



# Laparoscopic Management of Second Trimester Vesico Uterine Rupture

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Received: 20 February 2023 / Accepted: 12 June 2023  
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## Abbreviations

BMI Body mass index  
MIS Minimally invasive surgery  
SOL Space-occupying lesion  
PAS Placenta accreta spectrum

## Introduction

Management of uterine rupture is a surgical emergency. Laparotomy is the most recommended and preferred mode of approach for such a surgical emergency. Lately, there has been available literature with articles on laparoscopic management of obstetrics emergencies such as post-partum haemorrhage [1]. This is possible owing to the advancement of laparoscopy technology along with the significant increase in surgeons' experience, skill, and understanding of the endoscopy system. We present a case of laparoscopic management of early second-trimester combined vesico-uterine rupture during the process of medical abortion for foetal anomaly.

## Case Summary

A 30-year-old female with a BMI 25 kg/m<sup>2</sup>, with a history of a caesarean section performed 4 years back, on routine second-trimester anomaly scan at 18 weeks revealed an intrauterine severely malformed foetus. The patient was

given a trial of medical abortion with a regime of a tablet of mifepristone 200 mg orally followed by a single dose of misoprostol 600 µg per vaginum after 48 h. Following this, she had minimal contractions which failed to progress, so further treatment was deferred. On the second day of tablet misoprostol insertion, she complained of acute pain in the lower abdomen with bleeding per vaginum. The clinical examination showed tenderness in the abdomen with minimal vaginal bleeding. Her vitals were stable with a blood pressure of 100/70 mm Hg, pulse rate of 100 beats/min, and haemoglobin of 10.1 gm%. Her sonography revealed that the foetal head was located above the uterine cavity in the left broad ligament space, with absent cardiac activity without the presence of any free fluid. Based on her clinical and sonography findings, diagnosis of a uterine rupture was made. The patient was referred to our centre for further management. Since the patient was haemodynamically stable, the decision for an emergency laparoscopic exploration was taken after informed written consent with the possibility of a fertility-sparing approach and explaining the associated risk of uterine rupture in a future pregnancy. The first intra-operative impression of the pelvic cavity shows an ensheathed gestational sac extending to the left lateral pelvic wall till the external iliac vessels without any haemoperitoneum. It was mimicking as a broad ligament space-occupying lesion (SOL) (Fig. 1).

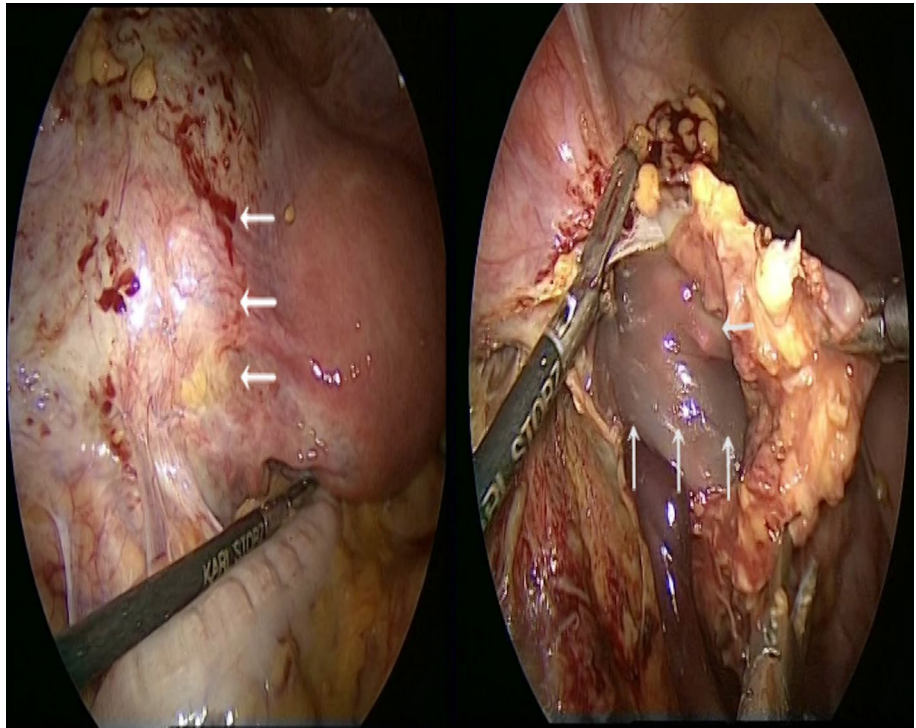
The surgical dissection started with the ipsilateral retroperitoneal space dissection to localize and lateralize the ureter. An incision was given over the most prominent part, following which a foetus was identified and retrieved. While dissecting the left lateral wall of the lesion, the sac was found densely adhere to the left external iliac vessels with loss of plane as well. Meticulous dissection was carried out with complete adhesiolysis without any vascular injury. The complete removal of the placental tissue along with the gestational sac was performed. Further exploration revealed a left-sided J-shaped uterine rupture extending from the previous caesarean scar to the cornual end with an empty uterine cavity. The vesicovaginal space dissection revealed

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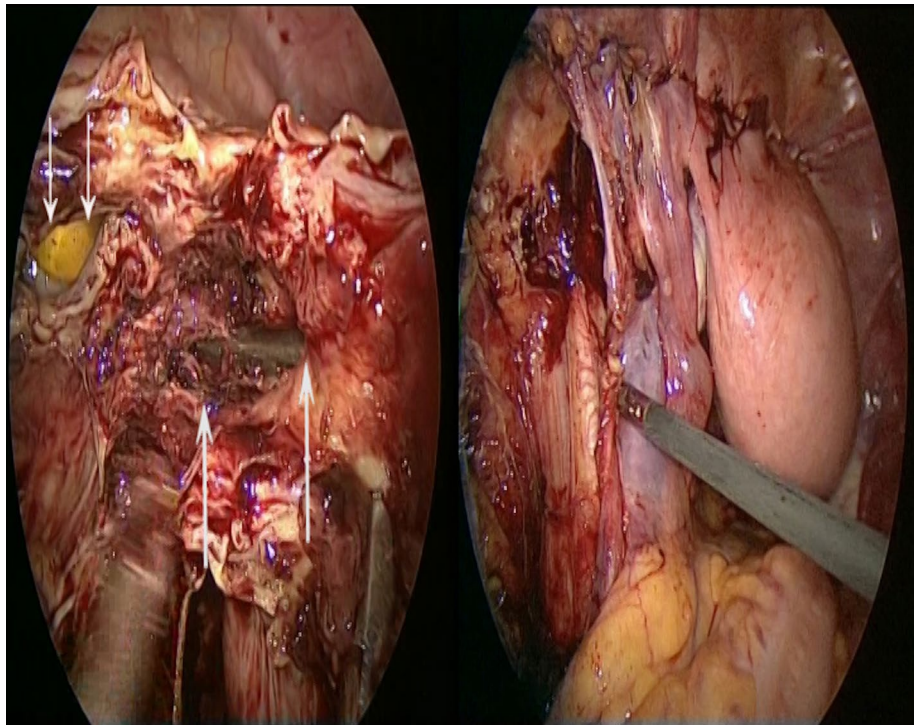
**Fig. 1** Endo-view showing left-sided SOL with foetus in situ (indicated by an arrow)



a bladder rent of approximately 4×4 cm, over the dome of the bladder, quite away from the bilateral ureteric opening (Fig. 2). The reparative procedure consisted of the uterus being repaired in two layers with barb suture and the bladder being repaired separately in two layers with barb suture. The

normal uterus and bladder anatomy were restored (Fig. 2). The specimen was retrieved through posterior colpotomy. The Foley catheter was kept for 3 weeks postoperatively. The patient was discharged on the third postoperative day

**Fig. 2** Endo-view showing ruptured uterus and rent in the bladder (indicated by an arrow) with final endo-view after reconstruction



in stable condition. The final histopathological examination was negative for any placenta accreta spectrum (PAS).

## Discussion

We aim to highlight the laparoscopic management of this case in a haemodynamically stable patient with adequate surgical expertise and proficiency in laparoscopic surgical skills. The pneumoperitoneum and a head low position, is an inherent component of any laparoscopic procedure, which has the physiological benefit of increasing blood pressure intraoperatively, which might be especially advantageous in the cases of haemodynamically unstable patients with hypotension. Namazov in 2016 also reported successful laparoscopic management of uterine rupture. A similar case report as ours with combined uterine with bladder rupture following the second-trimester abortion was managed with laparotomy by Giuseppe et al.'s study in 2021 [2]. Tedious approachable site dissection like a retroperitoneal space dissection, which is difficult to be assessed by laparotomy, is simplified with adequate surgical expertise and improved anatomical exposure. A previous history of caesarean section, PAS in the scarred uterus, and uterine anomaly in the non-scarred uterus is approvingly associated with uterine rupture, as supported by other articles in the literature [3]. Medical abortion using the combination of mifepristone and misoprostol seems to have the highest efficacy and the shortest time interval for an abortion. Our study had a low dose of misoprostol (600 µg) usage due to the presence of a scarred uterus. The patient had minimal contractions, so a further dose was not repeated. But strict vigilance is warranted as even such a low dose can lead to uterine rupture in any trimester of the pregnancy [4]. The clinical scenario of a uterine rupture depends on the extent of intra-abdominal haemorrhage. The clinical features of rupture are usually shock, evidence of haemoperitoneum, abdominal tenderness, and a varying amount of vaginal bleeding. The index case in our study was haemodynamically stable with no evidence of any haemoperitoneum. Also, the clinical features of a uterine rupture in an early trimester are quite nonspecific. So, there should always be a high index of suspicion for a uterine rupture while using misoprostol in a scarred uterus. The sonographic features suggestive of uterine rupture could be a foetus lying higher than the endometrial cavity, along

with an absent cardiac activity, and the presence of free fluid due to haemoperitoneum. The absence of haemoperitoneum is a very rare finding as was found in our case. Sonography, which is an easily accessible modality, should be used as a first-line investigation to rule out a uterine rupture.

Based on our present and past experience, we may conclude that laparoscopy can be done with equal efficiency in the management of obstetric haemorrhage and uterine rupture cases, depending on the experience and skill of the surgeon, assistant team, and operative set-up.

**Acknowledgements** None.

**Funding** The authors have not disclosed any funding.

## Declarations

**Conflict of interest** The authors declare that they have no conflicts of interest and nothing to disclose.

**Human or Animal Rights** It is a retrospective original case report.

**Informed Consent** Informed consent was obtained from the participant included in the study.

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