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# Large Intraligamental Leiomyoma of the Uterus With Cystic Degeneration Mimicking an Ovarian Cyst: A Case Report

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## Abstract

Intraligament uterine leiomyomas, particularly those associated with cystic degeneration, are rare and represent a diagnostic challenge. We report the case of a 51-year-old patient with a large intraligament uterine leiomyoma and extensive cystic degeneration who was referred to the gynecology department of the hospital because of abdominal pain. Transvaginal ultrasonography and magnetic resonance imaging revealed a pelvic mass of mixed composition; however, it could not be accurately determined whether the mass originated from the uterus or the ovaries. The patient underwent laparotomy. Intraoperatively, a large intraligament uterine leiomyoma with a smooth external surface and fibroelastic consistency was identified. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. Histopathological examination confirmed the diagnosis of a degenerative uterine leiomyoma. The patient was discharged from the department on the fourth postoperative day. In this article, following the presentation of our case, we provide a brief literature review regarding the diagnosis and management of intraligament uterine leiomyomas. Particular emphasis is placed on cases in which the leiomyoma was large and associated with extensive cystic degeneration, making its differentiation from an ovarian cyst difficult.

**Categories:** Obstetrics/Gynecology, Oncology
**Keywords:** case report, cystic degeneration, intraligament uterine leiomyoma, magnetic resonance imaging, ovarian cyst, surgical management, transvaginal ultrasonography

## Introduction

Uterine leiomyomas are the most common benign tumors of the female reproductive tract in women of reproductive age [1]. They are diagnosed in approximately 70% of White women and in more than 80% of women of African ancestry. They rarely occur before menarche and generally tend to regress after menopause [2,3]. Although they are asymptomatic in most cases, their impact on women's quality of life remains significant because of the heavy menstrual bleeding and reproductive dysfunction they may cause [4].

Leiomyomas are usually located in the uterine corpus and cervix and may be intramural, subserosal, or submucosal, either pedunculated or sessile [5]. In other cases, extrauterine leiomyomatous lesions may develop, including benign metastasizing leiomyoma, parasitic leiomyoma, diffuse peritoneal leiomyomatosis, and intravenous leiomyomatosis [6]. More rarely, leiomyomas may arise in the vulva, vagina, gastrointestinal tract, or broad ligament (primary broad-ligament leiomyomas) [7,8]. Pedunculated subserosal leiomyomas originating from the lateral wall of the uterine corpus or from the uterine cervix and developing between the leaves of the broad ligament, as in our case, are referred to as intraligament leiomyomas [9].

In this article, following the presentation of our case, we provide a brief literature review concerning the diagnosis and management of intraligament uterine leiomyomas. Particular emphasis is placed on cases in which the tumor was associated with extensive degenerative changes, making its differential diagnosis from cystic ovarian lesions difficult.

## Case Presentation

A 51-year-old patient was referred from a private gynecologist to the Department of Gynecology of the General Hospital of Trikala, Greece, because of abdominal pain. The pain had begun approximately 48 hours earlier. She reported recurrent episodes of pain with similar characteristics over the preceding two years. The pain was not sudden in onset, was mild in intensity, and was located in the hypogastric region, radiating mainly to the right side of the abdomen. It was not accompanied by fever or vomiting. Her medical history

included uterine leiomyomas, which had last been evaluated by ultrasonography approximately eight years earlier. Her menstrual cycle was normal. Her obstetric history included two vaginal deliveries and one cesarean section. She also reported arterial hypertension treated with medication. The patient was severely obese (height, 167 cm; weight, 145 kg; body mass index, 52 kg/m²; class III obesity).

Her blood pressure and pulse rate were within normal limits. No signs of peritoneal irritation were detected on abdominal examination. On gynecological examination, the cervix was displaced to the left. Cervical cytology was normal. Preoperative transvaginal ultrasonography revealed a pelvic mass measuring approximately 7 cm in maximum diameter, predominantly cystic with limited solid components, which could not be reliably distinguished from the adjacent ovary (Figure *1*).

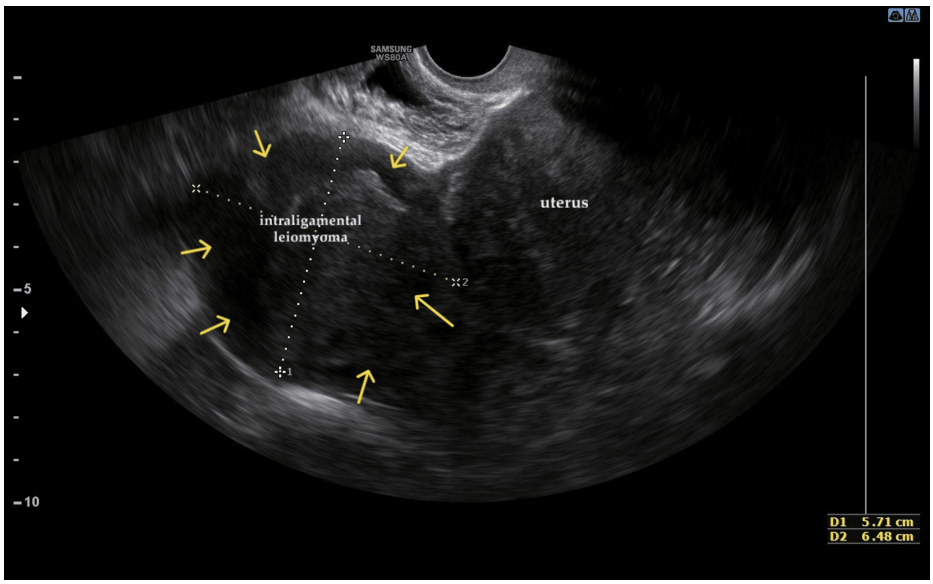



**FIGURE 1: Transvaginal ultrasonographic imaging of a cystically degenerated intraligament uterine leiomyoma.**

Extensive cystic degeneration of the leiomyoma (yellow arrows) led to its incorrect preoperative diagnosis as a cystic ovarian mass.

The findings on magnetic resonance imaging (MRI) were similar. MRI revealed a large, well-circumscribed mass with markedly heterogeneous characteristics, consistent with cystic degeneration. It was not possible to determine with certainty whether the mass represented a cystically degenerated exophytic uterine leiomyoma or a cystic lesion of the ipsilateral ovary (Figure *2*).

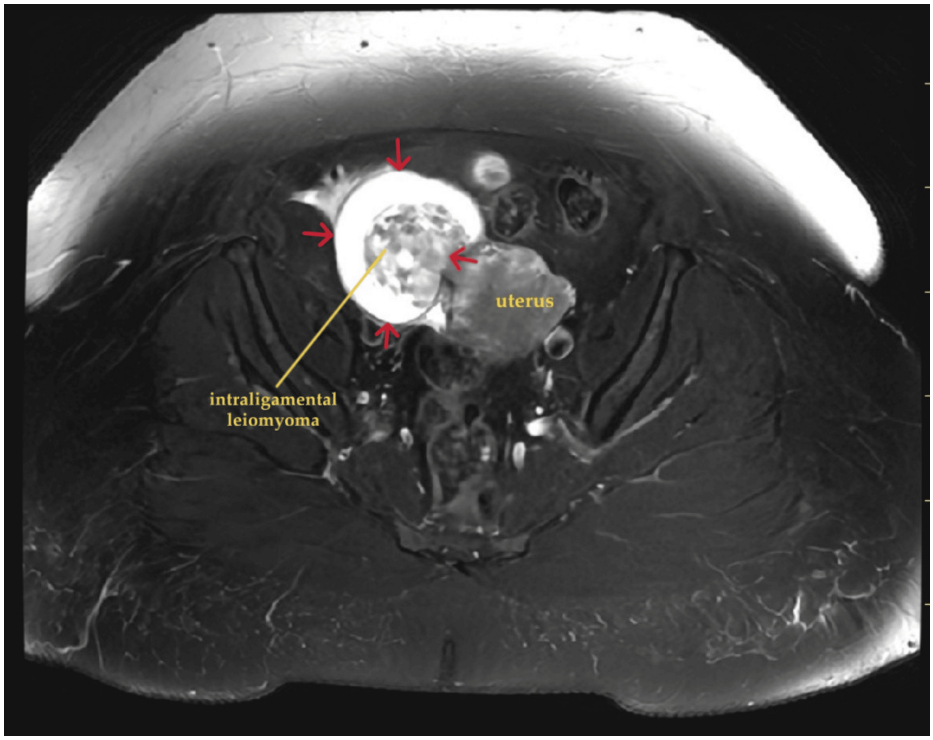



**FIGURE 2: Magnetic resonance imaging of a cystically degenerated intraligament uterine leiomyoma.**

A large, well-circumscribed mass with markedly heterogeneous characteristics is evident in the right parametrium (red arrows).

Laboratory tests performed on admission showed borderline-elevated inflammatory markers. Tumor markers were within normal limits (Table *1*).

| Laboratory test | Day of arrival at the ED | 2nd day of hospitalization | 1st postoperative day | 3th postoperative day | Normal laboratory values |
|---|---|---|---|---|---|
| Hematocrit | 34.1% | 35.2% | 29.1% | 28.9% | 37.7–49.7% |
| Hemoglobin | 11.2 g/dL | 11.4 g/dL | 9.4 g/dL | 9.1 g/dL | 11.8–17.8 g/dL |
| Platelet count | 224 × $10^3$/mL | 213 × $10^3$/mL | 195 × $10^3$/mL | 215 × $10^3$/mL | 150–350 × $10^3$/mL |
| WBC | 12.1 × $10^3$/mL | 9.8 × $10^3$/mL | 17.1 × $10^3$/mL | 7.8 × $10^3$/mL | 4–10.8 × $10^3$/mL |
| Neutrophils | 79.1% | 74.1% | 89.2% | 66.9% | 40–75% |
| CRP | 3.55 mg/dL | 1.2 mg/dL | - | - | <0.7 mg/dL |
| aPTT | 29.4 seconds | 30.1 seconds | - | 29.1 seconds | 24.0–35.0 seconds |
| INR | 1.01 | 0.97 | - | 0.93 | 0.8–1.2 |
| Fibrinogen | 457 mg/dL | 356 mg/dL | - | 273 mg/dL | 200–400 mg/dL |
| Glucose | 98 mg/dL | 85 mg/dL | 87 mg/dL | 84 mg/dL | 75–115 mg/dL |
| Creatinine | 0.55 mg/dL | 0.58 mg/dL | 0.57 mg/dL | 0.51 mg/dL | 0.40–1.10 mg/dL |
| $K^+$ | 4.11 mmol/L | 3.98 mmol/L | 4.21 mmol/L | 4.15 mmol/L | 3.5–5.1 mmol/L |
| $Na^+$ | 139.1 mmol/L | 139.2 mmol/L | 138.9 mmol/L | 142.4 mmol/L | 136–145 mmol/L |
| Total bilirubin | 0.67 mg/dL | - | - | - | 0.3–1.2 mg/dL |
| Direct bilirubin | 0.08mg/dL | - | - | - | 0.0–0.5 mg/dL |
| Indirect bilirubin | 0.29mg/dL | - | - | - | 0.0–0.7 mg/dL |
| SGOT | 21 IU/L | - | - | - | 5–33 IU/L |
| SGPT | 27 IU/L | - | - | - | 10–37 IU/L |
| Amylase | 19 IU/L | - | - | - | 30–118 IU/L |
| CEA | 3.1 ng/mL | - | - | - | <5 ng/mL |
| CA125 | 23.6 U/mL | - | - | - | ≤35 U/mL |
| CA15-3 | 14.4 U/mL | - | - | - | 0.0–31.3 U/mL |
| CA19-9 | 13.8 U/mL | - | - | - | 0.0–37 U/mL |

**TABLE 1: Results of the laboratory tests performed during the preoperative and postoperative evaluation of the patient.**

ED: emergency department; WBC: white blood cells; CRP: C-reactive protein; aPTT: activated partial thromboplastin time; INR: international normalized ratio; $K^+$: potassium; $Na^+$: sodium; SGOT: serum glutamic-oxaloacetic transaminase; SGPT: serum glutamate-pyruvate transaminase; CEA: carcinoembryonic antigen; CA125: cancer antigen 125; CA15-3: cancer antigen 15-3; CA19-9: cancer antigen 19-9

Following administration of intravenous antibiotic therapy with the second-generation cephalosporin cefoxitin (Mefoxil®), at a dose of 2 g every eight hours, and normalization of the inflammatory markers on the second day of hospitalization, exploratory laparotomy was scheduled. Intraoperatively, a large broad-ligament mass was identified in the right parametrium, between the leaves of the broad ligament. The mass had a smooth external surface and a fibroelastic consistency (Figure *3*).

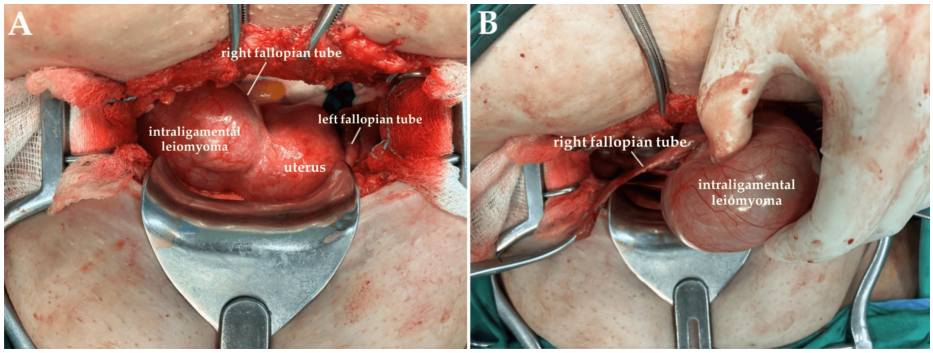



**FIGURE 3: Intraoperative imaging of a cystically degenerated intraligament uterine leiomyoma.**

(A) A large intraligament tumor causing significant displacement of the uterus and adnexa is evident. (B) The cystic and fibroelastic consistency of the tumor is readily visible after its enucleation from the broad ligament.

With the patient's consent, following enucleation of the leiomyoma, total hysterectomy with bilateral salpingo-oophorectomy was performed. Microscopic histopathological examination revealed a broad-ligament uterine leiomyoma with hydropic-cystic degeneration, stromal hyalinization, and mild cellularity, without atypia or mitotic figures (Figure *4*).

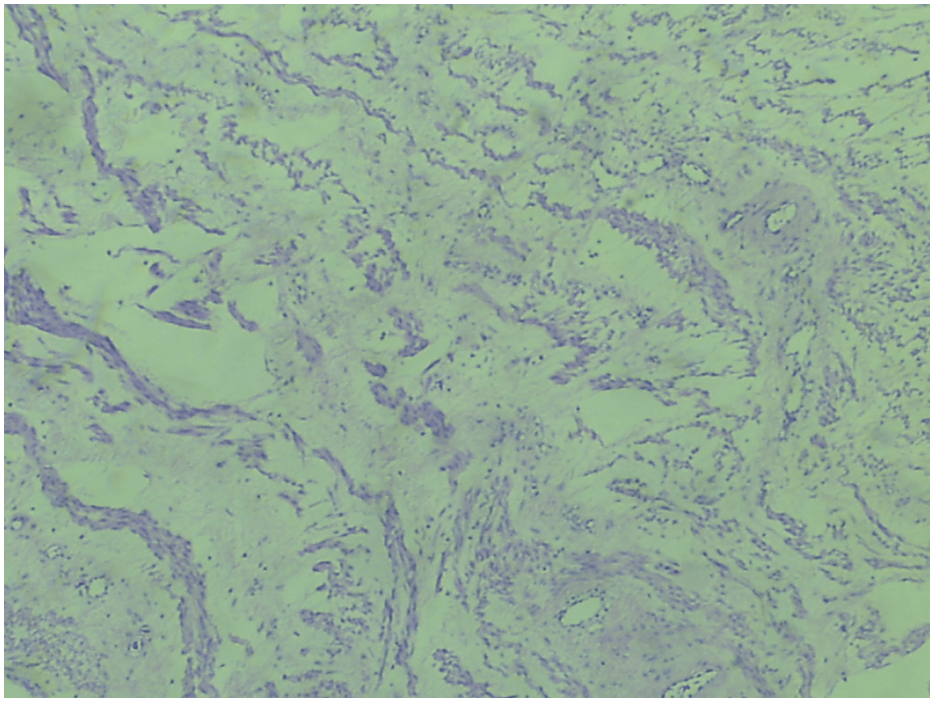


**FIGURE 4: Histological appearance of a cystically degenerated intraligament uterine leiomyoma.**

The degenerative changes within the tumor are readily identifiable (hematoxylin and eosin staining, magnification ×10).

The specimens were also subjected to immunohistochemical analysis (Figure *5*).

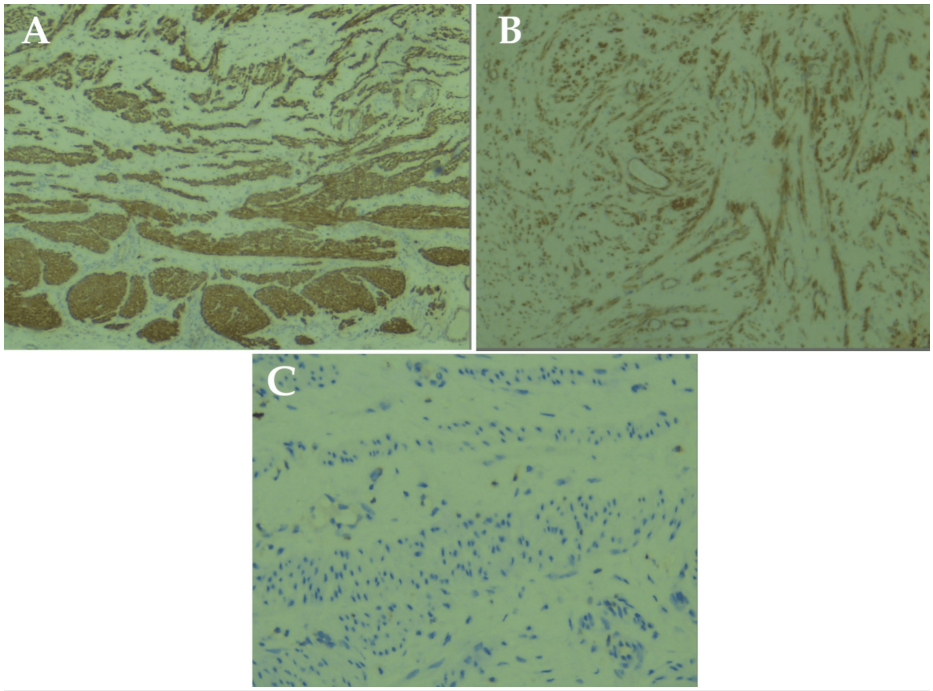



**FIGURE 5: Immunohistochemical images of a cystically degenerated intraligament uterine leiomyoma.**

(A) Smooth muscle actin positivity (magnification ×10). (B) Desmin positivity (magnification ×10). (C) Ki-67 negativity (magnification ×40).

Following an uneventful postoperative course, the patient was discharged from the department on the fourth postoperative day.

## Discussion

The preoperative diagnosis of uterine leiomyomas arising in unusual locations may represent a significant diagnostic challenge. The clinical features of intraligament uterine leiomyomas are usually nonspecific. Mass-effect symptoms resulting from compression of adjacent organs, such as progressive abdominal distension, atypical abdominal pain, dyspepsia, urinary frequency, constipation, hydronephrosis, and poor appetite over several months, may characterize intraligament uterine leiomyomas, particularly those of considerable size [9,10]. Our case illustrates such a diagnostic pitfall: it highlights the difficulty that may be caused by a large broad-ligament uterine leiomyoma with extensive cystic degeneration, particularly when it presents with nonspecific or atypical clinical features that may initially and erroneously direct diagnostic consideration toward cystic adnexal pathology.

Furthermore, the preoperative diagnosis of cystically degenerated intraligament uterine leiomyomas based on ultrasonography, computed tomography, and MRI presents particular difficulties and may initially easily lead to an incorrect diagnostic impression. On imaging, extensive cystic degeneration may alter the typical morphology of a leiomyoma as a well-circumscribed, solid, hypoechoic mass. Consequently, a large, septated pelvic mass with mixed solid and cystic components may develop, which may be attributed to an ovarian origin, particularly when the ovaries cannot be clearly identified separately from the lesion [11,12]. In this patient's case, it is therefore not surprising that imaging did not facilitate the preoperative diagnosis. The atypical, non-characteristic ultrasonographic morphology of the uterine leiomyoma due to extensive cystic degeneration, together with the inability to clearly demonstrate anatomical continuity between the leiomyoma and the myometrium or to define its relationship with the ipsilateral ovary, erroneously led to a preoperative diagnosis of a cystic ovarian mass. Similarly, on MRI, the predominance of cystic components hindered recognition of the relationship between the leiomyoma and the myometrium and prevented the unequivocal confirmation of its uterine origin. In addition, the close anatomical proximity of the uterine leiomyoma to the ipsilateral ovary resulted in considerable imaging overlap with a cystic ovarian mass, making the preoperative differential diagnosis difficult.

The therapeutic strategy for large intraligament uterine leiomyomas with extensive cystic degeneration should be individualized. High-quality evidence supporting the management of these patients is lacking. Preoperative imaging aimed at accurately determining the origin of the leiomyoma, its relationship to the ovaries, ureters, and uterine and iliac vascular structures, as well as assessing features that increase

suspicion of uterine sarcoma, is considered essential in every case [13,14]. Individualized surgical excision of the leiomyoma by experienced surgeons at a specialized center, with selection of a laparoscopic, robotic, or open approach according to tumor size and the patient's desire to preserve fertility, is feasible even for giant tumors [15,16]. Laparoscopic myomectomy performed by an experienced surgical team may be undertaken even for large broad-ligament leiomyomas, although it represents a considerable technical challenge [17]. In the case of our patient, who was of postmenopausal age and had a symptomatic intraligament uterine leiomyoma measuring approximately 7 cm in diameter with extensive cystic degeneration, total hysterectomy via an abdominal approach was considered the most appropriate definitive treatment. The absence of a desire to preserve fertility further supported removal of the uterus. Moreover, the presence of extensive degenerative changes in a patient of postmenopausal age makes complete surgical excision and histological confirmation of the diagnosis particularly important. The abdominal approach was selected because laparoscopic surgery was not available in our hospital.

## Conclusions

Leiomyomas of the uterine corpus and cervix are the most common benign tumors of the female reproductive system. Large intraligament uterine leiomyomas are rare, particularly those associated with extensive cystic degeneration, as in our patient. In such atypical presentations, the unusual tumor location may mimic a cystic ovarian mass, leading to preoperative diagnostic uncertainty and potentially serious diagnostic errors.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Ioannis Thanasas, Zoe Kotoula

**Acquisition, analysis, or interpretation of data:** Ioannis Thanasas, Zoe Kotoula, Efthymia Thanasa, Anna Thanasa, Vasiliki Koutsia, Iliana Kotoula, Konstantina Thymikiotou, Ioannis Paraoulakis, Georgios Toulios, Evangelos Kamaretsos

**Drafting of the manuscript:** Ioannis Thanasas, Zoe Kotoula, Efthymia Thanasa, Anna Thanasa, Vasiliki Koutsia, Iliana Kotoula, Konstantina Thymikiotou, Ioannis Paraoulakis, Georgios Toulios, Evangelos Kamaretsos

**Critical review of the manuscript for important intellectual content:** Ioannis Thanasas

**Supervision:** Ioannis Thanasas

### Disclosures

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## References

1. Ben Ismail I, Zenaidi H, Mlika M, Amari R, Sghaier M, Rebii S, Zoghlami A: Uterine leiomyoma mimicking a gastrointestinal stromal tumor: a diagnostic pitfall of CD117 positivity - case report and review of the literature. BMC Womens Health. 2026, 26:235. 10.1186/s12905-026-04427-w
2. Giuliani E, As-Sanie S, Marsh EE: Epidemiology and management of uterine fibroids . Int J Gynaecol Obstet. 2020, 149:3-9. 10.1002/ijgo.13102
3. Vannuccini S, Petraglia F, Carmona F, Calaf J, Chapron C: The modern management of uterine fibroids-related abnormal uterine bleeding. Fertil Steril. 2024, 122:20-30. 10.1016/j.fertnstert.2024.04.041
4. Lakabi R, Harth S, Meinhold-Heerlein I, Olsthoorn AV, Munro MG, Murji A: Diagnosis and classification of uterine fibroids. Int J Gynaecol Obstet. 2025, 171:566-73. 10.1002/ijgo.70538
5. Munro MG, Critchley HO, Fraser IS: The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years: 2018 revisions. Int J Gynaecol Obstet. 2018, 143:393-408. 10.1002/ijgo.12666
6. Di Giuseppe J, Natalini L, Bordini M, et al.: Diagnosis, treatment and clinical outcomes of extrauterine sites of leiomyomatosis: a systematic review. Ann Med. 2025, 57:2546681. 10.1080/07853890.2025.2546681
7. O'Dell CN, McCadams JS: Extrauterine leiomyoma of the sigmoid colon mimicking an adnexal mass . Cureus.

2025, 17:e89842. 10.7759/cureus.89842
8. Thanasa E, Thanasa A, Grapsidi V, et al.: Primary large broad ligament fibroid: a challenge in surgical practice. Cureus. 2023, 15:e51415. 10.7759/cureus.51415
9. Thanasa A, Thanasa E, Kamaretsos E, et al.: Surgical treatment of a very rare case of a huge intraligamental leiomyoma of the uterus: a case report and mini-review of the literature. Med Int (Lond). 2024, 4:2. 10.3892/mi.2023.126
10. Lee CY, Chen CH: Huge intraligamental leiomyoma: two cases and review of the literature . Asian J Surg. 2021, 44:1622-4. 10.1016/j.asjsur.2021.08.073
11. Naz Masood S, Masood Y, Mathrani J: Diagnostic dilemma in broad ligament leiomyoma with cystic degeneration. Pak J Med Sci. 2014, 30:452-4. 10.12669/pjms.302.4361
12. Jha S, Singh A, Singh S, Murmu S: Huge broad ligament leiomyoma with cystic degeneration: a diagnostic and surgical challenge. J Obstet Gynaecol Res. 2020, 46:791-4. 10.1111/jog.14213
13. Raffone A, Raimondo D, Neola D, et al.: Diagnostic accuracy of MRI in the differential diagnosis between uterine leiomyomas and sarcomas: a systematic review and meta-analysis. Int J Gynaecol Obstet. 2024, 165:22-33. 10.1002/ijgo.15136
14. Saida T, Ueda T, Kurihara M, Kumazawa M, Shitano F, Fujii S: MRI for diagnosing uterine sarcoma: a systematic review and meta-analysis. Jpn J Radiol. 2026, 44:976-86. 10.1007/s11604-026-01952-4
15. Huang X, Yao Q, Wu YC, Liu SC: Diagnostic and surgical management of giant broad ligament myoma with cystic degeneration: a case report. World J Clin Cases. 2025, 13:108923. 10.12998/wjcc.v13.i27.108923
16. Aljoudeh J, Deeb A, Ranjous Y, Alahmad M, Al Haj Diab S, Abo Moughdeb A, Adwan D: Fertility preservation in a large broad ligament leiomyoma: a case report. J Med Case Rep. 2025, 19:318. 10.1186/s13256-025-05384-y
17. Paredes JS, Lee CL, Chua PT: Myomectomy: choosing the surgical approach - a systematic review . Gynecol Minim Invasive Ther. 2024, 13:146-53. 10.4103/gmit.gmit_152_23