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Profile of Cases of Uterine Rupture in Teaching Hospital of Kutch District

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Abstract

Background: Uterine rupture is an obstetrical emergency associated with severe maternal and perinatal morbidity and mortality. It is a rare but potentially dangerous event occurs in 1 of 8,000 to 1 of 15,000 deliveries.[1] Factors responsible for uterine rupture can be divided into maternal, fetal and social subtypes. By reviewing cases of uterine rupture we will be able to identify incidence, obstetric risk factors, maternal and perinatal morbidity plus mortality and management modalities of uterine rupture in teaching hospital of Kutch district. We will be able to take measures which can help in preventing uterine rupture and its worst outcome.

Methods: This is an observational study conducted over a time period of 3 years, one year retrospectively and two years prospectively. All pregnant females admitted or referred to GKGH with uterine rupture were included in the study. All the cases were analyzed and data regarding their demographic characteristics, clinical presentation, risk factors, management, operative findings, postoperative complications, maternal and fetal outcome were studied.

Results: The overall incidence of uterine rupture is 2.13. Among them 83% are multigravida. Out of this 22% cases of rupture were due to previous LSCS. All the cases were referred to GKGH and majority of them were not having ANC visits. Two cases of rupture were due to uterine anomaly and another two cases had gross congenital fetal malformations which led to obstructed labor and ultimately resulted in uterine rupture. In one case conjoint twins were delivered vaginally. Two cases resulted in maternal death. Only 22% of the babies survived rest were brought dead (IUFD).

Conclusions: Multigravida is still a leading cause of uterine rupture in Kutch district even in today's modern era where patients prefer more to go for planned cesarean section.

Uterine rupture is a major contributor to foeto-maternal morbidity and mortality. Routine antenatal check up with ultrasound, identification of high risk women, prompt clinical diagnosis, timely refer, immediate transfer and optimal management is over emphasized to avoid adverse fetomaternal complication.

Awareness regarding maternal and child health, routine antenatal check up, adoption of family planning methods, nutrition level should be spread.

Keywords: Uterine rupture; Multigravida; Previous cesarean; Hysterectomy; Obstructed labor, perinatal morbidity and mortality.

Introduction

Background

Uterine rupture is like an accident in smooth journey of pregnancy, labor and puerperium. It is an unexpected incident in which spontaneous tearing of the uterus occurs which may result in the fetus being expelled into the peritoneal cavity. Incidence

of uterine ruptureis 1 in 8,000 to 15,000 deliveries.[1] Systematic review done by WHO shows that the prevalence is lower in developed countries than in the less or least developed countries. The worry for uterine rupture is due to its dreadful outcomes. It carries grave risks to the mother and her baby. Even if women survive, the future reproductive potential is brought down or turned a loss forever. Various maternal, fetal, iatrogenic and social factor sare responsible for uterine rupture.[2]

- *Maternal factors:* Multigravida, previous caesarean, congenital uterine anomaly, myomectomy, open fetal surgery.
- *Foetal factors:* Macrosomia, malpresentation, gross congenital malformation like fetal hydrocephalous.
- *Iatrogenic:* Induction of labor, uterine instrumentation, attempt of forceps delivery, external version, internal version, uterine trauma.
- *Social:* Lack of health education, ignorance to health of females, poverty, religious belief, lack of ANC visit, home deliveries by traditional birth attendant.

Mechanism

In an incomplete rupture the peritoneum is still intact. With a complete rupture the contents of the uterus spill into the peritoneal cavity or the broad ligament. Symptoms and signs of uterine rupture include fetal bradycardia, variable decelerations, evidence of hypovolemia, loss offetal station (Detected during cervical examination), change in uterine contour and severe or constant abdominal pain. If the fetus has been expelled from the uterus and is located within the peritoneal cavity, morbidity and mortality increase significantly.

Symptoms of a rupture may be initially quite subtle. An old cesarean scar may undergo dehiscence but with further labor the woman may experience abdominal pain and vaginal bleeding, though these signs are difficult to distinguish from normal labor. Often a deterioration of the fetal heart rate is a leading sign, but the cardinal sign of uterine rupture is loss of fetal station on manual vaginal exam. Intraabdominal bleeding can lead to hypovolemic shock and death. Although the associated maternal mortality is now less than one percent, the fetal mortality rate is between two and six percent when rupture occurs in the hospital.

In pregnancy uterine rupture may cause a viable abdominal pregnancy. This is what accounts for most abdominal pregnancy births.[5]

- Abdominal pain and tenderness will be present. The pain may not be severe; it may occur suddenly at the peak of a contraction. The woman may describe a feeling that something "gave way" or "ripped."
- Chest pain, pain between the scapulae, or pain on inspiration—Pain occurs because of the irritation of blood below the woman's diaphragm.
- Hypovolemic shock caused by hemorrhage-Falling blood pressure, tachycardia, tachypnea, pallor, cool and clammy skin, and anxiety. The fall in blood pressure is often a late sign of hemorrhage.
- Signs associated with fetal oxygenation, such as late deceleration, reduced variability, tachycardia, and bradycardia.
- Absent fetal heart sounds with a large disruption of the placenta; absent fetal heart activity by ultrasound examination.
- Cessation of uterine contractions.
- Previous LSCS scar tenderness.
- Palpation of the fetus outside the uterus (Usually occurs only with a large, complete rupture). The fetus is likely to be dead at this point.
- Signs of an abdominal pregnancy.

Diagnosis of uterine rupture is confirmed by laparotomy.

Treatment of uterine rupture is immediate laparotomy with cesarean delivery and, if necessary, rent repair (If repairable) with or without tubal ligation or obstetric hysterectomy.

Due to potential grave consequences of uterine rupture an obstetrician should have a high clinical suspicion for it in presence of abdominal pain, vaginal bleeding, loss of fetal station and non-reassuring fetal heart rate patterns.

Materials and Methods

We have conducted an observational study in which 18 cases of uterine rupture were studied over a period of 3 years, one year retrospectively and two years prospectively. All pregnant females admitted or referred to GK General Hospital with Uterine Rupture are included in the study. The study was approved by ethical committee of the institution. All the cases were analyzed and data regarding their demographic characteristics,

clinical presentation, risk factors, management, operative findings, postoperative complications, maternal and fetal outcomes were studied.

Inclusion criteria: Pregnant females who were referred to our hospital with ruptured uterus or females who developed rupture of gravid uterus at our hospital are included in our study. Here all cases of uterine rupture (partial or complete) were included.

Exclusion criteria: No

Statistical Analysis

The data extracted include demographic characteristics, age, parity, gestational age, risk factors leading to uterine rupture, types of uterine rupture. The data were analyzed using Microsoft excel 2013. Descriptive statistics were obtained through frequencies and cross tabulations. Quantitative variables were described using Mean ± Standard deviation, range.

Results

During study period of 3 years we have observed total 18 cases of uterine rupture in our hospital. All the patients were unbooked and referred from periphery. Incident of uterine rupture is 2.13.

Table 1: Demographic character

Demographic character	Mean ± SD	Range
Age (years)	31.2 ± 5.55	22–35 years
Parity	4.16 ± 2.55	1–10
Gestational age (weeks)	39.33 ± 5.77	24–40

In maternal demographic character mean ± SD (Range) age of mother is 31.2 ± 5.55 (22–35) years, mean ± SD (Range) parity of mother was 4.16 ± 2.55 (1–10) and mean ± SD (Range) gestational age was 39.3 ± 5.77 (24–40) weeks (Table 1).

Table 2: Risk factors which led to uterine rupture

Risk Factor	*n* (18)	Percentage (%)
Multigravida	15	83.33
Previous LSCS/previous hysterotomy	4	22.22
Multigravida with obstructed labor	3	16.66
Uterine anomaly	2	11.11
Idiopathic	1	5.55
Fetal anomaly	2	11.11

The overall incidence of uterine rupture was 2.13. Out of these majority of them were multigravida and those ruptured due to obstructed labor they were also multigravida. Two cases of uterine anomaly and one case of conjoint twin delivered per vaginum. In our study no cases of uterine rupture has seen in patients with previous history of myomectomy and not a single case of rupture has been noted while giving trial of labor after cesarean (TOLAC) (Table 2).

Table 3: Type of uterine rupture

Type of uterine rupture	*n*	Percentage (%)
Complete	16	88.88
Dehicence	2	11.11

Out of 18 cases of uterine rupture majority (n = 16) of the patients were having complete uterine rupture. In one case there was partial rupture (Unscarred uterus) postpartum treated conservatively and in one case previous LSCS scar dehiscence was seen. In one case there was due rupture due to previous hysterotomy (Table 3).

Fig. 1: Image of uterine rupture in patient who delivered conjoint twin vaginally.

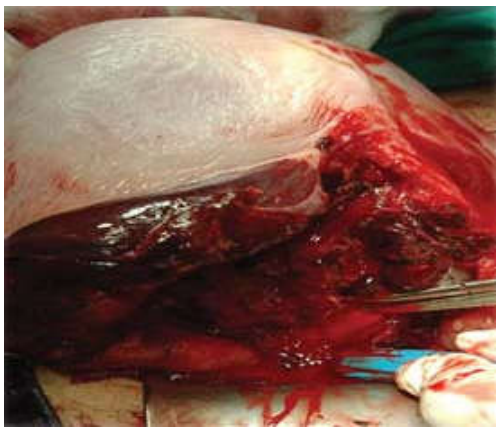

Fig. 2: Uterine rupture in 4th gravida with placental abruption.

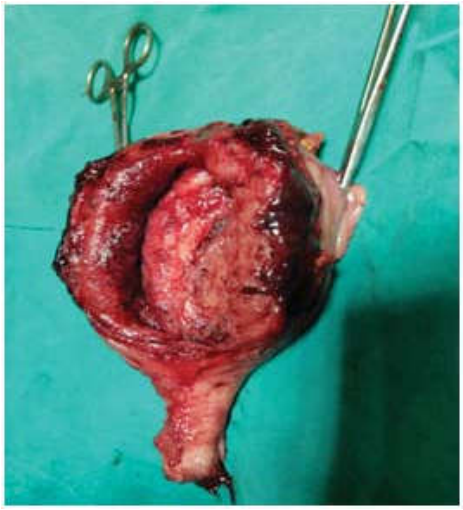

Fig. 3: Uterine rupture in PT with 1st hysterotomy followed by 3 vaginal birth and in 5th pregnancy she developed rupture.

Out of all the cases majority of the patient had no ANC visits or underwent ultrasound. In 2 cases there was gross congentital malformation of fetus. In one case there was fetal hydrocephalous (BPD 14 cm) with breech presentation in her 7th pregnancy, who reached to our hospital after delivery of trunk and head got entrapped in pelvic cavity in whom after doing craniocentesis, fetal head was delivered with placenta followed by gush of blood, on exploration she had ruptured uterus with huge reteroperitoneal hematoma extending till lower pole of left kidney.

In another case, 10th gravida breech with gross fetal ascites with no previous scan or ANC visit came to our institute after delivery of half of the trunk of baby, rest of the trunk got entrapped in pelvic cavity due gross congenital malformations with ruptured uterus.

In 3rd case, it was mother's 6th delivery, Conjoint Twins were delivered vaginally at periphery, followed by uterine rupture.

In management of these cases out of 18 cases in 17 cases laparotomy was performed. Out of which in 10 (55.55%) patients obstetric hysterectomy was performed. Rent repair with bilateral tubal ligation was performed in 4 (22.22%) cases.

In one case only rent repair was performed in view of preservation of future fertility. Two cases of uterine anomaly were there in which horn removal was done. One case managed conservatively. The choice of surgery was based on type, extent and location of tear; patient's hemodynamic condition and future desire of fertility. Rent repair with or without tubal ligation required less time and was found to be a better alternative in hemodynamically unstable patient. Subtotal hysterectomy was supposed to be done in majority of patients as rent repair was not possible.

Discussion

Rupture of the gravid uterus is an unexpected, rare, and potentially life-threatening devastating complication. It still constitutes one of the most serious obstetrical emergencies. Despite the advances of modern medicine, it continues to cause adverse fetal and maternal health consequences.[2] The incidence of uterine rupture is 2.13 in our series. The most common predisposing factors for rupture uterus reported in literature are previous cesarean section, grand multiparity, obstetrical trauma, fetal macrosomia, and malpresentations.[3]

While going through various studies we found out that uterine rupture due to rupture of previous cesarean scar was the major culprit in the new modern era of preferential mode of delivery via cesarean section.[4]

However, in our study still the leading cause of uterine rupture is multigravida like olden times. May be the reason is that in our study still the illiteracy rate is very high in rural areas so they don't go for adaptation of family planning methods so definitely the number of multigravida plus their conceptions in short intervals are very high. The abdominal wall becomes weak and lax for mothers withhigh number of pregnancies.

As a result this contributes for the head of fetus not to be engaged earlythat leads to different malpresentations. Mal-presentation was found to be one of the contributing factors for rupture in some previous studies.

Secondly, the women who underwent caesarean sections become more apprehensive and go to health care facility for their deliveries which preventsthem from undergoing catastrophy of uterine rupture (Figs. 1–3).

The consequences of this potentially life-threatening condition depend on the time that has elapsed from the occurrence of rupture until the definitive management. Prompt maternal supportive and resuscitative measures should be undertaken to avoid catastrophic consequences like life-threatening uterine hemorrhage and maternal shock.

Once the rupture uterus is diagnosed, prompt management is the essence. Patient, if in clinical shock needs immediate resuscitation and surgical

intervention. After the situation is fully evaluated, obstetrician then needs to decide if the rupture is surgically reparable or hysterectomy is needed. The choice of the surgical procedure also depends upon the type, location, and the extent of the uterine tear. Several authors considered subtotal or total hysterectomy as procedure of choice; whereas, others recommend that surgical repair is a safer immediate treatment. In our study, successful repair were achieved in 22% of cases. However, repair of ruptured uterus increases the possibility of recurrence of rupture in subsequent pregnancies, with reported incidence of 4–13%.[4]

Therefore, elective repeat cesarean delivery should be performed in this group of patients. Extensive counseling regarding future pregnancy and potentially associated complications should always be done with the patient.

Controversy exists in the literature regarding maternal mortality. In other studies did not find any maternal death after a uterine rupture. However there are other studies reporting maternal mortality rates ranging from 0 to 13%.

In our study majority of the patient came in hypovolemic shock due to uterine rupture so there was no scope of prompt diagnosis and spot management because already they came after a significant delay. In our study morbidity was seen in many patients but maternal mortality was seen in two cases in whom there was extensive retroperitoneal hematoma and in patient with severe anemia.

Definitive therapy for the fetus is delivery via emergent surgical intervention, which is helpful in avoiding or reducing major fetal morbidities including fetal hypoxia, anoxia, acidosis, and fetal mortality. Delivery within 30 min after the uterine rupture is suspected clinically is associated with good long-term neonatal outcomes.

However, majority of our patients were unbooked and were transferred to the hospital in emergency after obstructed labor or uterine rupture was suspected. The time delay between onset of rupture and delivery contributed to high neonatal mortality, as demonstrated in our study. Adequate transportation facilities should be available with primary care centers so that these patients can be transferred to higher centers immediately. Additionally, lack of level 1 nursery at our district contributed to higher neonatal morbidity and mortality. Therefore, we emphasize the importance of early identification of at-risk women for uterine rupture and early referral to a tertiary care center.

Early identification of nonreassuring fetal heart rate patterns can help the obstetrician to suspect uterine rupture early.[1] However, there is lack of availability of electronic fetal monitors in majority of the institutions in our country. We presume that once continuous electronic fetal monitoring facilities are more readily available, incidence of grave maternal and neonatal consequences can be reduced.

Conclusion

In conclusion, uterine rupture is a major contributor to maternal morbidity and neonatal mortality. Four major easily identifiable risk factors including grand multiparity, history of prior cesarean section, obstructed labor, and fetal malpresentations and malformations account for 90% cases of uterine rupture. Identification of these high-risk women, prompt diagnosis, immediate transfer, and optimal management needs to be overemphasized to avoid adverse fetomaternal complications.

Increased accessibility to good obstetric care and prompt referral system to equipped facilities with availability of transportation services is essential for developing countries to avoid these catastrophic emergencies. Awareness and acceptance of contraceptive methods, birth spacing and family planning is must. Education of females is also necessary so and so only they will be able to recognize general danger signs in pregnancy.

Unfortunately illiteracy, lack of awareness and acceptance of contraceptive methods, religious believes, family pressure and most importantly need for a male child leads to a scenario of multipara and grand multipara in our place. So we should promote.

References

1. Wang YL, Su TH. Obstetric uterine rupture of unscarred uterus: A twenty-year clinical analysis. Gynecol Obset Invest 2006;62(3):131–35.
2. Sinha M, Gupta R, Gupta P, et al. Uterine rupture: A seven year review at a tertiary care hospital in New Delhi, India. Indian J Community Med [serial online] 2016 [cited 2019 Aug 21];41:45–9.
3. Kavitha B, Prabhakar GC, Shaivalini K. Uterine rupture: A catastrophic obstetric emergency. J NTR Univ Health Sci 2017;6(4):251–4.
4. Gueye M, Mbaye M. Spontaneous Uterine

Rupture of an Unscarred Uterus before Labor. Case Reports in Obstetrics and Gynecology, Volume 2012, Article ID 598356, 3 pages.

5. UNICEF https://www.healthline.com/health/pregnancy/complications-uterine-rupture.