Unusual Presentation of Uterine Rupture Following Laparoscopic Myomectomy: A Case Report and Literature Review

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Introduction

- With the increasing age of conception and prevalence of fibroids, which occurs in 70% of woman by age 50, myomectomy is a frequent intervention in women who wish to preserve their fertility¹
- Laparoscopic myomectomy is preferred due to fewer postoperative complications and faster recovery.¹ It has also been shown to improve reproductive performance in women with subfertility or pregnancy losses²
- Laparoscopic myomectomy is increasingly performed in younger women
- A rare but important and dangerous complication is uterine rupture, with a reported rate of 0.49% after laparoscopic myomectomy³ compared to 0.02% in the unscarred uterus⁴

We detail a case of spontaneous uterine rupture at 23 weeks and 4 days in an IVF twin pregnancy with a history of laparoscopic myomectomy.

Case Report

- 36 year old Chinese lady G1P0 23+4 weeks – IVF DCDA, antenatally well
- Past medical history: 2 previous failed IVF, Laparoscopic myomectomy 3 years prior for a 4.5cm fundal fibroid
- Presenting history: acute onset of abdominal pain
- Examination: vitals stable, abdomen soft with mild epigastric tenderness but no rebound/guarding. Fetal heart + on doppler

Progress

- Initial impression: Gastroenteritis in pregnancy
- Admitted to labour ward for close monitoring and symptomatic relief
- Pain worsened despite symptomatic relief
- Urgent ultrasound: Cervical length 1.7cm, incidental finding of 7.7x5.7x3.8 cm cystic mass with low level echoes posterior to POD ?blood clots
- Pain intensified and she became haemodynamically unstable
 - Hemoglobin (g/dL): 11.3 > 8.2 > 7.4
 - Heart rate (bpm): 106 > 109
- Subsequently complained of contractions and per vaginal bleeding
- Speculum: blood-stained liquor
- Impression: Intra-abdominal bleeding with possible PPROM
- Urgent referral to General Surgery was made > Underwent CT Abdomen/Pelvis

Dehiscence of the uterine fundus measuring 5.3 x 5.7 x 4.5 cm with adjacent hematoma and moderate hemoperitoneum, and a moderate right-sided pleural effusion

Progress

- Neonatal counselling in view of borderline viability – decided for active management
- Exploratory midline laparotomy:
 - Findings: Placenta extruding from 4cm defect on posterior fundus at previous myomectomy scar with active bleeding
 - Procedure: Classical caesarean section – babies delivered en-caul; multiple modified B-lynch sutures applied to lower segment of uterus with uterine arteries ligation; uterus closed with herring-bone closure in 3 layers followed by B-lynch compression suture
- Admitted to SICU; postoperative recovery unremarkable
- Twins admitted to NICU on ventilator support: T1 578g T2 560g → died on D5 and D12 respectively due to severe prematurity

Discussion

A review of current literature suggests that, to date, predicting time of uterine rupture is difficult. *Gambacorti et al* review has also revealed uterine rupture rate to be 1.52% in the antenatal period vs 0.47% in the intrapartum period³ (comparable to 0.5% in VBAC⁴). This suggests that, with careful selection, a trial of labour after myomectomy could potentially be a viable option, as with VBAC.

- **Interval after laparoscopic myomectomy for conception:** Some centres advise women to wait for 12 months for healing of uterine scar before attempting to conceive⁵; Yet, rate of healing is variable – dependent on one's healing potential, location of myoma excised, whether the endometrium was breached, number of myoma removed etc
- **Scar integrity:** Some centers suggest a second look laparoscopy after previous laparoscopic myomectomy to determine wound healing – A cohort prospective study by Tinelli et al⁶ followed patients after laparoscopic myomectomy with regular 2D ultrasound and Doppler velocimetry – uterine perfusion, haematoma formation, scar area, and pressure and resistance index of the uterine arteries etc.
- **Method of repair:** Interestingly, several studies have shown a high number of uterine rupture rate in patients with double-layered repair; Rather than the absolute number of layers to suture, the best suturing technique is one that respects the basic principles of good tissue repair – full depth of the edges must be taken, minimal tension, and prevention of haematoma
- **Electrocoagulation:** This causes devascularisation of myometrium, with subsequent inflammation impairing wound healing. Systematic review by *Gambacorti et al* showed use of electrocautery was higher in the group with uterine rupture and in all 7 cases of uterine rupture, electrocautery was used³. This was seen even in a case of a pedunculated subserosal posterior uterine wall fibroid with no uterine incision⁷
 - **Electrocoagulation should be kept to a minimum⁸**

Conclusion

Uterine rupture is a rare complication of laparoscopic myomectomy but has serious maternal and fetal morbidity and mortality. When pregnant patients present with abdominal pain or haemodynamic instability, it is imperative to consider uterine rupture as a possible cause and perform timely intervention. Pregnant women with history of laparoscopic myomectomy should be considered high risk and counseled about risk of rupture and counselled regarding mode of delivery. Future studies could also look into generating selection criteria to stratify patients at higher risk of uterine rupture.

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