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Massive Abdomen Hemoperitoneum Due to Rupture of Surface Vessels Over Uterine Fibroid: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Uterine leiomyoma is benign mass found more commonly in young women at reproductive age and are rarely associated with hemoperitoneum. The direct cause of intraperitoneal bleeding due to fibroids is poorly understood. We report a case of a 38 years old women, nulliparous, presented to the emergency room with significant abdominal distention/pain and difficulty in breathing. The patient had no obvious history of any medical comorbidities. There were incidental findings of multiple large uterine fibroids largest 10x9 cm noted. The patient was hypotensive and tachycardia, she underwent emergency laparotomy, and there was an intra operative finding of massive

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intraperitoneal haemorrhage due to rupture of vessels on the surface of a subserous uterine fibroid. Rupture of leiomyoma surface vessel should be considered as one of differential diagnosis, when dealing with a case of intraperitoneal bleeding.

Keywords: Uterine fibroid; leiomyomas; intra-abdominal bleeding; massive; hemoperitoneum; rupture; avulsion.

1. INTRODUCTION

"Uterine fibroids grow in the uterus. They are muscular benign tumours that are rarely turn to cancer. They are hypersensitive to oestrogen hormone, avascular, getting their blood supply from the pseudo-capsules of myometrium tissue, and are usually surrounded by an abnormal venous plexus" [1]. Uterine fibroids are commonly found in 25% of women of reproductive age [1] however, ruptured fibroids are rare and can lead to life-threatening conditions due to acute peritoneal bleeding thus requiring immediate surgical intervention. Rupture Fibroids are more likely to occur on subserous fibroids that have small stalks inside or outside than those intramural or submucous fibroids. As rupture fibroid are a rare condition, other common differential diagnosis should be considered in case scenarios of sudden severe pain with shock and hemodynamically instability; however gastrointestinal causes and vascular disorders should be ruled out [2]. Despite advanced medical imaging modalities, the correct diagnosis of rupture fibroid is rarely identified before surgery [1].

2. CASE REPORT

We report a case of a 38 years old woman, nulliparous, presented to the Nizwa Hospital – Sultanate of Oman–gynaecology emergency room with significant abdominal distention/pain and difficulty in breathing. The patient had no obvious history of any medical comorbidities. There were incidental findings of multiple large uterine fibroids largest 10x9 cm noted. On presentation, the patient was hypotensive (blood pressure, 80/40 mm Hg) and tachycardia. The patient had no history of trauma. She had a regular menstrual cycle and she was on day three of her cycle.

Examination revealed a young woman with an average body build, hypotensive, tachycardic, distended abdomen, and tender. Her blood haemoglobin level was 6 g/dl. Quantitative Bhcg was negative. Transabdominal ultrasonography

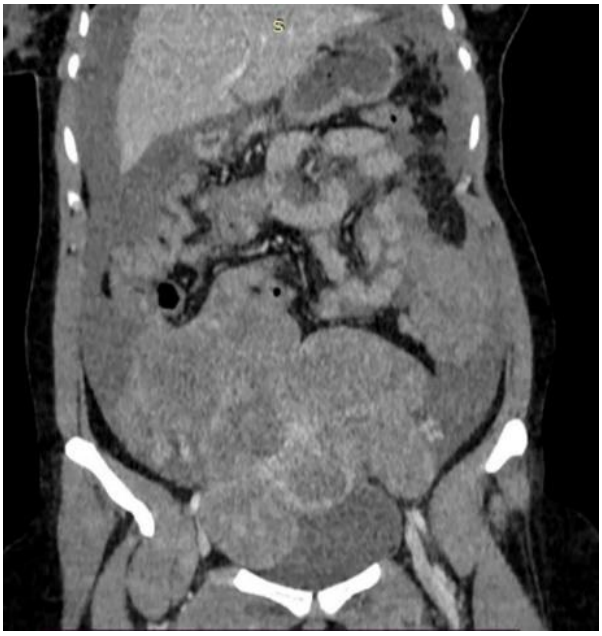

Fig. 1. Contrast enhanced coronal reformatted abdomen CT scan showing enlarged uterus with multiple heterogenous fibroids, moderate hemoperitoneum and left lumbar hematoma

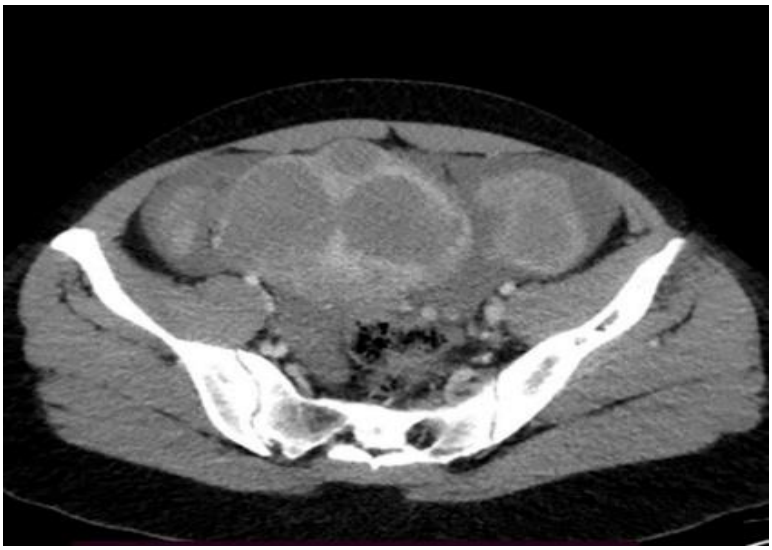

Fig. 2. Contrast enhanced axial pelvis CT scan showing enlarged distorted uterus with multiple heterogenous fibroids, hemoperitoneum and right iliac fossa dense hematoma.

revealed a uterus with thin endometrium, multiple fibroids with distorted anatomy, and significant free fluid in the pouch of Douglas and the hepatorenal pouch. The ovaries and adnexa were not visualized because they were obscured by the enlarged, bulky uterus. Emergency abdomen and pelvic CT scan were performed which confirmed moderate abdominopelvic dense free fluid indicating hemoperitoneum, the uterus with multiple fibroids some showing central hypodensity, the largest measuring 10x8 cm with small hematoma of 4.5x2.6 cm in the pelvis near the right ovarian vein which suggestive of active bleeding. Another large heterogeneous hematoma was seen in the left lumber region measuring 11.5x8.5x7.1 cm, ovaries can't be appreciated (Figs. 1,2) The patient was counselled about the diagnosis of uterine fibroid, the need for emergency laparotomy and written consent was obtained.

Patient underwent exploratory laparotomy, intraoperatively hemo-peritoneum of 3.5 litters seen. The uterus had multiple numbers of sub-serosal fibroids - largest was 10x8 cm at the right side with active bleeding from the vessels was seen. Bleeding vessels were cauterized and fibrillar was applied with some homeostatic sutures which resulted in controlling of bleeding. Both the ovaries and fallopian tubes were normal. The patient received six units of packed red blood cell, four-units of fresh frozen plasma, and four units of platelets. The patient had an uneventful recovery and was discharged home on day three post operation in a stable condition. Poste operative patient received GNRH injection monthly for 3 months. She was advised for laparotomy myomectomy, but she refused surgical intervention as she is nulliparous and thus worries about the risk of hysterectomy. She opted for uterine artery embolization.

3. DISCUSSION

" A systematic review of cases from 1902 to 2018 reported that intra-abdominal bleeding was commonly due to the rupture of superficial blood vessels over the surface of the fibroid, followed by rupture and avulsion of the fibroid" [1]. A presenting complaint was usually of severe abdominal pain with sudden and profound hypovolemic shock. Correct preoperative diagnosis was made in only seven cases on computed tomography imaging. The most commonly performed procedures in such cases were hysterectomy and myomectomy [1,3]. "Mortality was reported in four cases which were directly related to complications of uterine fibroids" [1]. "This systematic review showed that all patients were managed surgically, with no cases managed medically alone or conservatively" [1]. "Indication for surgery was mainly massive intra-abdominal bleeding with hemodynamic instability" [1]. "The most common surgical approach, was Laparotomy, while laparoscopy successfully performed in only two cases reported and two patients underwent preoperative uterine arterial embolization" [1]. "Hysterectomy was performed in 58.4% cases,

with myomectomy in 36% of cases and ligation of haemorrhagic vessels in 3.2%" [1].

"In over half of the identified patients the source of bleeding was a ruptured superficial vessel overlying uterine fibroid" [1,2]. "Theory suggest that increased blood flow or mechanical trauma would indirectly cause over- distention and tearing, leading to the onset of bleeding" [4,5]. "Venous congestion during menstruation, uterine manipulation (e.g., vaginal examination), increased venous pressure associated with defecation or lifting of heavy objects, and pregnancy all can lead to over distention and tearing of vessels. A few authors have hypothesized that the posterior location of these fibroids predisposes patients to direct-contact injury from the promontory of the sacrum" [1,2]. Trauma such as falls or motor vehicle accidents, has been also linked to clinical presentation. However, these factors were only identified in 26% of the cases that have been reviewed, with 14% related to pregnancy or postpartum period [1,2].

Degenerative and sarcomatous changes occur in fibroids, leading to necrosis and perforation can be one of the causes of spontaneous rupture of uterine fibroids vessels. Degenerative changes in fibroids are usually due to inadequate blood supply [2] although they are present in nearly all tumours, with no significant relationship with the presenting symptoms [6,7]. Degenerative changes were observed in 35% of patients with ruptured fibroids. Environmental factors and hormonal therapy have been suggested to had some effects, however these have not been fully studied and investigated. So far, the full reasons why a fibroid may bleed are not completely understood [1,3].

Our patient was admitted with severe abdominal pain and hemodynamically un stable condition. Images showed large subserous fibroids with intraperitoneal bleeding, so as she was un stable decided for laparotomy and proceed. The Intraoperative findings was bleeding from one of the superficial vessels overlying the fibroid. The patient was on day three of her cycle which is in line with the theory of venous congestion with mensuration can lead to trauma to those superficial vessels.

Teruo Risai reports a case of a 38-year-old woman who presented with sudden collapse and cardiac arrest [8]. An autopsy showed a 3 Liters of hemoperitoneum with a large uterine leiomyoma (weight 2.5 kg). Ruptured splenic aneurysm was found to be the cause of death [8]. This highlights the importance of a multi-disciplinary team of surgeons and gynaecologists while treating such cases [9].

Varras M [10] reported a case of a 55 years old women, post-menopause developed a fever and severe pain in the pelvic area. She had a CT scan of the abdomen and pelvis which show a 12 cm mass growing from the near wall of her uterus. She had Diagnostic laparotomy which confirm bleeding from uterine fibroid vessels. This case illustrates that a ruptured degeneration of uterine leiomyoma can occur in all ages and should be considered as one of the differential diagnoses for all women presenting with abdominal pain and a large fibroid mass regardless of their hormonal status or age [10,11].

Treatment of ruptured fibroids first focused on stopping bleeding and ideally saving the uterus, particularly in younger women. Experts suggest that emergency uterine fibroid embolization can play a role in controlling bleeding. In our patient laparotomy was done, cauterization of bleeding vessel was done , the patient received blood products , myomectomy was not done as our centre is lacking intervention radiology in case indicated and patient was strongly against hysterectomy as she is nulliparous , so further intervention abended as bleeding was controlled and patient was referred later to tertiary centre for Uterine artery embolization .

4. CONCLUSION

Uterine fibroids are common benign tumours in women especially at reproductive age, however complications resulting in acute intra peritoneal bleeding are very rare. Degeneration of leiomyomas resulting in rupture has been described in both pregnant and non-pregnant patients. The actual case of those vessels' ruptures remained unclear with many theories. This report emphasis that rupture uterine fibroid should be included in the differential diagnosis when dealing with patients with a cystic tumour and massive hemo-peritoneum. This case highlights the need for high clinical suspicion of this rare condition and multidisciplinary approach.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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