CASE REPORT

Massive Hemoperitoneum from a bleeding Uterine fibroid: Exploratory laparotomy, Myomectomy plus Peritoneal irrigation

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ABSTRACT

Introduction: Uterine fibroid is the most common benign gynaecological tumour in women of reproductive age, with a significant impact on the quality of life, economy, morbidity and sometimes mortality of affected women. The prevalence of uterine fibroids is notably higher in Black women compared to other racial backgrounds. It is estimated that fibroids are present in 60-80% of Black women compared to 30-40% in white women of reproductive age. This case is reported due to the unusual presentation of symptomatic uterine fibroid with haemoperitoneum.
Case Summary: A case of symptomatic uterine fibroid with haemoperitoneum is presented. The patient presented with progressive lower abdominal swelling, excessive menstrual flow and Dizziness. She had an exploratory laparotomy, myomectomy plus peritoneal irrigation on account of haemoperitonium following a ruptured vessel on a fibroid. OUTCOME: The patient was managed successfully, had an uneventful postoperative period and follow-up visit.
Conclusion: Spontaneous rupture of a vessel over a fibroid is a rare cause of hemoperitoneum. This condition can be life-threatening and should be borne in mind in any woman with fibroids presenting with an acute abdomen and signs of blood loss. Emergency laparotomy is recommended to arrest haemorrhage and establish the diagnosis.

Keywords: Uterine fibroid, hemoperitoneum, Leiomyomata, South-Western Nigeria, Northern Nigeria, Sonographic Patterns.

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Introduction

Leiomyoma, popularly called a fibroid, is the most common of all gynaecologic tumours, being found in 20% of women of reproductive age. The terms fibroid, myoma, and leiomyoma are synonymous and are the commonest gynaecological tumours, with a prevalence of 70% to 80% in women who have reached the age of 50. [1, 2]

Leiomyoma is a hormone-responsive tumour that is dependent on sex hormones, such as estrogen and progesterone, and it can decrease or remain the same size after menopause. [3]

The prevalence of uterine fibroids is notably higher in Black women aged 15-49 years compared to their counterparts of other racial backgrounds. It is estimated that fibroids are present in 60-80% of Black women compared to 30-40% in white women.[4]

Leiomyoma occurs mostly in women of reproductive age and has been observed by some workers in 80% of women in Nigeria within the age range of 25 years and above. [5] This was seen in the patient as she is of reproductive age, and she is more than 25 years of age. A study carried out in Imo state, South Eastern Nigeria, revealed that about 22% of women had uterine fibroids, which corroborates the same prevalence in Nnewi in Anambra state and also in Ilorin in Kwara state. [6,7] Because of their prevalence, fibroids represent an important pathology, hence can be the cause of abnormal uterine bleeding, pelvic pain/pressure and may have reproductive effects on infertility and adverse pregnancy outcomes. [8]

Leiomyoma Uteri in Ethiopian women, a clinical study revealed that menorrhagia was the commonest symptom of uterine fibroid, with about 42% occurrence, followed by abdominal swelling and lower abdominal pain, which recorded 38.1%, other symptoms accounted for 9.9%. The influence of hormones plays a major role too, oestrogen and progesterone production is high within the age group of 25-40 years, thus favouring the growth of fibroids. In contrast, at menopause, the production of oestrogen and progesterone is reduced.

Haemoperitoneum, a rare but serious complication of uterine fibroids, is particularly seen when they undergo degeneration. The most common cause of this phenomenon is the rupture of a large fibroid, leading to haemorrhage into the peritoneal space. This can occur after trauma, rapid growth of the fibroid, rupture of a vessel on the myoma due to trauma or in the setting of certain hormonal changes, such as pregnancy or use of hormonal therapy. [7]

Fibroids are living tissue, requiring oxygen and nutrients to survive and grow, supplied by blood vessels in around the uterus. A woman who has given birth to a large family is far less likely to develop myomas than a woman who has never been pregnant or has had only one child. Increased risk for myomas is associated with early menarche and older age of the first term of pregnancy. pregnancy has a protective effect on fibroid, the incidence of uterine fibroids is higher in nulliparous women and lower in grand multiparae. She was a nulligravida, which was a risk factor for fibroids in her. [9]

The diagnosis in her was mainly clinical, based on the history of lower abdominal swelling and menorrhagia. She was further evaluated with an abdominopelvic ultrasound. Other

sophisticated imaging techniques, such as saline-infusion sonography, hysteroscopy, magnetic resonance imaging (MRI), among others, for confirm the presence of Uterine fibroids in the uterus can be used. The sensitivity of these procedures varies in their diagnosis of ULs. Imaging is seen as necessary in preoperative evaluation of ULs for uterus-sparing procedures and also surgical procedures. Generally, Ultrasound has been utilised as an invaluable imaging modality in evaluating and detecting fibroids.[5] Depending on the age, size and location of leiomyoma, intervention ranges from surgical to non-surgical procedures not limited to myomectomy by either hysteroscopy or laparoscopy, and radiography and ultrasonography to achieve uterine artery embolisation (UAE). Drug therapies for the treatment of leiomyoma are not routine, but they include the use of Gonadotrophin Releasing Hormone Agonists (GnRHa), Antiprogestins, selective progesterone receptor modulators (SPRMs), aromatase inhibitors, and the use of oral contraceptives. The GnRHa is effective in reducing leiomyoma size up to 40% in three months and is a beneficial treatment before surgery. [10]

Methods

Clinical Evaluation

A 34-year-old banker was a nulligravida and presented with progressive abdominal swelling of 2 years, excessive menstrual flow of 8 months and abdominal pain of 3 days.

She noticed lower abdominal swelling 2 years prior to presentation, which had been increasing slowly in size up to the present size which is just at the epigastrium. Excessive menstrual blood flow started 8 months before presentation. Abdominal pain started about 3 days before presentation. The pain was initially in the lower abdomen before being generalized with associated progressive abdominal swelling. There were no urinary symptoms and no change in bowel habits. However, there was associated dizziness which started about 3 days before presentation and has progressively worsened with associated fainting spells. She had earlier presented at a private hospital where she had an abdominal ultrasound which revealed a huge uterine fibroid with intraperitoneal fluid likely heamoperitoneum and a negative serum pregnancy test.

On examination, She was an acutely ill-looking young woman. She had pallor but was neither jaundiced nor febrile.

Her pulse rate was 130 beats per minute. Her blood pressure was 100mmHg systolic and 50mmHg diastolic. The 1st and 2nd heart sounds were heard.

Her respiratory rate was 23 cycles per minute. The lung fields were clear clinically and breath sounds were vesicular.

Her abdomen was full with an obvious swelling up to the epigastrium. There were areas of tenderness. There was a mass arising from the pelvis, which was compatible with a 36-week gestation. The examining hand could not get below the mass. The mass was firm and mobile on lateral displacement. The surface was irregular. The liver and the spleen were not palpable. The intraperitoneal fluid was demonstrable by shifting dullness. The bowel sounds were hypoactive.

The vulva and vagina were normal. The cervix was firm and the os was closed. The uterus

findings are stated above. The cervix moved away from the examining finger on the cephalad displacement of the mass. Both adnexae were free and the pouch of Douglas was full.

A diagnosis of Haemoperitoneum? cause and menorrhagia secondary to uterine fibroid was made.

Diagnostic Workup

Packed Cell Volume 30% Serum electrolytes & urea were Normal, Serum Pregnancy Test was Negative. Three units of blood were cross-matched. An abdominal pelvic scan revealed that the uterus was bulky, measuring 242mm in its widest AP diameter. There were multiple rounded, slightly hyperechoic mass seen in the fundal area (pedunculated), which measured about 201mm by 108mm, and that in the anterior wall(intramural) measured 102 mm by 55mm. Another lesion was seen in the lower uterine region that measured 88mm by 84mm. Multiple similar but smaller lesions were also noted. Both adnexa were free. Echogenic fluid was seen in the peritoneal cavity, Morrison's pouch and POD. The conclusion was huge uterine fibroid with haemoperitoneum. The chest X-ray done revealed no pathology.

Surgical Approach

She was admitted to the gynaecology emergency ward. Written informed consent was obtained. She was wheeled into the operating theatre and placed under a general anaesthesia. Intravenous Ciprofloxacin 200mg was given at the induction of anaesthesia. Scrubbing, gowning and draping were done. A midline incision was placed on the skin, deepened to the peritoneum with the findings below.

Intraoperative Findings: Intraoperative findings were about 1.5 litres of haemoperitoneum, Ruptured vessel on a pedunculated fibroid, Uterine size of about 36 weeks Pedunculated fibroid about 20cm by 10cm in dimension, Subserous fibroid about 10 by 8cm on the anterior uterine wall, Two Intramural fibroids about 8cm by 6cm and 6cm by 5cm respectively on the posterior surface of the uterus, Multiple subserous fibroid Largest was 8cm by 6cm in dimension, Other smaller nodules ranging between 2–4cm on the anterior surface, Grossly normal looking fallopian tubes and ovaries bilaterally, No peritubal adhesions.

Procedure: The haemoperitoneum was suctioned to prevent spillage. Abdominal packs moistened with warm normal saline were used to hold back bowel loops from the operating field. The uterus was delivered through the surgical wound. The bleeding vessel was identified and suture ligated. A tourniquet was then applied to the uterine isthmus to reduce blood loss. The huge pedunculated fibroid with ruptured vessels close to the stalk was excised first from the stalk. Other Myomas were then enucleated, and the myoma bed were closed appropriately. Haemostasis was secured. The tourniquet was released intermittently after 45 minutes. The abdominal cavity was irrigated with warm normal saline solution. The abdomen closed appropriately.

Estimated blood loss was about 2 litres.

Result

Postoperative Period: She recovered fully from anaesthesia. Her pulse rate was 86 beats per minute. It was regular and of good volume. Her blood pressure was 115mmHg systolic and 62mmHg diastolic. Pentazocin 30mg intramuscularly 6hourly for the initial 24 hours

was prescribed for pain relief. She was continued on intravenous Ciprofloxacin 200mg 12 hourly and metronidazole 500mg 8 hourly. Intravenous infusion was maintained as 5% Dextrose solution alternated with Normal saline 1 litre 8 hourly. The fluid intake/output chart was kept, and urinary output was satisfactory. There was an initial spotting of blood per vaginam in the first few hours, but it resolved within 24hours after surgery. Had 2 units of blood transfused. Her postoperative packed cell volume was 30%.

She was discharged with an appointment to visit the gynaecological outpatient clinic on post-operative day 4.

She subsequently presented at the gynaecological clinic 4 weeks after discharge with no complaints. She had started her menses the previous day. It was of moderate volume.

Histopathology Report: Macroscopy: Eight firm masses; the largest measured 20cm by 10cm, and the next two measured 10cm by 8cm and 6cm by 5cm, respectively, with five other smaller masses. The cut surfaces showed homogenous whitish areas. Microscopy: The section showed smooth muscle cells arranged in interlacing bundles and whorls. There are areas of necrosis, and parts of the tumour were vascular. No evidence of malignancy. The findings are consistent with uterine leiomyoma.

Discussion

She was a nulligravida black woman who had a myomectomy on account of rare symptoms of uterine fibroid with an initial suture ligation of the bleeding vessels on the fibroid to secure haemostasis, as she desired to preserve her fertility and menstrual function following a rare symptom of uterine fibroid, haemoperitoneum.[11]

Regarding the epidemiological variations related to geographic or ethnic factors associated with uterine fibroids, studies report that up to 70-80% of black women will experience fibroids by age 50, compared to around 60% in white women.[4] This difference is attributed to genetic factors as well as environmental influences such as diet, obesity, and healthcare access. In many African countries, despite the genetic predisposition, fibroid prevalence may be lower due to dietary habits and earlier childbearing, which are thought to have a protective effect. Also in Asian countries, especially in rural areas, the rate of fibroids may be lower, possibly due to dietary patterns rich in vegetables, lower body mass index (BMI), and earlier pregnancies. [11]

Management of haemoperitoneum following rupture of a vessel over a fibroid nodule includes suture ligation, myomectomy, or hysterectomy to control haemorrhage. The risk associated with the rupture of vessels over a myoma intra-perinoneally include venous congestion during pregnancy and menstruation, straining while stooling or lifting a heavy load and coitus. Pedunculated fibroid located in the posterior uterine wall are at risk of rupture from trauma from pelvic bony structures. [6,12]

While spontaneous bleeding from fibroids remains an uncommon occurrence, several case studies in the past decade have highlighted its clinical significance. A study by Sugimura et al documented the rupture of a fibroid leading to hemoperitoneum, emphasising the rarity of such events. [13] Similarly, Nogueira et al observed that fibroids larger than 5 cm in diameter were at higher risk of rupturing

spontaneously, leading to blood accumulation in the abdominal cavity. [14]

Most reported cases of spontaneous bleeding due to fibroid rupture have involved larger fibroids or those undergoing red degeneration. A study by Kuo et al investigated spontaneous fibroid rupture as a complication of pregnancy, where rapid growth and hormonal changes were identified as contributing factors. [15] Though rare, the severity of hemoperitoneum caused by uterine fibroid rupture necessitates prompt medical intervention, often requiring surgical management such as laparotomy or hysterectomy. [14]

Conservative treatments, including uterine artery embolisation (UAE), have been utilised to manage bleeding in certain cases, but surgical intervention remains the primary approach for severe hemoperitoneum. [16] The rarity of this complication emphasises the importance of early detection and the need for emergency intervention when necessary.

She was, however, counselled on the risk of recurrence, which is as high as 50-60% at 5 years post-myomectomy. Twenty-five per cent of the women may require a repeat myomectomy. Other complications include wound infection and adhesion formation involving the tubes, with the increased risk of infertility. Gentle handling of tissue, prompt haemostasis and good apposition of edges were some of the measures taken in her to minimise adhesion formation [17]. Hysterectomy is performed for women who are no longer desirous of pregnancy or maintenance of their menstrual function.

Recent advances in myomectomy, which are less invasive, are available for the removal of small uterine fibroids. They include hysteroscopic or laparoscopic myomectomy, laparoscopic myolysis with laser, cryotherapy or an electrosurgical heat source. Laparoscopic myomectomy is associated with a lower risk of haemorrhage and post-operative adhesion than laparotomy. [3,18,19,20].

The differential diagnosis for this presentation involves several acute abdominal conditions, including ectopic Pregnancy, ovarian torsion, ruptured ovarian cyst, acute appendicitis or blunt abdominal trauma, making the preoperative diagnosis challenging. [15,16]

The patient studied was desirous of future fertility; she was counselled on her chances of pregnancy. The risk of uterine rupture in her pregnancy was discussed, and the need to have her delivery in a facility well equipped with blood transfusion and Caesarean section facilities was emphasised.

Conclusion

Early diagnosis and prompt surgical intervention are crucial in managing uterine fibroids complicated by hemoperitoneum. Timely recognition and treatment not only mitigate the risk of severe haemorrhage but also significantly improve patient prognosis. Surgical management, including hysterectomy or myomectomy, offers favourable outcomes when performed promptly, underscoring the importance of timely medical attention in preventing life-threatening complications. When rupture of vessels over a fibroid is suspected, prompt management is the key to limiting morbidity and mortality associated with the condition.

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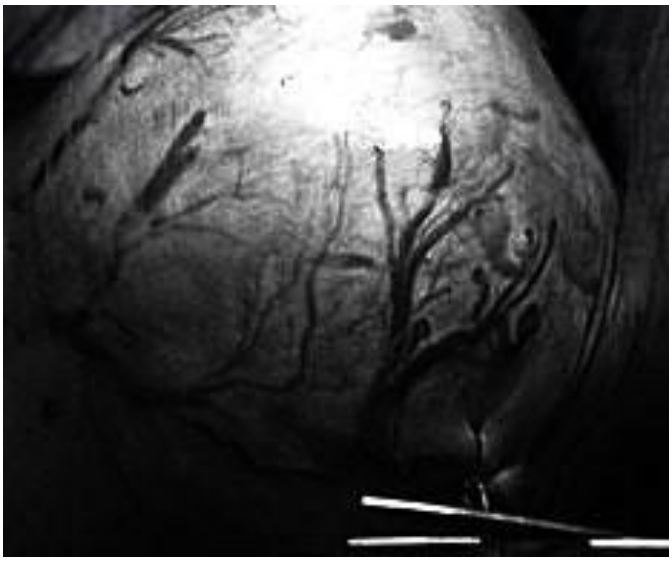
IMAGE 1: LIGATION OF BLEEDING VESSEL ON A FIBROID



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