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The boon of early detection: Managing a rapidly enlarging postmenopausal uterine fibroid

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Abstract
Background: Uterine leiomyomas are common benign smooth muscle tumors in women of reproductive age, but their occurrence or enlargement after menopause is rare and clinically concerning. Rapidly growing uterine masses in postmenopausal women often raise suspicion for malignancy, particularly leiomyosarcoma.
Objective: To present a case of a large, rapidly enlarging postmenopausal uterine fibroid mimicking malignancy and to highlight the importance of early detection, imaging evaluation, and surgical management.
Methods: A 46-year-old postmenopausal woman presented with a six-month history of progressive abdominal distension and heaviness at Department of Obstetrics and Gynaecology, Parvathy Multispeciality Hospital, Chromepet, Chennai, Tamil Nadu. Clinical, radiological, and histopathological assessments were performed to establish the diagnosis.
Results: Imaging revealed a large (15.5 × 11.6 cm) mass arising from the right lateral uterine wall, with features suggestive of degenerating leiomyoma. The patient underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO). Histopathological analysis confirmed a benign intramural leiomyoma with cystic and fatty degeneration, without evidence of sarcomatous changes. The postoperative course was uneventful, and the patient remained asymptomatic on follow-up.
Conclusion: Uterine leiomyomas are rare in postmenopausal women, but when they enlarge rapidly, malignancy must be ruled out. Early imaging and timely surgical intervention are crucial for accurate diagnosis and favorable outcomes.

Keywords: Postmenopausal fibroid, uterine leiomyoma, leiomyosarcoma, hysterectomy, degenerative changes, early detection, magnetic resonance imaging

Introduction

Background

Leiomyoma, commonly known as uterine fibroid, is one of the most frequent benign tumors affecting women of reproductive age, with an estimated prevalence of 40-50% in women older than 35 years. The tumor's growth is primarily estrogen-dependent, which explains why fibroids usually regress after menopause due to the permanent loss of ovarian function. Therefore, any rapid enlargement of a uterine mass during the postmenopausal period should raise suspicion for leiomyosarcoma until proven otherwise.

The definitive management of such cases typically involves elective hysterectomy followed by histopathological confirmation. Here, we report a case of a 46-year-old postmenopausal woman presenting with a massive abdomino-pelvic mass that demonstrated rapid growth, initially raising clinical suspicion of malignancy but ultimately confirmed as a benign degenerating leiomyoma.

Uterine leiomyomas, or fibroids, are benign smooth muscle tumors of the uterus that constitute one of the most frequent gynecological pathologies among women of reproductive age. Their development is predominantly influenced by estrogen and progesterone, which explains the tendency of fibroids to regress after menopause. The reported prevalence of uterine leiomyoma in women older than 35 years is approximately 40-50%, with a marked decline after menopause due to the cessation of ovarian hormonal function.

The persistence or rapid growth of a uterine mass in postmenopausal women is clinically significant, as it raises the differential diagnosis of leiomyosarcoma, a rare but aggressive uterine malignancy. Although benign fibroids are common in premenopausal women, their presence in postmenopausal patients often presents diagnostic challenges due to overlapping imaging and

clinical features with malignant lesions.

Several factors, including peripheral aromatization of androstenedione to estrone in adipose tissue and the presence of growth factors such as insulin-like growth factor and epidermal growth factor, may contribute to fibroid persistence or enlargement after menopause. As the tumor enlarges, it may undergo degenerative changes most commonly hyaline, cystic, or fatty degeneration due to insufficient vascular supply.

Early identification and surgical management are crucial for preventing complications and for differentiating benign from malignant uterine tumors. This study presents a case of a 46-year-old postmenopausal woman with a rapidly enlarging uterine fibroid mimicking malignancy and emphasizes the significance of early detection and histopathological evaluation in management.

Materials and Methods

Study Design

This is a single case-based clinical observation conducted in a tertiary care hospital setting. The patient was evaluated, diagnosed, and treated as part of routine clinical care. Written informed consent was obtained for clinical management and use of anonymized data for publication.

Patient Profile

A 46-year-old postmenopausal Indian woman (gravida 2, para 2) presented to the Department of Obstetrics and Gynaecology, Parvathy Multispeciality Hospital, Chromepet, Chennai, Tamil Nadu with progressive abdominal distension and heaviness over the preceding six months. There was no associated weight loss, abnormal bleeding, gastrointestinal symptoms, or family history of gynecological malignancy.

Clinical Examination

On general examination, the patient's vital signs were stable. Abdominal palpation revealed a firm, smooth, non-tender abdomino-pelvic mass corresponding to a 28-week-sized gravid uterus, arising from the pelvis and slightly mobile transversely. No ascites or lymphadenopathy was detected. Gynecological examination confirmed a normal cervix and vulva, while the uterus could not be palpated separately from the mass.

Investigations

- **Ultrasonography (USG):** Revealed a well-defined solid-cystic multi-septated mass measuring 15 × 12.3 cm, with good vascularity, suggesting possible ovarian origin.
- **Magnetic Resonance Imaging (MRI):** Showed a large (15.5 × 11.6 cm) well-circumscribed mass arising from the right lateral uterine wall, consistent with a degenerating leiomyoma.
- **Laboratory Tests:** Complete blood count, renal and liver function tests, and serum CA-125 (25.1 U/mL) were within normal limits.

Surgical Procedure

After preoperative optimization and counseling, the patient underwent exploratory laparotomy via a vertical midline incision. Intraoperatively, a large intramural fibroid was found occupying most of the abdominal cavity. Total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO) was performed, and peritoneal washings were sent for cytology.

Histopathological Examination

Gross examination revealed an 18 × 14 × 13 cm intramural uterine fibroid weighing 3.5 kg. The cut surface showed areas of cystic and fatty degeneration. Histopathological analysis confirmed benign leiomyoma with no evidence of malignancy or sarcomatous transformation. Bilateral adnexa were normal.

Case Presentation

A 46-year-old postmenopausal Indian woman, gravida 2 para 2, with two previous normal vaginal deliveries, presented with complaints of a progressively enlarging abdominal lump and heaviness for the past six months. The patient ignored her symptoms initially and did not seek medical attention. There were no associated symptoms such as weight loss, gastrointestinal disturbance, respiratory difficulty, or postmenopausal bleeding. She had attained menopause two years earlier and had no history of hormone therapy or family history of breast, ovarian, or endometrial malignancy.

On general examination, she appeared overweight with a Body Mass Index (BMI) of 28 kg/m², and her vital signs were stable. Abdominal examination revealed a distended abdomen due to a large abdomino-pelvic mass corresponding to a 28-week-sized uterus, arising from the pelvis. The mass was firm, smooth, non-tender, and slightly mobile transversely, with dullness on percussion. No shifting dullness was present, suggesting the absence of ascites.

Gynecological examination confirmed an abdomino-pelvic mass corresponding to a 28-week-sized gravid uterus; the external genitalia and cervix appeared normal, and the uterus could not be palpated separately.

Ultrasonography demonstrated a well-defined, cystic, solid, multi-septated mass in the lower abdomen measuring 15 × 12.3 cm. The bilateral ovaries and uterus were not visualized separately. The mass exhibited good vascularity, initially suggesting an ovarian neoplasm. Magnetic resonance imaging (MRI) further revealed a well-defined globular lesion measuring 15.5 × 11.6 cm, arising from the right lateral uterine wall, consistent with a large degenerating uterine leiomyoma. However, owing to its rapid enlargement, a provisional diagnosis of uterine leiomyosarcoma was made.

Routine hematological and biochemical investigations were within normal limits, including a serum CA-125 level of 25.1 U/mL. After obtaining informed consent and ensuring the availability of blood products, the patient underwent exploratory laparotomy through a vertical midline incision.

Intraoperatively, a large intramural fibroid arising from the uterine wall was observed, occupying most of the abdominal cavity. Peritoneal washings were collected, and a total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO) was performed.

The postoperative period was uneventful, and the patient made a satisfactory recovery. Gross examination revealed an 18 × 14 × 13 cm intramural fibroid weighing approximately 3.5 kg. The cut surface showed fibro-fatty and cystic degeneration, and histopathology confirmed benign leiomyoma with no evidence of sarcomatous changes. Bilateral adnexa were normal, and peritoneal cytology was negative for malignant cells.

Discussion

Uterine leiomyomas are benign smooth muscle tumors of monoclonal origin, containing varying proportions of fibrous connective tissue. They are most commonly encountered during reproductive years and are extremely uncommon after menopause. The persistence or enlargement of fibroids after

menopause is rare but may occur due to stimulation from estrone, insulin-like growth factor, or epidermal growth factor.

In postmenopausal women with obesity, peripheral aromatization of adrenal androstenedione into estrone can lead to continued stimulation of fibroid growth. As fibroids enlarge, they may outgrow their blood supply, resulting in various degenerative changes such as hyaline (63%), myxomatous (13%), calcific (8%), mucoid (6%), cystic (4%), carneous (3%), and fatty (3%) degeneration. The exact mechanism of postmenopausal fibroid degeneration remains unclear but may involve increased local production of growth factors by the tumor itself.

Although malignant transformation into leiomyosarcoma is exceedingly rare (<1%), it remains a critical differential diagnosis, as clinical and radiological features often overlap. Hence, any rapidly enlarging postmenopausal fibroid warrants prompt evaluation and definitive surgical intervention.

Ultrasonography remains the first-line diagnostic tool, particularly in resource-limited settings, due to its accessibility and cost-effectiveness. However, MRI provides superior characterization, delineating tissue composition and vascularity to help differentiate benign from malignant lesions. In this case, MRI accurately localized the tumor and guided surgical planning.

Histopathological evaluation remains the gold standard for definitive diagnosis. Management typically involves total abdominal hysterectomy, especially for postmenopausal women, to eliminate the risk of recurrence and rule out malignancy.

Results

The intraoperative findings revealed a large, well-encapsulated mass arising from the uterine wall, occupying almost the entire abdominal cavity. Upon exposure through a vertical midline incision, the tumor appeared smooth, firm, and pinkish-red, consistent with a large intramural fibroid.

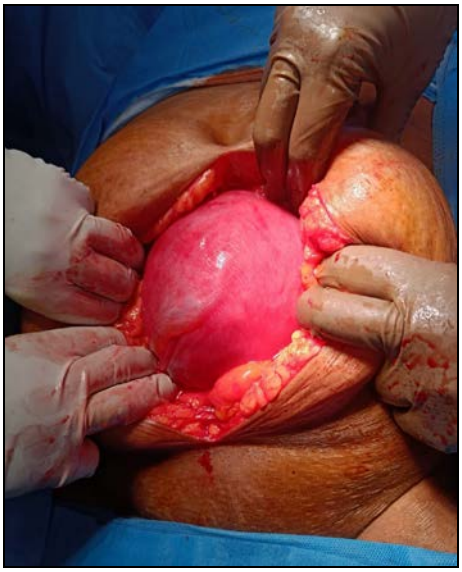

Fig 1: Intraoperative appearance of the uterine mass.

Following careful dissection and hemostasis, a total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO) was performed. The resected uterus contained a large intramural fibroid originating from the right lateral uterine wall.

Fig 2: Delivery of the fibroid mass intraoperatively.

Gross examination of the excised specimen revealed a globular uterine mass measuring 18 × 14 × 13 cm and weighing approximately 3.5 kg. The cut section showed extensive cystic and fatty degeneration, with no necrotic or hemorrhagic areas suggestive of malignancy.

Fig 3: Excised uterine specimen showing cystic and fatty degeneration.

Histopathological evaluation confirmed the diagnosis of benign leiomyoma with cystic and fatty degeneration. There was no evidence of sarcomatous transformation, and peritoneal wash cytology was negative for malignancy.

The patient had an uneventful postoperative recovery, was discharged on postoperative day seven, and remained asymptomatic at follow-up visits at six weeks, three months, and six months.

Analytical Data Presentation

To enhance analytical clarity, include the following visual elements in this section:

Table 1: Preoperative and Postoperative Clinical Parameters

Parameter	Preoperative Value	Postoperative (Day 7)	Normal Reference Range
Hemoglobin (g/dL)	11.2	12.5	11-15
WBC count (cells/mm³)	6,800	7,200	4,000-11,000
Serum CA-125 (U/mL)	25.1	—	<35
BMI (kg/m²)	28.0	27.5	18.5-24.9

Table 2: Imaging Characteristics of the Uterine Mass

Imaging Modality	Findings	Interpretation
Ultrasound	Solid-cystic, multi-septated mass (15 × 12.3 cm) with good vascularity	Suggestive of degenerating fibroid/ovarian neoplasm
MRI	Globular lesion (15.5 × 11.6 cm) arising from right uterine wall, heterogeneous signal	Degenerating intramural leiomyoma
Histopathology	Smooth muscle proliferation with cystic and fatty degeneration	Benign leiomyoma confirmed

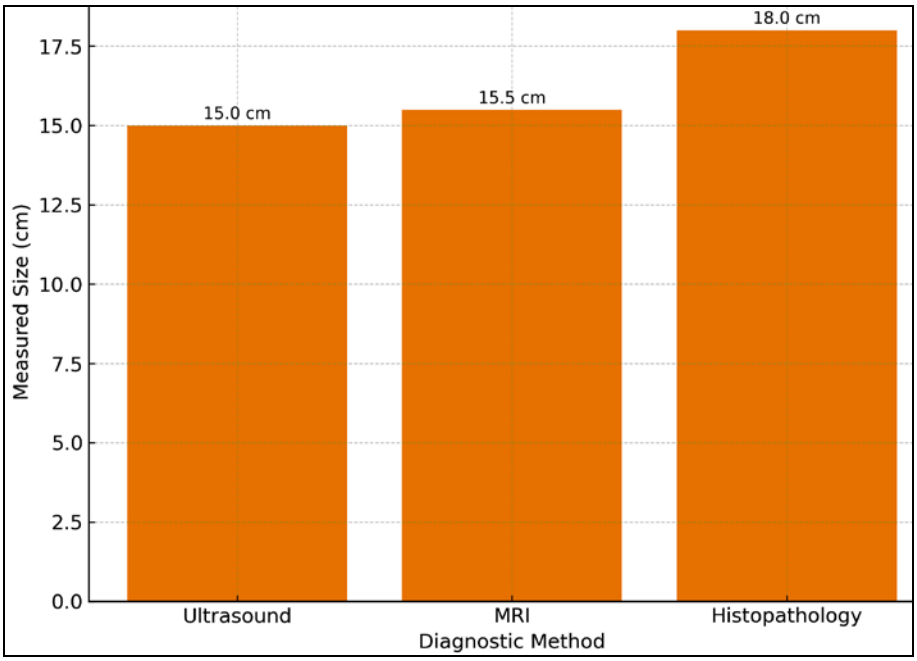

Fig 4: Comparative Analysis Graph of Uterine Fibroid Size (cm) by Imaging vs. Histopathology

Summary of Findings

- The imaging, intraoperative, and histopathological correlation confirmed a benign degenerating uterine leiomyoma.
- No intraoperative complications or malignancy indicators were identified.
- The postoperative outcome was favorable with full recovery.

Discussion

Uterine leiomyomas are benign smooth muscle tumors of monoclonal origin, containing varying proportions of fibrous connective tissue. They are most commonly encountered during reproductive years and are extremely uncommon after menopause. The persistence or enlargement of fibroids after menopause is rare but may occur due to stimulation from estrone, insulin-like growth factor, or epidermal growth factor.

In postmenopausal women with obesity, peripheral aromatization of adrenal androstenedione into estrone can lead to continued stimulation of fibroid growth. As fibroids enlarge, they may outgrow their blood supply, resulting in various degenerative changes such as hyaline (63%), myxomatous (13%), calcific (8%), mucoid (6%), cystic (4%), carneous (3%), and fatty (3%) degeneration. The exact mechanism of postmenopausal fibroid degeneration remains unclear but may involve increased local production of growth factors by the tumor itself.

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Histopathological evaluation remains the gold standard for definitive diagnosis. Management typically involves total abdominal hysterectomy, especially for postmenopausal women, to eliminate the risk of recurrence and rule out malignancy.

Conclusion

Uterine leiomyomas are uncommon after menopause, and any sudden enlargement in this age group should raise suspicion for malignancy. However, benign degenerative leiomyomas can mimic uterine sarcomas both clinically and radiologically. Early detection, accurate imaging, and timely surgical management are crucial in preventing unnecessary morbidity. Histopathology remains essential for definitive diagnosis.

This case emphasizes the value of early detection and surgical intervention in managing rapidly enlarging postmenopausal uterine masses demonstrating how prompt action can prevent complications and ensure favorable outcomes.

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