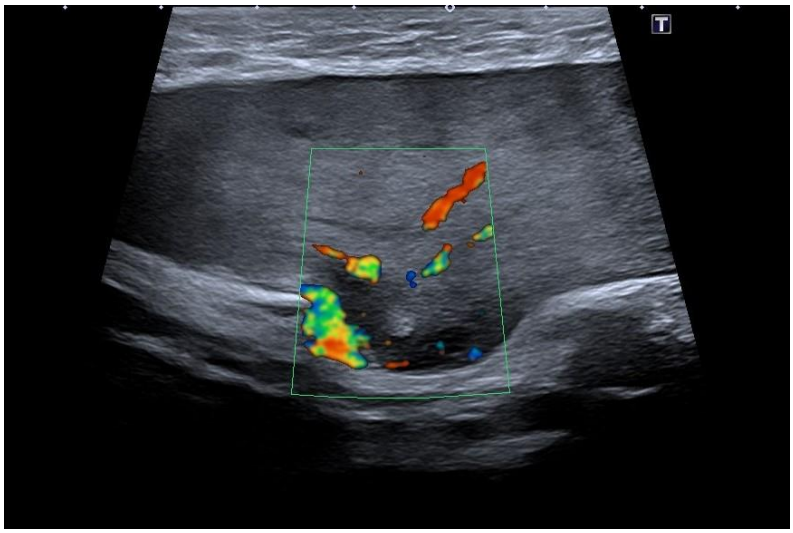

Figure 2. Well-defined hypoechoic lesion, moderately vascularized on Doppler mode - imaged with a linear probe

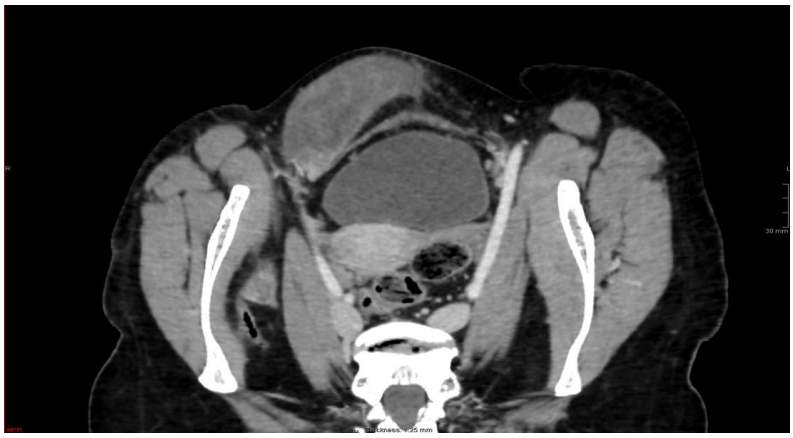

Figure 3. An IV-contrast-enhanced axial CT image shows a sharply defined, hyperdense lesion in the right inguinal region, exhibiting moderate post-contrast enhancement

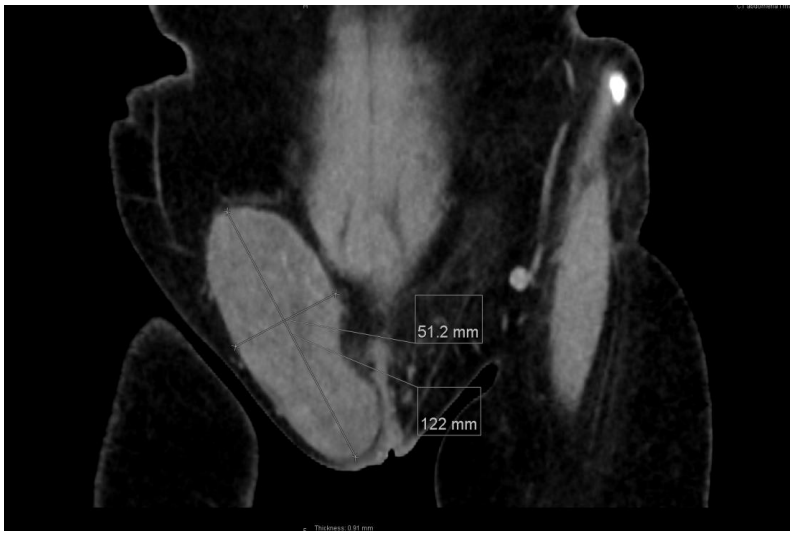

Figure 4. An IV-contrast-enhanced coronal CT image revealed a sharply contoured heterodense change, measuring 120 × 50 mm, in the right inguinal region, with extension into the perineum

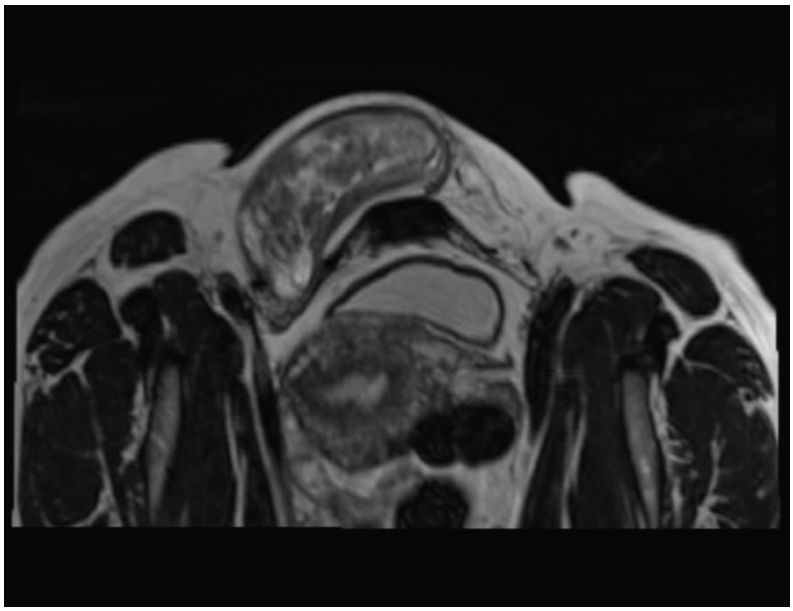

Figure 5. Axial T2-TSE sequence demonstrates a subcutaneous, right inguinal, oval-shaped, sharply contoured lesion with heterointense signal and areas of cystic degeneration

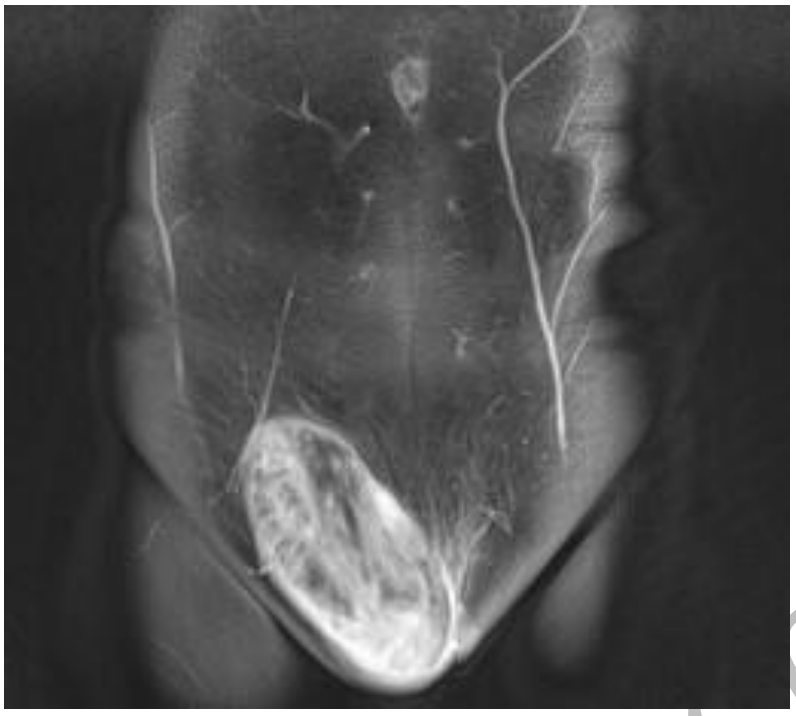

Figure 6. Coronal T1 VIBE with fat suppression MRI sequence demonstrates an oval, sharply contoured, heterointense lesion with solid and cystic components in the right inguinal area, showing moderate post-contrast enhancement of the solid component; the lesion measures 120 × 45 mm in the coronal plane

