Spontaneous Rupture of a Vessel over a Subserous Uterine Fibroid

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Uterine fibroids are common in females of reproductive age. Generally, uterine fibroids are a benign condition and acute complications are rare. Reported acute complications include rupture of vessels overlying the fibroid and rupture of uterine fibroids that may lead to life-threatening intraperitoneal hemorrhage. Prompt diagnosis and management are mandatory in emergency gynecological practice.

A forty-eight-year-old female presented with sudden onset of abdominal pain of four hours duration. The patient had four uncomplicated vaginal deliveries. Abdominal ultrasound was suggestive of intraperitoneal hemorrhage. An intact uterine fundal fibroid measuring 8x7.2 cm was found. CT scan revealed an enlarged uterus with multiple large fibroids.

The patient underwent emergency exploratory laparotomy. Intraoperatively, a spurting vessel over the surface of the fundal subserosal uterine fibroid was found. A total abdominal hysterectomy was performed. The postoperative period was uneventful. She was discharged in a stable condition with a hemoglobin of 10 gm.

The aim of this presentation is to report a rare complication of spontaneous rupture of a vessel overlying a subserous fibroid type 5-6.

THE CASE

A forty-eight-year-old female presented with sudden onset of abdominal pain of four hours duration; the pain was severe, constant, and radiating to the back and shoulder tip, and associated with dizziness. There was no bleeding per vagina. No history of bladder or bowel disturbances. No history of gastrointestinal symptoms or fever. No history of trauma or similar episodes.

Her menstrual history was normal, but occasionally associated with heavy menstrual bleeding since 2017. She had a prolonged duration of bleeding in some cycles. Her last menstrual period was approximately four weeks before the presentation; she was not sure about the date.

The patient was a known case of multiple uterine fibroids, diagnosed in 2017, and was scheduled for a hysterectomy. She was also a known case of hypothyroidism. She had thyroidectomy in 2000 and hysteroscopy in 2018 for intrauterine contraceptive device (IUCD) removal. which was in situ for approximately 15 years. The patient had four uncomplicated vaginal deliveries. Her updated cervical smear was negative.

The patient was hemodynamically stable: BP: 105/55 mmHg, HR: 82 bpm, RR: 14 breaths/min, SpO2: 100%. The urine pregnancy test was negative and her hemoglobin was 9.3 gm. Gradually, her clinical condition deteriorated. She became hypotensive and hemodynamically unstable. The hemoglobin dropped to 5.9 gm.

Physical examination revealed generalized tenderness over all quadrants of the abdomen and was tense. Abdominal ultrasound
revealed free fluid in the abdominal cavity suggestive of intraperitoneal hemorrhage. An intact uterine fundal fibroid measuring 8x7.2 cm was found. CT scan revealed moderate to gross intraperitoneal fluid collections over the perihepatic/perisplenic levels and pelvis. The uterus appeared enlarged with multiple large fibroids, the largest being fundo-anterior subserosal 10.3x7.5 cm with an area of heterogeneous density, just superior to the uterine fibroid. Meanwhile, she was stabilized with intravenous colloids and crystalloids. Blood transfusion was initiated.

The patient underwent emergency exploratory laparotomy. Intraoperatively, a spurting vessel overlying the surface of the fundal subserosal uterine fibroid was found. Approximately two liters of blood was drained. She received 4 units of packed RBCs, six frozen plasma and six platelet concentrate. Both ovaries were normal. Total abdominal hysterectomy was performed, see figures 1 and 2.

Macroscopically, the uterus measured 19x11x8 cm and weighed 810 g. The large fibroid seen at the fundus measured 11.5x10x8 cm with a greyish-white vague nodular appearance. Other few smaller fibroids were measuring from 0.7 - 4.5 cm with greyish-white whorled appearance. The average endometrial thickness was 0.1 cm. There was a brownish defect noted in the fundal area.

Microscopically, the endometrium showed proliferative activity. No inflammation, hyperplasia, or malignancy was seen. The myometrium showed multiple leiomyomata of average cellularity with hyaline and cystic changes. No atypia or significant mitosis was seen. The defect showed bleeding from the disrupted large size blood vessel protruding from the tumor.

The postoperative period was uneventful. She was discharged in a stable condition with a hemoglobin of 10 gm.

DISCUSSION

Uterine leiomyomas presenting as a gynecological emergency is a rare event. Uterine fibroids are benign tumors. Reshef et al concluded that angiogenic growth factors play a crucial role in the pathophysiology of fibroids, including abnormal vasculature, growth and survival. Leiomyomas occur in the reproductive age group and the additional risk factors include increased alcohol intake, dietary factors such as increased consumption of red meat, ethnic susceptibility, history of hypertension, familial and genetic predisposition. Fibroids or myomas can be classified depending on the location such as submucosal, intramural, subserosal and pedunculated subtypes. Massive intraperitoneal hemorrhage due to the rupture of a blood vessel overlying a myoma, although rare, does occur. In most cases, there is a history of violent coitus, hard work, forceful defecation, and examination under anestheisa. Direct pelvic trauma can result in the avulsion of a pedunculated fibroid. Our patient did not have these risk factors.

Several theories are considered responsible for the spontaneous rupture of veins over a uterine fibroid. Menstruation and pregnancy causing increased congestion of the superficial veins of the fibroid has been suggested. Our patient had regular menstrual cycles, but experienced menorrhagia on and off. The management of uterine fibroids, whether medical or surgical, depends on the number, size and location. Hemodynamic stability and parity are to be considered. Leiomyomas more than 10 cm in size and venous congestion are reported as risk factors for the rupture of superficial vessels. The presence of a subserosal fibroid of 15x10 cm with rupture of superficial vessels in our case confirms that risk factor.

Cerruto et al found that identifying the difference between ascites and hemoperitoneum could be challenging. Ultrasound and CT are essential for the diagnosis. Akahira et al reported two cases who presented with hemoperitoneum, the first was managed with exploratory laparotomy and myomectomy; the second case was managed with exploratory laparotomy and total abdominal hysterectomy. In our case, the patient was a 48-year-old para 4, managed with resuscitative measures, exploratory laparotomy and total abdominal hysterectomy. Lottermann et al managed their case with supportive measures, laparotomy and myomectomy.

Histopathology in our case was confirmed as leiomyomata with an area of defect showing bleeding from a disrupted large-sized blood vessel protruding from the tumor. Gulati et al found that benign leiomyoma with hydropic changes in a case of massive...
hemorrhage from a large vessel over a 19 cm subserous fibroid\(^2\).

Lim et al found that intra-abdominal hemorrhage secondary to uterine fibroids remained a rare phenomenon that is poorly recognized by physicians\(^2\). We too failed to recognize this condition pre-operatively. Rokhgireh et al concluded that surgeons should consider the possibility of rupture of a vein overlying a fibroid in cases of acute abdominal pain with a history of leiomyomas. Jenayah et al advised to keep it as a differential diagnosis while dealing with patients with hemoperitoneum and pelvic mass\(^1\).

**CONCLUSION**

Patients with fibroid could present with hemoperitoneum. Recognition of this rare complication of uterine fibroid and the instantaneous management is essential to save the patient’s life.

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