Case Report

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Spontaneous fundal rupture in an unscarred uterus in a female with twin pregnancy after in-vitro fertilization: a case report

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Introduction and importance: Spontaneous uterine rupture in an unscarred uterus is very rare. It is found to be rarer after in-vitro fertilization. It is associated with significant morbidity and mortality if not diagnosed and treated promptly.

Case presentation: Thirty three years female with twin pregnancy following in-vitro fertilization after 11 years of marriage presented to emergency department with lower abdominal pain at 36 weeks 3 days of gestation and was planned for emergency caesarean section for precious twin pregnancy in labour.

Clinical findings and investigation: She was vitally stable and on palpation of abdomen, there was generalized tenderness along with guarding. All the investigations were within normal limits.

Intervention and outcome: Emergency caesarean section was performed under subarachnoid block which revealed a 6 × 2 cm fundal uterine rupture with no active bleeding which was repaired in layers. The babies were extracted with a lower uterine segment incision. First twin cried immediately after birth while the second one needed resuscitation and mechanical ventilation due to perinatal asphyxia.

Conclusion: Even though rare in a previously unscarred uterus, uterine rupture can present in different forms and thus, requires vigilant evaluation of the patient and prompt intervention to avoid significant maternal or foetal morbidity and mortality.

Keywords: In-vitro fertilization, spontaneous uterine rupture, unscarred uterus

Introduction

Spontaneous uterine rupture defined as complete separation of the myometrium, is one of the rare occurrences and is associated with significant morbidity and mortality for both the mother and foetus[1]. It is rarer in previously unscarred uterus with cases of uterine rupture reported in pregnant females with history of previous laparoscopic surgeries like adenomyomectomies, ectopic pregnancies and previous caesarean sections[2–4].

We present a case of spontaneous uterine rupture at 36 weeks of gestation in a primi gravida female with twin pregnancy following in-vitro fertilization (IVF) for primary subfertility. This case report has been reported taking into consideration the SCARE 2020 criteria[5].

HIGHLIGHTS

- Uterine uterus in a previously unscarred uterus is very rare.
- Uterine uterus can present in different ways.
- Early diagnosis and prompt intervention is of utmost importance for preventing significant maternal and foetal morbidity and mortality associated with it.

Method

We reported this case following the updated consensus-based Surgical Case Report (SCARE) Guidelines[5].

Case presentation

A 33-year-old primi gravida at 36 weeks 3 days of gestation with twin pregnancy after IVF for primary subfertility with history of cervical cerclage, which was removed at her regular antenatal visit at 36 weeks of gestation as elective caesarean was planned at 37 weeks presented to emergency with mild lower abdominal pain for 3–4 h. This pregnancy was after 11 years of marriage following an IVF with single embryo transfer for primary infertility. She had a past history of laparoscopic surgery for acute

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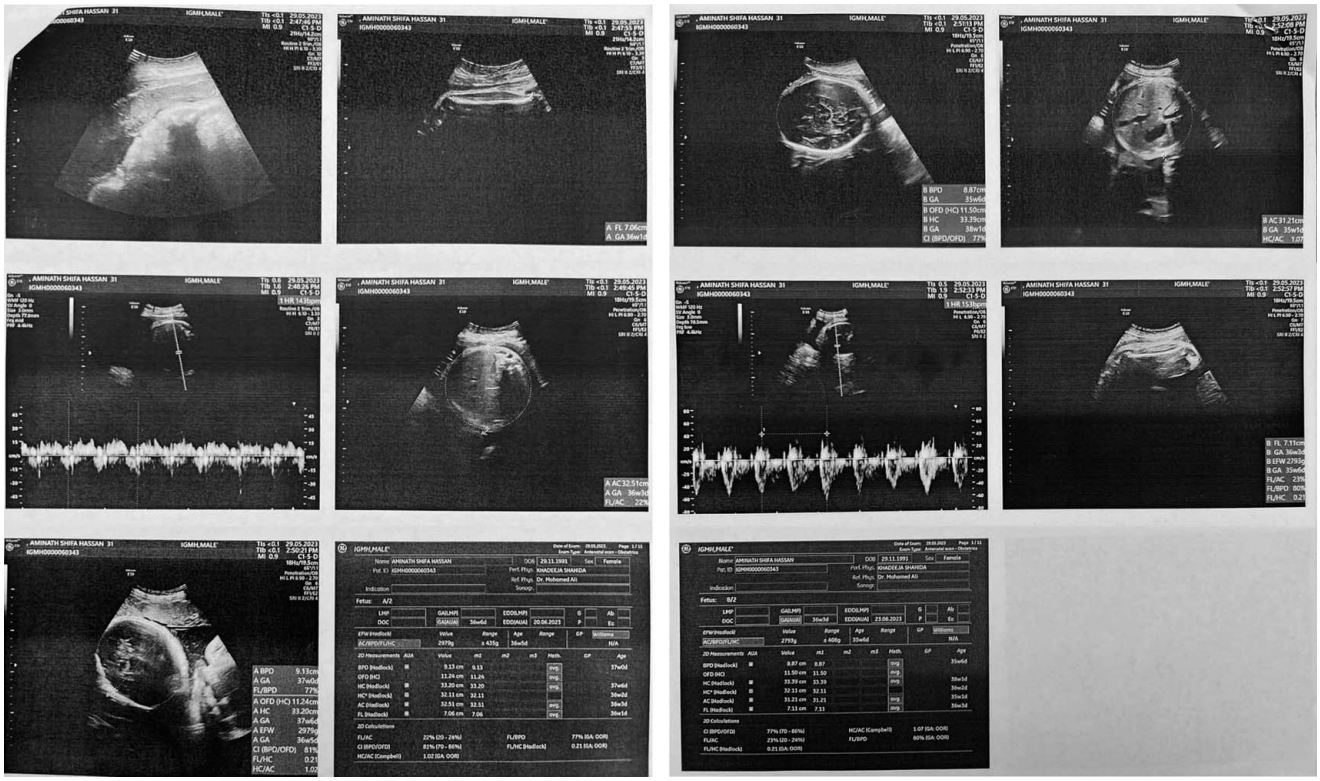

Figure 1. Preoperative obstetric scan revealing twin pregnancy.

appendicitis under general anaesthesia. She had gestational diabetes and was under metformin. She denied any history of recurrent pregnancy losses and any other history of chronic medical illness like hypertension, chronic airway disease or connective tissue disorders. There was no any significant family or personal history. On examination, her vitals were stable and per abdominal examination revealed generalized tenderness. Foetal heart sounds were noted and were within normal limits. All her laboratory investigations including complete blood counts, renal function tests, coagulation profile and electrocardiogram were within normal limits. Her abdominal ultrasound done 3 days prior to the time of presentation revealed di-amniotic twins with uncertain chorionicity (single anterior placenta or two fused placentas). (Fig. 1).

Emergency caesarean section under subarachnoid block was planned due to precious twin pregnancy in labour. After arranging and cross-matching blood and taking informed written consent, the patient was shifted to operating room and monitors were attached. The baseline vitals were recorded and subarachnoid block was given with 2.4 ml 0.5% heavy bupivacaine into L3–L4 interspace. After confirmation of the desired dermatomal level of anaesthesia, surgery was commenced. Painting and draping was done under all aseptic precaution and skin incision was given. Abdomen was opened in layers and after opening of the parietal peritoneum, 500 ml of clots were removed. After cleaning and suctioning, a fundal rupture measuring 6 × 2 cm was noted with no active bleeding (Fig. 2) which was repaired with vicryl 2.0 with continuous suture in two layers.

Babies were delivered with incision on the lower uterine segment, haemostasis was secured and the uterus was closed with continuous interlocking suture in two layers with vicryl 1.0. Pelvic gutter was cleaned and drain was placed after which abdomen was closed in layers. Skin was closed with prolene 2.0 and dressing was done.

Three episodes of hypotension were noted during the intraoperative period which was treated with intravenous fluid bolus and ephedrine. Slow intravenous methergin (0.2 mg) and slow intramuscular carboprost (250 mcg) was given for uterine tone. One pint of whole blood was transfused intraoperatively based on the blood loss and intraoperative hemodynamics.(Table 1).

The patient was shifted to intensive care unit for monitoring. Postoperative complete blood count revealed haemoglobin of 8.1 g/dl for which one pint of whole blood transfusion was done. After 48 hs, the patient was shifted to ward with stable

Figure 2. Shows intraoperative finding of fundal uterine rupture.

Table 1

Intraoperative findings and hemodynamics.

Heart rate	80–90 beats per min
Systolic blood pressure	80-110 mmHg
Diastolic blood pressure	48-55 mmHg
Oxygen saturation	99-100% at room air
Intraoperative blood loss	1500 ml
Intraoperative fluid	1500 ml
Intraoperative urine output	150 ml
Total duration of surgery	1 h 30 min

hemodynamics and laboratory parameters within normal limits. She was discharged on the 6th postoperative day and advised for follow-up in 1 week.

Follow-up was done in outpatient department after 1 week and she was doing fine.

Discussion

Uterine rupture in a previously unscarred uterus is a rare occurrence involving 1 in 16 000 pregnancies[6]. Most common causes for uterine rupture are known to be iatrogenic, drug-induced, cephalo-pelvic disproportion, placenta accreta and placental abruption[7–11].

Very few cases of uterine rupture in an unscarred uterus have been reported. Abbi *et al*.[2] reported uterine rupture behind the corneal structures which was diagnosed as emergency laparotomy was performed as maternal condition deteriorated following normal vaginal delivery. Similarly, Langton *et al*.[3] reported a tear above the insertion of right utero-sacral ligament. There was another case reported by Walsh *et al*.[4] in which posterior uterine wall tear was found on laparotomy done for failed induction for deteriorating maternal condition.

In our case, the patient with twin pregnancy following IVF for primary subfertility presented with mild lower abdominal pain and generalized tenderness on palpation. We proceeded with this patient as a case of precious twin pregnancy after 11 years of marriage in labour and planned for emergency caesarean section under subarachnoid block as she was hemodynamically stable with normal complete blood counts which did not correlate with the intraoperative findings of hemoperitoneum and the uterine rupture. With a background of IVF, increased stretching of uterine wall due to twin pregnancy can be attributed to the rupture in our case.

Conclusion

Uterine rupture can occur in a previously unscarred uterus even though rare. It can have different clinical presentations and requires prompt diagnosis and treatment to prevent maternal and foetal morbidity and mortality.

Ethical approval

Not applicable (a case report does not require ethical approval at our institute).

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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None.

Author contributions

S.M. and S.D. conceptualized the study. S.M., M.A.E.E. and S.D. were in charge of the case and they reviewed and edited the manuscript. S.D., B.O.S., B.B. and P.Y. reviewed and edited the original manuscript.

Conflicts of interest disclosure

None.

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