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Case Report

Stepwise approach to a large fibroid uterus in a nulliparous woman: a case report

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ABSTRACT

Leiomyomas are the most common benign pelvic tumour in the reproductive age women accounting for almost 20-25% incidence in general population. Leiomyomas are monoclonal tumours of the smooth muscle cells of the myometrium containing varying amount of fibrous tissue. A 45-year-old, unmarried, nulliparous woman presents with large distended abdominal swelling and heavy bleeding during her periods at a tertiary care hospital. This case report magnifies varying risk factors, diagnosis and management of large uterine fibroids and highlights joint diagnosis and decisions of gynaecologist, radiologist and pathologist. After putting forth various modes of treatment options, the definitive treatment was decided considering her age, severity of symptoms, that is fibroid impacting her quality of life and her future parity interest. This particular case showcases successful preoperative medical treatment, timely investigations and planned surgery for optimal patient outcome.

Keywords: Fibroids, Leiomyoma, Menorrhagia, Myomectomy, Abdominal hysterectomy

INTRODUCTION

Leiomyomas, generally called fibroids in layman language are the benign tumour of uterine myometrium.[1] They are monoclonal tumours of myometrium's smooth muscle cells and are made up of a lot of extra cellular matrices which include collagen, fibronectin and proteoglycan.[2] Prevalence of uterine fibroids is higher in women of reproductive age i. e., 14-45 years. The prevalence is almost as high as 20-40% in women of said age.[3] Almost 50% of the fibroid uterus are asymptomatic, which are diagnosed incidentally, requiring no medical intervention. Various risk factors contributing to fibroid uterus are increasing age, nulliparity, early menarche, obesity, family history, ethnicity, polycystic ovarian syndrome (PCOS), high fat diet and hormonal therapy. Clinically they present with wide range of symptoms, most commonly presenting as menorrhagia, dysmenorrhea, mass per abdomen, pelvic pain and anaemic features in severe cases. Other spectrum of symptoms includes urinary symptoms (frequency, incontinence, retention), constipation, dyschezia (painful defecation), dyspareunia (painful coitus), infertility, abortions and pregnancy complications.

Basic investigations like complete blood count give an idea of anaemic condition in patient, ultrasound abdomen and pelvis confirm the diagnosis, which is the most common investigation done and least expensive. Transvaginal sonography gives better resolution for pelvic tumours but transabdominal scan is required for large fibroid to image entire myoma and uterus.[1]

MRI is not done routinely but can be used for accurate assessment of size, number and in planning of surgery. In this report, we highlight the clinical presentation, radiological findings, surgical procedure, and postoperative treatment catered to this patient's particular need.

CASE REPORT

A 45-year-old, unmarried, nulliparous women presented with complaints of heavy bleeding during menstruation, constant backache, heaviness and pain lower abdomen on and off, difficulty to hold urine and decreased appetite since past 2 months. She also noticed a mass in her abdomen gradually increasing in size and reaching almost upto xiphisternum causing abdominal distension since past 7-8 months. Her menarche was at age 15 years and she had regular menstrual cycles at monthly intervals with heavy bleeding for 6 days. Patient was not sexually active and was not on any contraceptive pills. Patient had an insignificant past medical, surgical and social history. However, the patient had significant family history, where in her younger sister also had huge fibroid uterus (size: 15×14 cm, weight-1.69 kg) with similar complaints for which she underwent abdominal hysterectomy 2 years ago.

On general examination patient was thin built (undernourished) with weight 40.9 kilograms, height 145 cm and BMI of 19.47 kg/m^2, pallor +.

On per-abdominal examination, uterus of approximate 30-32 weeks gravid size noted. On palpation, a large irregular, firm to hard mass felt which was occupying almost whole of abdominal cavity. On per vaginal examination, there was a large irregular mass of size 32 weeks felt arising from the pelvis with restricted mobility, fullness of fornices and pinpoint cervix.

On further investigations, ultrasound abdomen revealed enlarged uterus with multiple fibroids, largest measuring 122×90 mm size in right fundal region and mild hydronephrosis seen in bilateral pelvicalcyeal system with dilated ureter upto the level of uterus. Due to heavy blood loss during periods, her hemoglobin dropped to 8.5 gm%. Her serum iron profile was done, serum iron (20 mcg/dL), serum ferritin (4.4 ng/mL) and Total iron binding capacity (502 mcg/dL). So intravenous iron therapy [Ferric carboxymaltose 1 gm] was given twice at one month interval to restore her hemoglobin level and iron stores preoperatively. After iron therapy her preoperative hemoglobin reached to 12.0 gm% (Table 1).

CT scan whole abdomen with contrast further showed Bulky uterus in size (180×102×160 mm) and multiple uterine fibroids, largest measuring 11×9×12 cm in anterior myometrium growing exophytically in fundal region. Largest fibroid showed cystic degeneration. Bulky uterus along with fibroids was seen compressing IVC with venous collaterals in right iliac fossa.

Patient was advised treatment possibilities, such as myomectomy and hysterectomy. Considering a large fibroid of 11×9×12 cm in anterior myometrium and other multiple fibroids scattered over various positions, solely myomectomy was difficult in this very case but having expert surgeon in team, she was given the option of myomectomy. After analysing various medical, ethical aspects and her age, patient willingly herself opted for total abdominal hysterectomy.

Table 1: Preoperative lab investigations of patient.

Test name	Results	Biological reference interval
Hemoglobin	8.5 gm%	12-16 gm%
WBC	4812/cumm	4000-11,000/cumm
Platelets	2,31,000/cumm	1,50,000-4,50,000/cumm
RBC morphology	Anisocytosis (+), hypochromia (+), microcytes (+)	
Prothrombin time	11.8 secs	9.3-13.6 secs
INR	1.03	0.9-1.3
HIV-I and II	Non-reactive	
HBsAg	Non-reactive	
Serum creatinine	0.52 mg/dL	0.5-1.2 mg/dL
Random blood glucose	88 mg/dL	70-140 mg/dL

Patient underwent exploratory laparotomy, abdomen opened through midline vertical incision gaining access to abdominal cavity. Uterus was bulky upto 32 weeks gravid size, irregular with multiple uterine fibroids and a large fibroid almost replacing the uterus noted in anterior fundal region which was approximately 15×9×12 cm. As fibroid was huge and uterus could not be accessed, skin incision was extended suprumblically upto 3 cm and uterus with fibroid delivered out after applying myoma screw. Total abdominal hysterectomy with bilateral salpingectomy done. Right ovary was seen adherent and stretched over fundal fibroid, which was cautiously dissected. Both ovaries were apparently healthy, hence preserved to prevent early menopausal changes. Uterus with fibroids removed, which weighed two kilograms. Intraoperative blood loss was around 350-400 ml which was satisfactory considering large fibroid and bulky uterus. Patient did not require any intra or postoperative blood transfusion (Figure 1 and 2).

Figure 1: Intraoperative uterus with multiple fibroids.

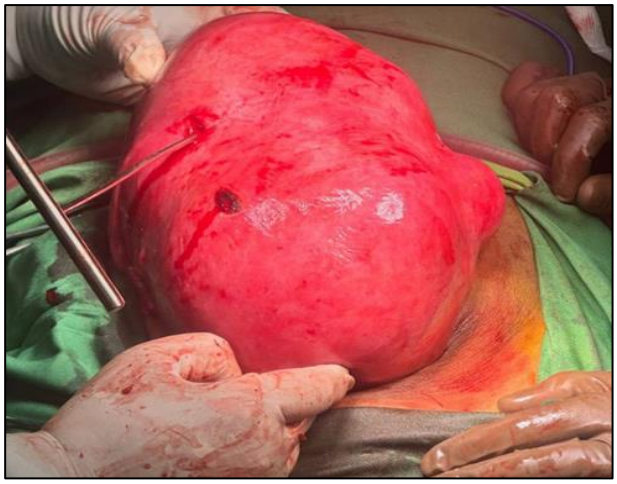

Figure 2: Large fundo anterior wall fibroid.

Cut section of the uterus with large fundo-anterior fibroid showed degenerative changes, rest myometrium seemed pink and no suspicious lesions of malignancy were noted (Figure 3 and 4).

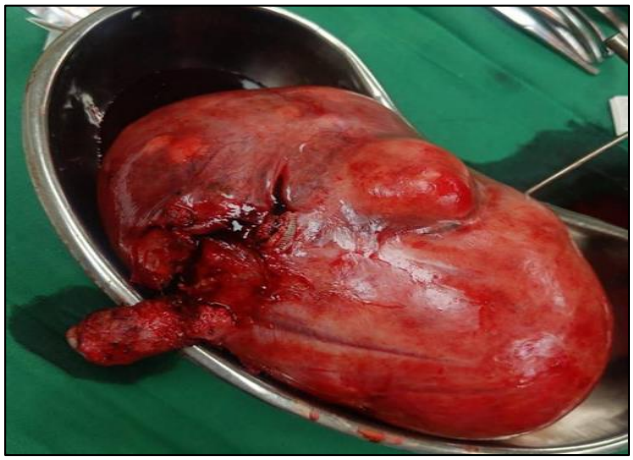

Figure 3: Specimen of uterus with multiple fibroids.

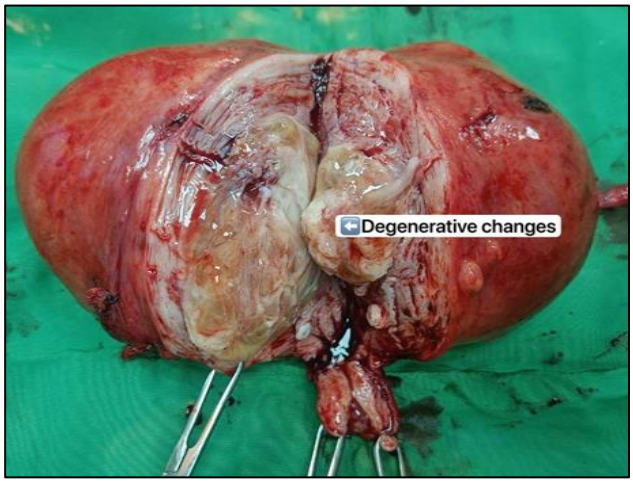

Figure 4: Cut section- large fibroid uterus with degenerative changes.

Uterus with fibroids and both fallopian tubes were sent for histopathology study.

Histopathological examination

On gross: Specimen on cut section showed Bulky uterus of approximate 8 weeks size with multiple fibroids 7-8 in number of variable sizes, varying from 1.5×0.5 cm to 15×12 cm. The largest fibroid was located at fundo-anterior wall of uterus. Cut surface showed well defined, whitish firm and whorled appearance.

On microscopy: Benign spindle cell lesion, exhibiting spindle cells arranged in intersecting fascicles with indistinct border, eosinophilic fibrillary cytoplasm and cigar shaped nuclei with small nucleoli was seen. Minimal nuclear atypia and focal hyaline degeneration noted. Significant mitotic activity and tumour necrosis was not seen. (Figure 5 and 6).

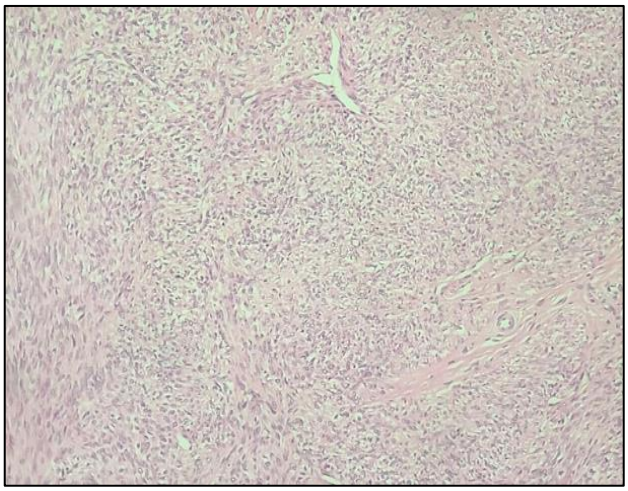

Figure 5: Histopathology slide: benign spindle cell lesion arranged in intersecting fascicles. H and E, ×100.

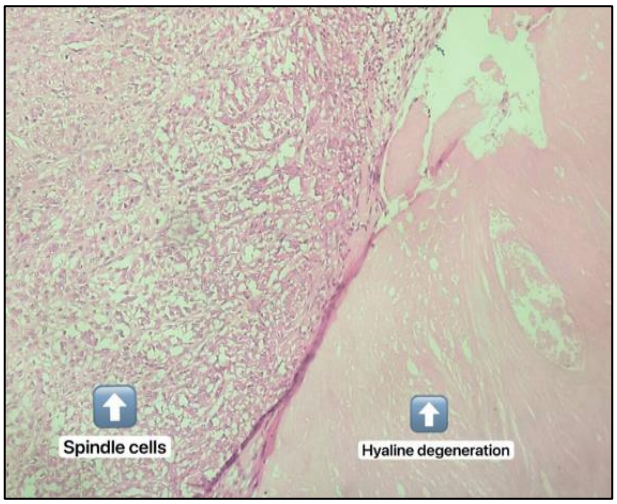

Figure 6: Histopathology slide of fibroid: showing hyaline degeneration, H and E, ×100.

Post operative course in hospital was uneventful. Patient was managed with routine post-operative protocol. She was discharged on 3rd post operative day, in good hemodynamic condition and was followed up in Outpatient department (OPD) for dressing and alternate stapler removal on 12th and 14th postoperative day. On follow up at 2 weeks post-surgery, she was well, had no complaints and her wound was healthy. Patient was relieved of all her symptoms and her quality-of-life improved post-surgery.

DISCUSSION

The uterine fibroid is the most common tumor of the female pelvis in the reproductive age group and one of the commonest causes of hysterectomy.[4] Leiomyomas are known to grow in response to both oestrogen and progesterone stimulation, and their prevalence rises throughout the reproductive years and is noticeably reduced after menopause. However, the etiology of leiomyomas in adolescents and adults is mostly unknown.[5] Oestrogen, progesterone and aromatase receptor concentrations have been found to be higher in fibroids than in healthy myometrial tissue.[6] Obesity, pregnancy, early menarche and exposure to exogenous oestrogen all commonly affect fibroid growth.[7] In our patient advanced age, nulliparity and family history were the contributing factors which might have led to multiple and excessive growth of fibroids. These tumours are well-known for being notoriously asymptomatic and most of the time found unintentionally during clinical examinations or during imaging.[8] As our patient was asymptomatic initially, her fibroids remained undiagnosed for a long time and hence size of the fibroids increased to this extent. This was because of lack of knowledge and awareness due to low educational status and social background of the patient.

It has also been proposed that the pathophysiology of uterine fibroids includes a hereditary component. Chromosome 6, 7, 12, and 14 mutations have been observed to occur frequently in uterine leiomyomas.[9] The incidence of leiomyomas has been found to be higher in African women, who also tend to have larger, younger-onset uterine leiomyomas that are more frequently accompanied by symptoms.[10,11] There is proof that, as compared to white women, African women experience uterine leiomyoma symptoms that are more severe due to the expression of aberrant genes.[10] In our patient there was a strong family history as her younger sister also had huge fibroid uterus for which she had undergone abdominal hysterectomy at our hospital 2 years ago.

Myomas may occur as a single lesion or as multiple lesions as reported in two-third of the cases, with variation in size from microscopic to large macroscopic extent.[12,13] In our patient there were multiple uterine fibroids ranging from 1.5×0.5 cm to 15×12 cm. Based on location, uterine fibroids are classified as intramural (inside the myometrium), sub-serosal (protruding from the uterus) and submucosal (bulging into the uterine cavity).[14,15] The number, size and location are influencing factors for treatment and symptoms of the fibroids.[15,5] The commoner symptomatology includes menstruation problems, pain in abdomen, urinary problems, constipation and bloating, pelvic and leg pain. For big fibroids, pressure symptoms supervene over bleeding problems. Our case presented with menorrhagia, constant backache, heaviness and pain lower abdomen with difficulty to hold urine and decreased appetite.

A pelvic examination is the first step in examining a lady who has a pelvic mass. Due to its accuracy, affordability, and accessibility, ultrasonography should be used as the initial diagnostic adjunct if leiomyoma is suspected.[16] Transvaginal ultrasonography which is highly sensitive in detecting uterine fibroids in 90-99% cases, has a small drawback where it fails to detect sub-serosal fibroids.[17] Although a CT scan may not be the preferred method, many myomas are detected incidentally by CT imaging.[18] The widespread clinical use of a CT scan lies in its availability, time saving, and comfortable use. Magnetic resonance imaging (MRI) is the gold standard for assessing pelvic soft tissue tumors, although it is not commonly used in areas with limited resources. [16] When uterine fibroids enlarge, they outgrow the blood supply, and undergo different types of degeneration such as hyaline, cystic, myxoid or red degeneration and dystrophic calcification.[19] Hyaline degeneration is the most common and is observed in upto 60% cases of Leiomyomas [20] as it was seen in our case. Cystic degeneration is observed in about 4% of fibroids.[20]

The treatment of these tumors depends on the symptoms, types, size, and location of the tumor as well as the patient's age, menopause, fertility, and facilities. The treatment of these tumors includes medical, surgical, and uterine artery embolization. Hormonal therapy comprises gonadotropin-releasing hormone agonists, single agent-progesterone suppression, and oral contraceptives.[21] Non-hormonal alternatives, including non-steroidal anti-inflammatory medications and tranexemic acid, are frequently coupled with hormonal treatment.[21] Although the goal of medical management is to decrease the menorrhagia, these treatments seldom affect the size of leiomyomas and do not increase fertility. Consequently, surgical management is required.[22] Likewise, due to extensive size of the fibroid in the mentioned patient, the only treatment options were either myomectomy or hysterectomy.

Surgical challenges of access, intraoperative determination of anatomy, and hemorrhage were anticipated in our case as the fibroid was huge. The surgery was meticulously carried out, keeping the blood loss to minimal. As the patient was anemic, her preoperative work up was done and she was given prior-iron infusions, hence she did not require intraoperative blood transfusions saving her from blood transfusion hazards. While counselling the patient for surgery, patient's age, desire for fertility preservation,

and impact of fibroids on her quality of life were taken into account and thereafter, patient opted for abdominal hysterectomy. In cases where fibroid dimensions and symptoms pose substantial health risks, as evidenced here, an abdominal hysterectomy can serve as a definitive therapeutic modality.

CONCLUSION

Liberal utilization of physical and ultrasound examinations by gynaecologists could help prevent a delay in diagnosis and therapy of treatable causes such as fibroids. Large fibroids remain a diagnostic and surgical challenge, requiring expertise and interdisciplinary cooperation. Nevertheless, these large benign tumors can be managed complication free with proper diagnosis and surgical expertise. This case report highlights the importance of individualized care and shared decision-making in the management of uterine fibroids. By careful consideration of the patient's needs and optimal recovery, an abdominal hysterectomy was executed successfully, resulting in symptom relief and an improved quality of life for the patient.

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