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Massive Hemoperitoneum Due to Ruptured Variceal Vein: A Rare Complication of Uterine Leiomyoma : Case Report

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Abstract: *Uterine leiomyomas are the most common benign tumors in reproductive-aged women. Although typically asymptomatic or associated with bleeding and pelvic pressure, spontaneous hemoperitoneum due to fibroid-related vascular rupture is rare and potentially life-threatening. We report a case of a 44-year-old multiparous woman with a history of symptomatic uterine fibroids, admitted with acute abdominal pain and signs of hemorrhagic shock. CT imaging revealed a large subserosal myoma with prominent tortuous vascularization and massive hemoperitoneum. Emergency laparotomy identified active bleeding from a ruptured varicose vein on the fibroid surface. Conservative myomectomy was performed. In summary, the presented case illustrates that, although rare, spontaneous hemoperitoneum from fibroid varice rupture should be considered in women presenting with acute abdomen and a known history of uterine fibroids.*

1. INTRODUCTION

Uterine leiomyomas (fibroids) are the most frequently encountered benign tumors in women of reproductive age. Although approximately 50% of cases remain asymtomatic [1], symptomatic patients usually present with abnormal uterine bleeding, pelvic pressure, manifestations related to the compression of adjacent organs (pollakiuria and constipation), or productive dysfunction/infertility.

While uncommon, fibroids can lead to acute complications such as torsion, degeneration and exceptionally hemoperitoneum and hemorrhage [2,3]. We report a rare case of massive hemoperitoneum due to the spontaneous rupture of a varicose vein overlying a uterine fibroid in a woman with a known polymyomatous uterus.

2. CASE PRESENTATION

First, We report the case of a 44-year-old woman, married and multiparous, with a past medical history of total thyroidectomy in 2014, maintained on levothyroxine, and a well-tolerated chronic anemia secondary to a known polymyomatous uterus. A planned myomectomy had been scheduled for her symptomatic fibroids. She had no history of prior blood transfusions.

The patient presented to the emergency department with acute surgical abdomen that occurred following physical exertion—specifically, climbing four flights of stairs.

She presented with sudden-onset abdominal pain. The pain was generalized and intense, accompanied by a strong sensation of thirst, profound fatigue, dizziness, palpitations, a feeling of cold, shortness of breath, and noticeable abdominal distension. Despite these symptoms, there was no reported cessation of bowel movements or passage of gas, The clinical picture evolved in an afebrile context but with general deterioration.

On examination, she was conscious, oriented, and able to communicate, though asthenic and slightly obtunded. Her vital signs were concerning: she was hypotensive (70/50 mmHg), tachycardic (120 bpm), and tachypneic (28 breaths per minute), with a body temperature of 37.1°C. Her abdomen appeared distended on inspection, and palpation revealed diffuse guarding without frank rigidity. A large, polylobulated abdominopelvic mass was palpable, measuring approximately 25 cm and appearing to arise from or be intimately connected with the uterus. Shifting dullness was noted on percussion, suggesting fluid accumulation. Her abdominal circumference at the umbilical level measured 90 cm. On vaginal examination, the cervix was long, closed, and mobile with movement of the mass; the vaginal fornices were tender and bulging, and the adnexa could not be clearly assessed due to the significant abdominal distension.

Given the clinical findings, the presence of hemoperitoneum was entertained, with the following probable causes considered: ruptured ectopic pregnancy, ruptured ovarian cyst, rupture of varices from a leiomyoma, rupture of the pedicle of a pedunculated subserosal myoma, or rupture of a solid organ. A negative plasma β-hCG assay allowed us to rule out the hypothesis of a ruptured ectopic pregnancy.

Emergency abdominopelvic ultrasonography revealed a myomatous uterus associated with a large-volume intraperitoneal effusion, which precluded detailed fibroid mapping and precise identification of the bleeding source. It was decided to complete the evaluation with contrast-enhanced abdominopelvic CT scan (arterial and venous phases), which demonstrated an enlarged uterus with a massive pedunculated subserosal myoma measuring 120 × 170 mm (FIGO type VII), supplied by tortuous vessels arising from the internal iliac arteries and the right ovarian artery, associated with massive hemoperitoneum.

After multidisciplinary deliberation involving gynecologists, anesthesiologist-intensivists, and visceral surgeons, a consensus was reached to undertake an exploratory laparotomy.

The patient's initial laboratory work-up was :

	Patient value	Normal value
Hemoblobin	7.3 g/dL	12.0 - 15.5 g/dL
Thrombocyte	196000 /µL	150000 – 450000 /µL
TP	57.6%	70 – 100 %
TCA	25 sec	25 – 35 sec
Urea	0.27 g/L	0.15 – 0.40 g/L
Creatinine	11.42 mg/L	5.7 – 11.1 mg/L
CRP	95 mg/L	< 5mg/L
β-hCG	< 2 mUI/mL	< 5 mUI/mL

Initial stabilization and resuscitation in the intensive care unit were performed prior to transfer to the operating room.

A midline supra- and infra-pubic laparotomy was performed. Intraoperative findings included a 2,000 mL hemoperitoneum and a polymyomatous uterus, the largest myoma being a 20 cm pedunculated subserosal fibroid with multiple varices, the largest (approximately 7 mm in diameter) having ruptured and producing diffuse bleeding (Figure 3). The adnexa appeared macroscopically normal, with the presence of utero-intestinal adhesions. A conservative surgical approach (myomectomy) was undertaken, with a total specimen weight of 1,700 g (Figure 4). Intraoperative transfusion included 5 units of packed red blood cells and 10 units of fresh frozen plasma.

The postoperative course was uneventful, and the patient was discharged on postoperative day 7. Histopathological analysis confirmed a highly vascularized leiomyomatous nature, with no evidence of malignancy.

3. DISCUSSION

Before Uterine myomas occur in one out of every 4–5 women of reproductive age and it has been estimated that 20–50% of myomas are symptomatic. Common symptoms are metrorrhagia, menorrhagia, abdominal pain due to degeneration, and torsion of subserosal pedunculated myoma. Hemoperitoneum from rupture of vessels overlying a myoma is rare [4-5];

Bleeding from the superficial vessels of a leiomyoma is a rare condition and it can be the result of trauma or torsion in most cases, and spontaneous rupture of a superficial vein is extremely rare. Several mechanisms could be the causes of spontaneous rupture of uterine vessels overlying a myoma. One of the most the probable causes is an increased venous pressure, as occurs during menstruation, when straining to pass stool, or when lifting heavy weight [6].

3 patientes rapportées par les auteurs [tableau 1] étaient nullipares avec un âge moyen de (allant de 22 à 48 ans). Toutes les patientes se sont présentées aux urgences pour un tableau d'abdomen aigu chirurgical. La taille du myome ne semblerait pas être un facteur de risque vu que la taille des myomes rapportés allait de 7,5 cm à 22 cm de grand diamètre. L'étude de Daham et al. [7] appui cet hypothèse et confirme que la rupture de vaisseaux n'a aucune relation avec l'âge, la parité, ou encore la taille du myome.

Plusieurs facteurs sont incriminés dans la rupture de vaisseaux d'un myome utérin. On en cite, l'augmentation de la pression abdominale après un traumatisme comme est le cas de la patiente rapportée par Oride et al. [8] qui a fait un accident de sport suite à une chute lors du Snowboarding. Mais encore, l'exercice physique comme a été vu chez notre patiente ou bowel movement de la patiente de Chen et al. [5]. Elevation of blood pressure during menstruation and pregnancy may be another cause. There is also a theory suggesting that the overstretching of the vessels during the growth of uterine myomas induces vessel rupture [9].

In all 5 cases shown in Table 1, myomas associated with venous rupture were the subserosal type. Usually, many superficial vessels are present because the serosal layer is very thin. It is presumed that the superficial vessels of subserosal myomas are predisposed to rupture because they lack the muscular layer that protects the myoma from increased pressure, such as the layer overlying an interstitial myoma. In addition, it seemed that the vessels overlying the myoma readily over-stretch.

In all cases shown in Table 1, the transfusion of blood was needed because of hypovolemic shock caused by ex- tensive intra-abdominal bleeding. Mortality from hypovolemic shock has been reported [10].

Also, in all cases, imaging tests including ultrasound and CT were performed and hemoperitoneum was diagnosed. In most cases, the actual cause of bleeding is often difficult to specify prior to the surgical procedure [11,12].

An acute hemoperitoneum represents an absolute emergency. In a hemodynamic unstable patient, the treatment is intensive, both supportive and surgical. Blood transfusions and intravenous fluids should be administered [12].

Some authors recommend an exploratory laparoscopy in cases of acute abdomen with uncertain etiology. In young patients, the preservation of fertility is the main objective, but it may not be achieved in all cases [13]. Hemostatic suture or myomectomy should be attempted as a first choice in women of reproductive age. However, in cases of fertility-sparing procedures, large myomas can cause serious problems regarding hemostasis. Myomectomy presents a considerable risk of persistent or recurrent bleeding from the site of myometrial repair, and in patients with important bleeding prior to surgery, this procedure may worsen their hemodynamic status [14]. In cases of menopausal women, hysterectomy is advisable due to a better hemostasis and a shorter operative time. In all cases with conscious patients, they should be informed that the intraoperative findings and the hemodynamic status during surgery are essential in choosing the type of surgical procedure.

Through the presented case of a massive hemoperitoneum caused by the rupture of a subserosa vein overlying a uterine leiomyoma the aim is to raise awareness of this extremely rare, but potentially fatal complication.

Case	Age	Parity	Symptom	Precipitating factor	Operation	Blood loss	Location	Type	Size of myoma
Razvan and al. 2021 [15]	48	1	Abdominal pain	Spontaneous	Supracervical hysterectomy	2000	Fundus	Subserous	10 cm larger diameter
Oride and al. 2019 [8]	28	0	Abdominal pain	Fall onto hip while snowboarding	Myomectomy	4000	Fundus	Subserous	13 cm larger diameter
Chen and al. 2013[5]	22	0	Abdominal pain	Bowel movement	Myomectomy	2000	Fundus	Subserous	N.A
Maria and al. 2019[16]	47	3	Abdominal pain	Spontaneous	Hysterectomy with conservation of annexes	2200	Fundus	Subserous	7,5 cm larger diameter
Florent and al. 2013[17]	46	0	Abdominal pain	Spontaneous	Hysterectomy with conservation of annexes	25	Fundus	Subserous	22 cm larger diameter

N.A : Not available

4. CONCLUSION

The Spontaneous hemoperitoneum caused by rupture of a varicose vein overlying a uterine leiomyoma is an exceedingly rare but serious clinical entity that warrants heightened clinical vigilance. In women presenting with acute abdominal pain and hemorrhagic shock, particularly those with a known history of uterine fibroids, fibroid-related vascular rupture should be considered in the differential diagnosis. Prompt recognition, thorough imaging assessment, and multidisciplinary management are paramount to optimize outcomes. This case underscores that conservative myomectomy can be a viable and effective treatment modality, enabling uterine preservation while achieving hemostasis. Enhanced awareness of this uncommon complication is essential to facilitate timely diagnosis and improve patient outcomes.

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