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Original Research Article

A case series of uterine rupture: a continuing cause of maternal and fetal morbidity!

Vinu Choudhary*, Surendra Bisu

Department of Obstetrics and Gynaecology, SMS College and Hospital, Jaipur, Rajasthan, India

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***Correspondence:**
Dr. Vinu Choudhary,
E-mail: vinuc16@gmail.com

ABSTRACT

Background: Uterine rupture is defined as a full-thickness separation of the uterine wall and the overlying serosa. It is a rare peripartum complication associated with severe maternal and neonatal morbidity and mortality. The objective of this study was to review the incidence of ruptured uterus and evaluate associated risk factors, maternal and fetal complications.
Methods: 14 case notes were reviewed for every patient with a ruptured uterus for a period of 4 years, from January 2012 to December 2015.
Results: 79% patients had uterine rupture while in labour. Three patients were not in labour (two had a spontaneous rupture at 28/40 and 33/40 weeks respectively and for one patient it was found during an elective C/S). Two out of five patients with 2 previous C/S ruptured at 28 and 33 weeks respectively. Two or more C/S were associated with increased risk of pre- labour rupture uterus as highlighted by the three cases.
Conclusions: Challenging diagnosis and cases of pre- labour rupture may necessitate pre- pregnancy counselling and antenatal LUS thickness USS in certain cases.

Keywords: Labour, Morbidity, Previous LSCS, Rupture uterus, Scar tenderness

INTRODUCTION

Uterine rupture is defined as a full-thickness separation of the uterine wall and the overlying serosa. It is a rare peripartum complication associated with severe maternal and neonatal morbidity and mortality.[1]

Uterine rupture in pregnancy is rare and often catastrophic complication with a high incidence of fetal and maternal morbidity. Numerous factors are known to increase the risk of uterine rupture.[2] The overall incidence of uterine rupture is 1:200 according to RCOG.

The initial signs and symptoms of uterine rupture are typically nonspecific, which makes the diagnosis difficult and sometimes delays definitive therapy. Uterine rupture occurs when a full-thickness disruption of the uterine wall that also involves the overlying visceral peritoneum (uterine serosa) is present. By definition, it is associated with the following:

Clinically significant uterine bleeding

Fetal distress

Protrusion or expulsion of the fetus and/or placenta into the abdominal cavity

- Need for prompt cesarean delivery
- Uterine repair or hysterectomy.

In contrast to frank uterine rupture, uterine scar dehiscence involves the disruption and separation of a preexisting uterine scar. Uterine scar dehiscence is a more common event than uterine rupture and seldom results in major maternal or fetal complications.

Consequences of uterine rupture depend on the time between diagnosis of uterine rupture and delivery and can be divided to fetal and maternal. Fetal consequences are admission to neonatal intensive care unit, fetal hypoxia or anoxia, and neonatal death.[3] Maternal consequences are hemorrhage, hypovolemic shock, bladder injury, need for hysterectomy, and a maternal death. On the other hand, morbidity and mortality following rupture of the uterus depend on the level of medical care

The premonitory signs and symptoms of uterine rupture are inconsistent, and the short time for instituting definitive therapeutic action makes uterine rupture in pregnancy a much-feared event for medical practitioners.

The objective of this study was to review the incidence of ruptured uterus and evaluate associated risk factors, maternal and fetal complications.

METHODS

14 case notes were reviewed for every patient with a ruptured uterus with an average yearly birth rate of 6000 deliveries, for a period of 4 years, from January 2012 to December 2015.

Inclusion criteria

- All antenatal patients registered as well as unregistered presenting with rupture uterus which was diagnosed depending on the signs and symptoms manifested
- Patient presenting with any obstetric score
- Consent of patient and of the blood relative if patient haemodynamically unstable.

Exclusion criteria

Patient or blood relative (if patient haemodynamically unstable) not giving consent to participate in the study.

RESULTS

Total incidence of uterine rupture was 0.04%. There was no maternal mortality. 58% of patients had 1 previous C/S, 35% had 2 or more previous C/S and only one (7%) was a primipara with an unscarred uterus.

Interval between last C/S and conception LMP was between 12-24 months in 50% of cases, with the remainder more than 24 months.

92% of patients who had a previous C/S had a two-layer closure and only one a one-layer closure.

79% of patients had a uterine rupture while in labour. Three patients were not in labour (two had a spontaneous rupture at 28/40 and 33/40 and for one patient it was found during an elective C/S). 79% (10/14) of patients went in spontaneous labour, 14% (2/14) labored after ARM and Oxytocin was used in 28% (4/14) of patients. 21% of patients were more than 40 weeks when they went in labour.

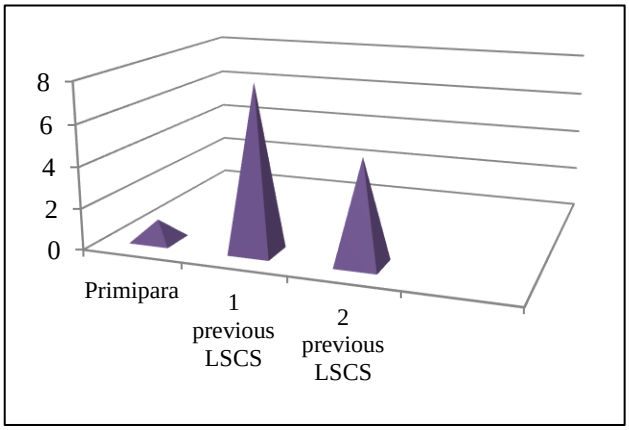

Figure 1: Depicting obstetric score of patients presenting with rupture uterus.

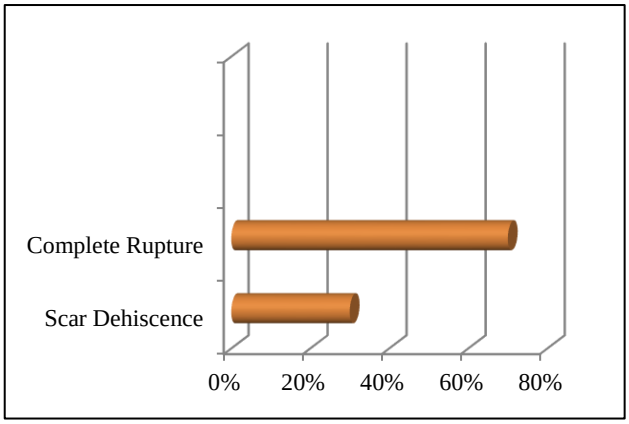

Figure 2: Depicting intraoperative findings during caesarean section.

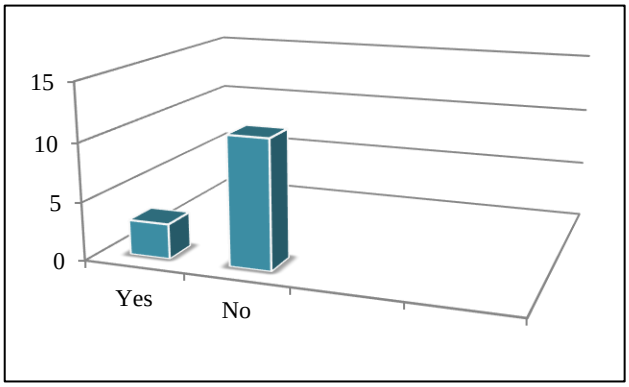

Figure 3: Depicting number of cases in which rupture was suspected before delivery.

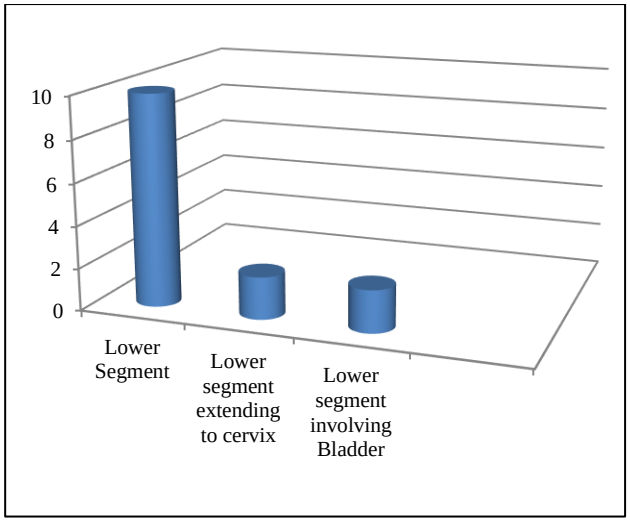

Figure 4: Focussing on the location of tear in rupture uterus.

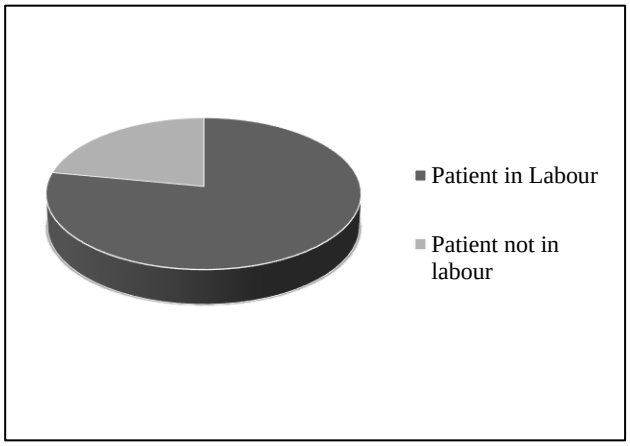

Figure 5: Demonstrating state of patient during labour.

Table 1: Frequency of clinical features of patients with rupture uterus.

Clinical finding	Frequency
Severe abdominal pain	50%
Fetal distress	50%
Tachycardia	28%
Hypotension	25%
Vaginal bleeding	21%
Haematuria	7%
Fetus palpable in abdomen	7%

Two out of five patients with 2 previous C/S ruptured at 28 and 33 weeks respectively. The common features in the two were constant abdominal pain and fetal distress. These were also present in 50% of patients i.e. 12 out of 14 patients.

86% were delivered by emergency C/S, one by forceps delivery and one by elective C/S. 26% received blood transfusion. One had a hysterectomy and ICU admission.

One intrauterine death was reported and 28% of babies had to be admitted to the Special Care Unit with one neonatal death at 3 days old (mortality rate:14%).

DISCUSSION

The above series suggest that the signs and symptoms of uterine rupture are typically nonspecific, which makes diagnosis difficult. Delay in definitive therapy causes significant fetal morbidity.[4]

The inconsistent signs and the short time in prompting definitive treatment make it a challenging event. For the best outcome, VBAC needs to be looked after in an appropriately staffed and equipped unit where immediate facilities for cesarean delivery and advanced neonatal support are available.

In our experience, the single most important risk factor for uterine rupture was previous c/section which worsens with two or more c/sections. Incidence of rupture in this sub-group (two or more c/sections) was comparable to findings of large studies, such as the NICHD study (0.9%(9/975)) Two or more c/section are associated with increased risk of pre-labour rupture uterus as highlighted by the three cases.[5,6]

The study also identified ruptured uterus in more than two previous c/section may be asymptomatic in minority of cases as highlighted by cases found as elective c/section.[7]

Strategies to prevent rupture uterus[5]

- Antenatal counseling and risk assessment
- Consultant involvement
- Suitable staffed and equipped delivery suite
- Continuous intrapartum care and maternal monitoring
- Continuous electronic fetal monitoring
- Resources for immediate cesarean section within 30 minutes
- Advanced neonatal resuscitation.

Some key points of this study

- 79% patients had uterine rupture while in labour. Three patients were not in labour (two had a spontaneous rupture at 28/40 and 33/40 weeks respectively and for one patient it was found during an elective C/S)
- Two out of five patients with 2 previous C/S ruptured at 28 and 33 weeks respectively
- Two or more C/S were associated with increased risk of pre- labour rupture uterus as highlighted by the three cases
- Challenging diagnosis and cases of pre- labour rupture may necessitate pre- pregnancy counselling and antenatal LUS thickness USS in certain cases.

CONCLUSION

These findings in association with significant maternal and fetal morbidity with uterine rupture may necessitate the need for pre-pregnancy counselling for women with more than one c/sections and antenatal LUS thickness USS. Strategies need to be developed to prevent uterine rupture.

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Ethical approval: The study was approved by the institutional ethics committee

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