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Case Series

Broad ligament fibroid - clinical presentation and surgical challenges: a case series

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ABSTRACT

Uterine leiomyomas are benign monoclonal tumors originating from smooth muscle tissue. Their classification is based on anatomical location, with each type presenting unique surgical challenges, particularly in cases involving large, long-standing fibroids in atypical positions. These challenges often stem from limited access to the operative field, distorted pelvic anatomy, difficulty in performing surgical repairs, and increased risk of blood loss. Managing such complex fibroids requires both surgical expertise and refined technique, especially when performing intricate hysterectomies. In this case series of five patients, we examine the varied presentations of broad ligament fibroids, associated clinical findings, and the operative difficulties encountered. Tailored approaches are essential, as each fibroid type demands a specific surgical strategy. Preoperative imaging for fibroid mapping, along with ureteric stenting when indicated, plays a crucial role in minimizing intraoperative complications. Adherence to established surgical principles ensures optimal outcomes, reduces the risk of urinary tract injury, and helps control blood loss during surgery.

Keywords: Broad ligament fibroid, ureteric injury, Uterine fibroid

INTRODUCTION

Fibroids, also known as leiomyomas, are the most common pelvic tumors, occurring in approximately 20% of women of reproductive age. They consist of smooth muscle tissue interspersed with varying amounts of fibrous connective tissue. While they typically arise within the uterus, they can occasionally develop outside it. Extra-uterine fibroids are rare and may originate in broad ligament or in other locations where smooth muscle is present.^{1,2} Tumors of broad ligament are usually epithelial in origin, with mesenchymal tumors being less frequent. Among latter, leiomyomas are the most common. True incidence of broad ligament fibroids remains uncertain.

Symptomatic fibroids can manifest as abnormal uterine bleeding, pelvic pressure, pain, infertility, and obstetric complications. Diagnosis may be complicated by several

factors, including variations in fibroid size, location, number, and symptom profile; the overlap of fibroid-related symptoms with those of other conditions such as ovulatory dysfunction, endometriosis, or endometrial polyps; and the presence of asymptomatic fibroids that remain undetected until incidentally identified during examination or imaging.^{3,4}

Management should be individualized, taking into account symptom severity, fibroid size and location, the patient's age, fertility preservation goals, uterine conservation, treatment availability, and experience of treating clinician. Symptomatic uterine fibroids can be managed medically, surgically, or through a combination of both approaches.⁵

Surgical intervention for large, long-standing fibroids in atypical locations presents unique challenges. These include limited access to the operative field, difficulty in

achieving secure repair, increased blood loss, and distorted anatomy. Successfully removing such fibroids or performing complex hysterectomies in these settings requires both skill and surgical artistry.

CASE SERIES

Case 1

A 48-year-old woman presented with progressive abdominal distension and pain over the past six months, accompanied by menorrhagia for the last three months. She denied experiencing weight loss, anorexia, fever, or any bowel or bladder disturbances. On physical examination, she was afebrile with a pulse rate of 78/min and blood pressure of 130/90 mmHg. Abdominal palpation revealed a firm, non-tender pelvic mass equivalent to a 14-week gestational size, with irregular margins.

Speculum examination showed a healthy cervix and vagina. On bimanual vaginal examination, the mass was noted to displace the cervix to the left, with fullness in the fornices but no associated tenderness. Routine blood investigations were within normal limits. Her serum CA-125 level was 18.10 IU/ml (normal <35 IU/ml).

Abdominal ultrasonography revealed a well-defined midline lesion measuring 10×10×12 cm with mixed echogenicity and moderate to marked internal vascularity. The uterus was displaced to left, and right ovary was not visualized separately from the mass. Associated findings included right-sided hydronephrosis and hydroureter, suggestive of ureteric compression. Presumptive diagnosis of broad ligament fibroid was made.

The patient underwent exploratory laparotomy. Intraoperatively, a vascular abdominopelvic mass measuring approximately 10×10×12 cm was identified, originating from the right side of the uterus and pushing it to the left. The right ovary, left fallopian tube, and left ovary appeared normal. The mass had adhesions to the small bowel and omentum. Due to distortion of pelvic anatomy, meticulous dissection was performed to avoid ureteric injury. The mass was excised along with a total hysterectomy and bilateral salpingo-oophorectomy. One pint of blood was transfused intra-operatively and post-operatively. The patient's post-operative recovery was uneventful.

Gross pathological examination revealed solid, fleshy areas interspersed with cystic regions containing hemorrhagic fluid. Histopathological analysis confirmed the diagnosis of leiomyoma.

Case 2

A 43-year-old female came with complaints of pain abdomen since the last 3 months. On clinical examination, she had abdominopelvic mass corresponding to 14-week uterine size, firm in consistency. On per speculum

examination there was cervical erosion and vagina appeared healthy. Per vaginal examination showed the cervix was pushed to the left side, firm mass was felt in the right fornix 10×10 cm, uterus was felt separately.

On USG, 14×10×11 cm echogenic lesion suggestive of right broad ligament fibroid was noted. She underwent total hysterectomy and bilateral salpingo-oophorectomy, 13×11×11cm right broad ligament fibroid was noted. The intraoperative and postoperative period was uneventful. The histopathology suggested leiomyoma with hyaline and myxoid changes.

Case 3

A 44-year-old female came with complaints of mass per abdomen since the last 1 year. On clinical examination, she had abdominopelvic mass corresponding to 36-week uterine size, firm in consistency. On per speculum examination, cervical and vagina appeared healthy. Per vaginal examination showed the cervix was pulled up and pushed to the left side, right fornix fullness was present, firm mass was felt in the right and the posterior fornix.

On USG, 30×30×26 cm echogenic lesion suggestive of right broad ligament fibroid was noted. CT scan showed 30×30×26 cm large mass in the pelvis extending superiorly into the abdomen displacing the bowel loops, suggestive of right broad ligament fibroid. Preoperative DJ stenting was done. She underwent total hysterectomy and bilateral salpingo-oophorectomy, 25×25×30 cm right broad ligament fibroid was noted. Two-pint PRBC was transfused. The histopathology suggested leiomyoma with cystic and degenerative changes.

Case 4

A 47-year-old peri-menopausal female came with complaints of continuous bleeding per vagina since the last 1 month. On clinical examination, she had abdominopelvic mass corresponding to 18-week uterine size, firm in consistency. On per speculum examination, cervix and vagina appeared healthy, bleeding was present. Per vaginal examination showed uterus corresponding to 18-week size with multiple fibroids of variable sizes. A non-tender firm mass in the right fornix 12×10 cm size was noted.

On USG, 12×12×7 cm of uterine size with multiple fibroids of different sizes in all the walls, endometrial thickness 7 mm and 12×10 cm echogenic lesion with areas of necrosis in right adnexa was noted- suggestive of right broad ligament fibroid was noted. CT scan was done and USG findings were confirmed of broad ligament fibroid. She underwent total hysterectomy and bilateral salpingo-oophorectomy, fibroids of different sizes largest being 6×7 cm, broad ligament fibroid 10×12 cm with increased vascularity was seen. Post op period was uneventful. The histopathology suggested leiomyoma with no evidence of malignancy.

Case 5

A 45-year-old peri-menopausal female came with complaints of heavy menstrual bleeding since the last 6 months. On clinical examination, she had abdominopelvic mass corresponding to 20-week uterine size, firm in consistency. On per speculum examination cervix and vagina appeared healthy, bleeding was present.

Per vaginal examination showed the cervix was pushed to the left side, firm mass was felt in the right fornix 9×10×9 cm, uterus was felt separately.

On USG, 13×10×12 cm echogenic lesion suggestive of right broad ligament fibroid, with endometrial thickness 13 mm was noted. She underwent total hysterectomy and bilateral salpingo-oophorectomy, 13×10×12 cm right broad ligament fibroid was noted.

The intraoperative and postoperative period was uneventful. The histopathology suggested leiomyoma with no evidence of malignancy.

The clinical features of five patients are summarized in Table 1.

Table 1: Summary of five cases of broad ligament fibroid.

Variables	Case 1	Case 2	Case 3	Case 4	Case 5
Age (in years)	48	43	44	47	45
Symptoms	Pain abdomen since 6 months	Pain abdomen since 3 months	Mass abdomen since 1 year	Continuous bleeding per vagina since 1 month	Heavy menstrual bleeding since 6 months
Per abdomen	Mass 14 wk uterine size, firm consistency	Mass 14 wk uterine size, firm consistency	Mass 36 wk uterine size, firm consistency	Mass 18 wk uterine size	Mass 20 wk uterine size, firm consistency
Per speculum	Cervix and vagina healthy	Cervical erosion+, vagina healthy	Cervix and vagina healthy	Cervix and vagina healthy but bleeding+	Cervix and vagina healthy but bleeding +
Per vagina	Cervix pushed to left side, firm mass felt in right fornix 8×8 cm, uterus felt separately	Cervix pushed to left side, firm mass felt in right fornix 10×10 cm, uterus felt separately	Cervix pulled up and pushed to left side, right fornix fullness present, firm mass felt in the right and posterior fornix	Uterus 18 weeks size with multiple fibroids of variable sizes. A non-tender, firm mass in the right fornix 12×10 cm size	Cervix pushed to left side, firm mass felt in right fornix 9×10×9 cm, uterus felt separately
Ultrasonography	10×10×12 cm mixed echogenic lesion suggestive of right broad ligament fibroid	14×10×11 cm echogenic lesion suggestive of right broad ligament fibroid	30×30×26 cm echogenic lesion suggestive of right broad ligament fibroid	Uterine size 12×12×7 cm with multiple fibroids of different sizes in all the walls, endometrial thickness 7 mm and in right adnexa, a lesion 12×10 cm, with areas of necrosis within suggestive of broad ligament fibroid	13×10×12 cm echogenic lesion suggestive of right broad ligament fibroid. endometrial thickness 13 mm
CT scan	Not done	Not done	30×30×26 cm large mass in the pelvis extending superiorly into the abdomen displacing bowel loops suggestive of right broad ligament fibroid	Findings confirmed of broad ligament fibroid	Not done
Intraoperative findings	10×10×12 cm large broad ligament fibroid in right side, adherent to posterior uterine surface, TAH with BSO done	13×11×11 cm large right broad ligament fibroid, TAH with BSO done	Preop DJ stenting was done, 25×25×30 cm large right broad ligament fibroid, TAH with BSO done	Fibroids of different sizes largest being 6×7 cm. Broad ligament fibroid 10×12 cm with increased vascularity seen. TAH with BSO done	13×10×12 cm large right broad ligament fibroid, TAH with BSO done
Postoperative	Uneventful	Uneventful	2 PRBC transfused	Uneventful	Uneventful
Histopathology	Leiomyoma with no evidence of malignancy	Leiomyoma with hyaline and myxoid changes	Leiomyoma with cystic degenerative changes	Leiomyoma with no evidence of malignancy	Leiomyoma with no evidence of malignancy

DISCUSSION

Approximately half of all patients with fibroids remain asymptomatic, with diagnosis often occurring during routine physical examinations or pelvic imaging. Extra-uterine fibroids are relatively uncommon compared to uterine fibroids and may be found in locations such as the broad ligament, round ligament, cervix, or ovary.⁶ Broad ligament fibroids, in particular, can grow to substantial sizes and may clinically and radiologically resemble malignant pelvic tumors. For instance, in Case 3, the mass weighed 5 kg but was confirmed to be a benign broad ligament fibroid upon surgical exploration and histopathological analysis.^{7,8}

These fibroids may present as an abdominal lump, cause pressure-related symptoms, or lead to menstrual irregularities.^{1,9} In our case series, cases 4 and 5 experienced menstrual disturbances, while cases 1 and 2 reported abdominal pain and a sensation of heaviness. Broad ligament fibroids can also coexist with other gynecological conditions such as ovarian follicular cysts, endometrial hyperplasia (case 4 and 5), endometrial carcinoma, and endometriosis.^{9,10}

Diagnosing broad ligament fibroids remains challenging. The most effective imaging modalities include ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI). A helpful diagnostic feature is the “bridging vessel sign” seen on imaging. Transvaginal ultrasound is particularly useful, as it clearly delineates the uterus and ovaries from adjacent masses. MRI, with its multiplanar capabilities, is invaluable for distinguishing broad ligament fibroids from ovarian or tubal masses and cysts. Its characteristic imaging features also aid in differentiating fibroids from solid malignant pelvic tumors.⁸

Surgical management of broad ligament fibroids is complex due to their size and proximity to vital structures such as the ureters, intestines, and urinary bladder. Identifying the course of the ureters during surgery is critical to avoid injury. In case 1, extensive adhesions between the fibroid and surrounding tissues posed significant operative challenges. The large size of the mass complicated dissection (case 3), necessitating blood transfusions both during and after the procedure.

CONCLUSION

Understanding the altered anatomical landscape caused by fibroids is essential for successful surgical intervention. Thorough preoperative preparation plays a critical role, especially when dealing with atypical or complex fibroids. Medical therapy can help reduce fibroid size, making them more accessible and manageable during surgery.

Each type of fibroid requires a tailored surgical approach. Therefore, preoperative imaging for fibroid mapping, along with ureteric stenting when indicated, is vital to minimize the risk of inadvertent injury. Adhering to sound surgical principles in challenging cases not only ensures effective management but also helps safeguard the urinary tract and reduce intraoperative blood loss.

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