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UTERINE RUPTURE: AN OBSTETRICIAN'S NIGHTMARE- A REVIEW ON CASES

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ABSTRACT

The current study reports the cases of uterine rupture with distinct clinical presentations and findings at different gestational ages. During the 6 month prospective observational descriptive study conducted in IMS and SUM Hospital, Bhubaneswar, Odisha. We observed the various clinical presentations and intra-operative findings at different gestational ages. Uterine rupture is a significant contributor to maternal morbidity and mortality. Identification of women at high risk such as grand multipara, prior history of caesarean section, previous caesarean section is important. Contraceptive counselling, early and correct diagnosis of extra-uterine pregnancy are essential for us obstetricians.

Keywords: Uterine rupture, foetal death, haematuria, obstetric index

INTRODUCTION

Uterine rupture is the disruption of all the layers of the uterus, including the serosa. It poses a threat to life of both mother as well as the foetus. It can lead to several serious complications such as the immediate need of peripartum hysterectomy, shock or even maternal and foetal death **[1-4]**.

Its occurrence incidence is 1 in 2500 to 1 in 5000 deliveries **[4, 5]**.

Complete uterine rupture involves tear of the entire wall which results in a direct communication between the peritoneal space and the uterine cavity. This is uncommonly encountered as compared to an incomplete rupture. In a case of partial or incomplete rupture, a covering or layer of visceral peritoneum or broad ligament is left to be present over the uterus **[6]**.

Most often, it occurs in a previously scarred uterus **[7]**. Existing literature indicates that majority cases of rupture in scarred uterus occur in women who had a prior history of caesarean section delivery **[4, 8]**. This risk is further increased as the number of previous C-sections increases. Considerable increase in risk of rupture is seen after 2 or more C-sections **[9]**.

Other pre-disposing factors include-

- Trial of labour in patient with previous history of caesarean section **[10, 11]**.
- Instrumental deliveries **[12]**.
- Excessive labour induction **[8, 10, 13]** - Especially with Oxytocin as the agent **[12]** or the use of prostaglandins **[10, 12]**.

The risk of rupture decreases if the woman has had a successful vaginal delivery after a caesarean section **[12]**.

In resource-rich countries, the most significant risk factor is a previous caesarean section.

The rising trend of CS rates puts women at increased risk of a uterine rupture.

Early detection of risk factors and proper antenatal care is of utmost importance as many of these cases / their life-endangering complications can be prevented with timely diagnosis and intervention.

Uterine rupture is an obstetric emergency with catastrophic maternal and foetal outcomes. It is a time sensitive condition needing immediate surgical intervention.

Congenital Mullerian anomalies occur in around 5% of women **[14]**. Patients are usually asymptomatic and are incidentally diagnosed during investigations for other gynaecological problems or during pregnancy. Most of the asymptomatic cases go unrecognised.

The patient can present in a number of different ways like primary amenorrhoea, dysmenorrhoea, dyspareunia, infertility and

recurrent miscarriage. Very rarely do we encounter spontaneous rupture of horn in a gravid bicornuate uterus. High index of clinical suspicion is needed in these cases.

These cases represent the uterine rupture with distinct clinical presentations and findings at different gestational ages. Case Report 1

A 35 year old resident of Nayagarh (rural Odisha), with obstetric score of G5 P3 L3 A1 presented to labour room at 2.30 am on 5/1/2021 at 40 weeks 5 days period of gestation, with the chief complaint of lower abdominal pain since 11.00 am of the previous day (4/1/2021).

Her lower abdominal pain started on 11.00 am on 4/1/2021. It was associated with blood stained mucoid discharge. She went to one CHC (Community health centre) and then to a District Hospital but despite 12 hours of pain, delivery could not be done.

Finally, at 12.00 am 5/1/2021 she was referred to a higher centre. On her way to our hospital the patient had collapsed and lost her consciousness. She reached our LR at 2.30 am on 5/1/2021.

On eliciting her obstetric history, we came to gain the knowledge that her first pregnancy 15 years back was a twin gestation which had resulted in a spontaneous abortion at 4 months period of gestation. She had undergone suction and evacuation for it.

After that, she had 3 normal vaginal deliveries. Last of them being 5 years back.

In her present pregnancy i.e her 5th pregnancy, she had gone for one antenatal check up and had done one obstetrical ultrasound at 17 weeks gestation.

On examination, she was severely pale, had cold and clammy extremities, dry lips, dry and coated tongue. Her pulse rate was 160/min and blood pressure was 80/40 mm hg, respiratory rate was 22/min, SpO2- 70% on room air.

On obstetric examination- abdomen was distended, uterus was term size, contour maintained, tonically contracted, foetal parts could not be palpated, foetal heart sounds were not audible by stethoscope and could not be located by doppler as well.

On inspection of vulva- vulval oedema was present, urine was blood stained after catheterisation.

On Per vaginal exam: dry, hot vagina, cervix fully effaced, os fully dilated, head station: 0, caput station: +2.

Wide bore double i.v line was secured and fluid resuscitation was done. On inserting foley's catheter, haematuria was noticed. Her haemoglobin level was 5.6 g/dl.

Laparotomy with Caesarean hysterectomy was done under general anaesthesia on

5/1/2021.

Intra-operatively it was seen that the urinary bladder appeared congested and oedematous. Bowel loops looked distended.

A dead male foetus of 4.65 kgs was delivered at 3.20 am on 5/1/2021 after giving a transverse uterine incision.

There was a rupture of the uterus on the posterior surface extending from the right lateral side. Rupture extended from the round ligament on the right side to the right uterosacral ligament. Around 1.5 litres of altered blood and clots were present in the pouch of Douglas and the site of rupture. Total abdominal hysterectomy was done. Bilateral tubes and ovaries were healthy and preserved. 1 unit of cross matched blood was given intra-operatively.

Post-operatively, she was shifted to the ICU and was transfused with 1 unit of cross-matched blood and 6 units of Random donor plasma (RDP). Injectable antibiotics and analgesics were given. Patient's immediate post-operative period was uneventful.

Case Report 2

On 14th August 2021 21 year old female, resident of rural Odisha, came with the chief complaint of lower abdominal pain since 4 hours.

On eliciting accurate history, it came to our knowledge that she had conceived during lactational amenorrhoea. Her obstetric index was G2 P1L1 with previous history of term delivery by caesarean section 9 months back. The indication of the C-section as told by the patient, was Oligohydramnios. Post the baby's birth, her normal menstrual cycles had not resumed yet and she was currently breast-feeding her baby as well.

She had taken Tab. Mifepristone (200 mg) orally on 7th august 2021 followed by 4 tablets of Tab. Misoprostol 200 mcg each orally (total- 800 mcg) on 9th August 2021. When we received her, she complained of having a fluctuant abdominal pain which had gradually increased in intensity over the last 4 hours.

On clinical examination, she appeared pale. Her blood pressure recording was 90/60 mm Hg and pulse rate was 124 beats per minute. Body temperature was normal. Respiratory rate was 20 per minute.

Per abdominal examination- abdomen was distended with generalised tenderness present all over the abdomen. Foetal parts could be palpated superficially.

A per vaginal examination revealed a closed portio with no evidence of any bleeding.

On ultrasonographic examination, we could visualise a non-viable foetus in the abdominal cavity. Foetal biometry corresponded to 20 weeks gestational age. It

could be seen separate from the uterus. A rent was seen on the anterior wall of the uterus. The uterine cavity appeared empty. Free fluid could be seen in the peritoneal cavity.

Along with fluid resuscitation, an Emergency Laparotomy was planned. Patient's pre-operative haemoglobin value was 6 g/dl.

After opening the layers of the abdomen, 1 litre of altered blood was suctioned out. The foetus was found floating in the abdominal cavity, outside the uterus. Weight of the female foetus removed was 650 grams. The previous caesarean section scar site of the uterus had ruptured. Primary repair of the uterus was performed.

In the post-operative period it was kept in mind that her chances of developing sepsis were more. She was given injectable antibiotics and transfused with 2 units of cross matched blood.

Case Report 3

A 25 year old female, resident of rural Odisha, with obstetric index G3 P1 L1 A1 at 18 weeks gestational age according to her last menstrual period with history of previous caesarean section delivery 8 years back, came to the labour room in low condition, with the complains of lower abdominal pain, decreased foetal movements generalised weakness and head reeling since 1 day.

She gave no history of any instrumentation or MTP kit intake. On examination she was severely pale with pulse rate 128 per minute and blood pressure 80/50 mm hg.

On per abdominal examination- abdomen was found to be tensely distended with presence of epigastric tenderness. Uterus size was about 22 weeks.

On per vaginal examination, cervix was short and soft and os was closed. Bilateral forniceal tenderness was present.

On ultra-sonographical examination, the foetal femur length corresponded to 21 weeks and 1 day. Cardiac activity was absent. The placenta was low-lying with right lateral extension with presence of retro-placental haematoma. Gross amount of collection with low level internal echoes noted in Morrison's pouch, pouch of Douglas, left para-colic gutter- suggesting hemoperitoneum. Features were suggestive of uterine rupture.

On opening the abdomen a female foetus was found floating in the abdominal cavity. Cornu-fundal rupture of the uterus was noted on the right side of the uterus. Hysterectomy with bilateral salpingectomy was done. Intra-operatively 2 units of packed red blood cells and 2 units of fresh frozen plasma were given as her pre-operative haemoglobin was 4.2 g/dl. Post-operatively 2 more units of PRBC

were transfused and she was discharged on post-op day 8.

Case Report 4

A 27 year old primigravida with a history of amenorrhoea of 4 months presented with complaints of pain abdomen since the last 24 hours. Her past menstrual cycles were regular. There was no history of dysmenorrhoea. On examination, patient was extremely pale, pulse rate was 100/min., blood pressure was 100/60mm Hg. Per abdominal examination revealed the size of uterus to be 20 weeks, and tenderness and guarding were present. Bimanual examination revealed uterus was 20 weeks size, cervical motion tenderness was present. The cervix was long and external os was closed. Ultrasonography revealed gross haemoperitoneum with foetus in the peritoneal cavity. Uterine cavity was empty. Paracentesis was done. Frank blood came out. Her haemoglobin level was 4.4 gm%. A provisional diagnosis of rupture uterus with a differential diagnosis of abdominal pregnancy was made. Patient was taken for laparotomy after initial resuscitation. Intra-operative findings were haemoperitoneum of 3 litres of blood along with clots. Foetus was found in the peritoneal cavity. There was a bicornuate uterus with rupture of the right horn and the placenta partially attached to the right horn. Each uterus was linked to the ipsilateral fallopian tube.. Both the ovaries were normal. Placenta was removed. The right horn was excised and repaired. The patient received a total of 4 units of packed cells. Postoperative period remained uneventful. Ultrasonography was done on 8th postoperative day to rule out renal anomalies. Both the kidneys were normal in location, size, and shape. She was discharged on the 8th postoperative period with the advice of regular follow ups.

DISCUSSION

Spontaneous rupture of the uterus during labour is quite rare. The majority of rupture occur in women with scarred uteri. Women who have history of gynaecological surgeries (which results in uterus being scarred) are at higher risk of uterine rupture during pregnancy. We have to closely observe such patients especially during labour.

Spontaneous rupture of uterus is difficult to diagnose in an unscarred uterus. We should suspect it in case of unusual and intractable pain abdomen in labouring women.

Multiparity, advanced maternal age, grand multipara, low socio-economic status, foetal macrosomia, lack of antenatal care are risk factors.

In the 1st case that we've reported, there were certain atypical features because it was

a posterior uterine rupture. For example, the uterus was tonically contracted, foetal parts could not be palpated easily or superficially on per abdominal examination because the foetus was still inside the uterine cavity. On per vaginal examination, the foetal head had not receded back which usually happens in a ruptured uterus. Laparotomy revealed that the foetus was still inside the uterine cavity. In our case we can only speculate that her previous history of suction and evacuation 15 years back could have been a risk factor in causing the posterior uterine wall rupture. Such cases are extremely rare.

The 2nd cases highlight how the use of Misoprostol (prostaglandins) can lead to ruptured uterus in a previously scarred uterus. Since the patient had undergone caesarean section only 9 months back, it is safe to assume that the scar would have been weak.

It is very important for us obstetricians to educate women regarding the perils of unsafe induced abortions.

Coming to the 4th case, in Bicornuate uterus, the uterus consists of one cervix and two divergent horns. There are two separate but communicating endometrial cavities and the myometrium surrounds each cavity. Each uterus is linked to the ipsilateral fallopian tube that faces its ovary. Rupture in such malformed uterus occurs because of the inability of the malformed uterus to expand as a normal uterus. The timing of rupture can occur as early as 5th week of gestation and rarely pregnancy can go on till late second trimester before rupturing. In majority of cases, rupture occurs before 20 weeks of gestation. Singh *et al*. reported a case of ruptured bicornuate uterus at 10 weeks of gestation mimicking ectopic pregnancy **[15]**. Several authors suggest women with a bicornuate uterus can deliver a living child, but frequently results in premature labour around 22-32 weeks gestation since the pregnancy is growing in 'half a uterus' **[16]**. Parmar *et al*. reported a case of bicornuate unicollis pregnancy which was carried till 38 weeks and had good outcome **[17, 18]**.

Rupture of gravid bicornuate uterus is associated with catastrophic haemorrhage. This haemorrhage is massive and life threatening unless diagnosed and treated promptly. Ultrasound imaging is considered the most important diagnostic modality. Uterine anomalies during pregnancy are difficult to diagnose by the two- dimension (2-D) ultrasonography. Often more than one method of investigation is necessary to accurately diagnose the condition. Newer 3-D ultrasonography has been advocated as an excellent tool to evaluate these

malformations. Mullerian duct anomalies are usually associated with renal anomalies particularly renal agenesis or ectopia due to common embryological development. So, imaging of the renal tract should be performed in all cases as was done in our case.

CONCLUSION

The inconsistent signs and the short time in prompting definitive treatment of uterine rupture make it a challenging event. The 1st case emphasises the importance of knowledge of a wide variety of risk factors, some of which may be specific to low socio-economic strata, and lack of proper antenatal care in a multigravida. It also highlights atypical presentation of a rupture uterus due to it being a posterior rupture.

The 2nd case shows how induced abortions especially in advanced gestational age can lead to dangerous outcomes. The risk factor is this case of previous caesarean section.

Because of timely management and tertiary care facilities, mother's life could be saved in both the cases.

However, we find it imperative to mention here that:

From these cases we have seen further proof of something that we'd already known:-

In our country, especially in the rural parts and areas of India, there exists a major gap between health care facilities and people, especially women. The health-seeking behaviour of women pregnant or otherwise needs drastic and crucial improvements so as to decrease preventable deaths.

We feel the care for labouring women needs to be a priority and the referral system (system by which patients are referred to higher centres for treatments) needs to be prompt. This will save valuable time by preventing delays in communication and transport and make it possible for us to provide necessary intervention earlier.

Both partners need to be educated about contraception. The burden to prevent unwanted pregnancies should not fall on a woman alone and it should be a shared responsibility. Contraceptive counselling is essential and is the need of the hour. It will help prevent maternal morbidity and mortality as a result of unsafe abortion practices which exist rampantly in our country.

Lastly, an early and correct diagnosis of advanced extra-uterine pregnancy warrants a high index of suspicion as sometimes the symptoms are non-specific and in most of the cases the diagnostic modalities remain inconclusive. A delay in diagnosis results in maternal mortality and morbidity.

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