

Research Article

Evaluation of risk factors and different management forms of uterine rupture cases at Minia University Maternity hospital. (Prospective study)

Essam A. El-Gendy, Hany H. Kamel, Enas M. Mohamed and Essam M. Mousa Mohmamed

Department of Obstetrics and Gynecology, El- Minia Faculty of Medicine

Abstract

Introduction: Uterine rupture is one of the most serious obstetrical emergencies necessitating prompt diagnosis and management, as it endangers the maternal and fetal life. **Aim of the work:** The aim of the present study is to evaluate different risk factors for rupture of uterus in our community and reassess the different forms of management and their effect on maternal and fetal outcome. **Patients & Methods: Setting:** This study carried out at the Department of Obstetrics & Gynecology, Minia University Maternity Hospital, Minia, Egypt. Data collected from patients, data files and case notes of all patients of ruptured uterus managed at Minia University Maternity Hospital from January 2019 to December 2019 (1 year) after being approved by the department ethical committee. **Results:** A total of 10132 deliveries were conducted and 125 cases of ruptured uterus were managed at ER of Obstetrics & Gynecology, Minia University Maternity Hospital, during a (1) year period from January 2019 to December 2019. Thus the incidence of uterine rupture was 1.2/1000 deliveries. **Conclusion:** Ruptured uterus still remains one of the serious obstetric complications. This prospective observational study concluded that most common cause of rupture uterus was scarred uterus followed by vaginal birth after caesarian section (VBAC). A lot of the women had no antenatal check-up and/or were managed initially by untrained personnel. Thus, in most of the cases, uterine rupture is a preventable complication. Antenatal and intranatal care, identification of high risk cases and education of the people about supervised pregnancy and delivery will reduce the occurrence of uterine rupture.

Keywords: Uterine rupture, obstetrical emergencies, the maternal and fetal life

Introduction

Uterine rupture is one of the most serious obstetrical emergencies necessitating prompt diagnosis and management, as it endangers the maternal and fetal life. Uterine rupture (scarred/ unscarred) may occur at any stage of pregnancy. In developed countries, with good antenatal care and good supervision during labour, uterine rupture has become rare except by dehiscence of a caesarean scar (WHO, 2005).

In Egypt, because of poverty, ignorance and not easy access to antenatal care, delivery is usually accomplished by untrained midwives, or by unqualified doctors). uterine rupture is not uncommon. Incidence of it varies from 0.6/1000 to 2.5/1000 deliveries. Its incidence at a particular institution reflects the level of obstetric care provided in that area. It is still a

major public health problem in developing countries accounting for 5-18% of all maternal deaths and a corresponding prenatal mortality rate of 30-95% in different countries (Flamm, 1997)

Uterine rupture may be complete or incomplete depending on whether it opens into the peritoneal cavity or not. Complete if it communicates with the peritoneal cavity directly and incomplete if it is separated from the peritoneal cavity by the visceral peritoneum irrespective the fetus is extruded or not into the abdominal cavity. (Padhye, 2005)

Maternal consequences are related to whether there is rupture of an intact uterus or a prior scar of the uterus. Separation of uterine scar following a trial of scar is associated with a lower risk of maternal death compared to

spontaneous rupture of an intact uterus (Flamm et al.,1997)

Spontaneous uterine rupture of unscarred uterus is associated with higher maternal case fatality rate compared to rupture of a previously scarred uterus and it can be as high as 40 to 50% (Eden et al., 1991). The risk of maternal death due to uterine rupture is 0-1% in high income countries, but in low income countries it ranges between 5-10%. (Rahman et al.,1990).

Fetal morbidity invariably occurs because of catastrophic hemorrhage leading to fetal anoxia . uterine rupture and expulsion of the fetus into the peritoneal cavity the chances of fetal survival are rare. If the fetus is alive at the time of rupture, the only chance of continued survival is afforded by immediate diagnosis and delivery by laparotomy. Case fatality rate in rupture uterus may be reduced by early diagnosis, urgent resuscitation and laparotomy. Any form of delay increases the chances of death from severe bleeding. (Leung et al.,1993).

Aim of the work

The aim of the present study is to evaluate different risk factors for rupture of uterus in our community and reassess the different forms of management and their effect on maternal and fetal outcome.

Patients & Methods

Setting:

This study carried out at the Department of Obstetrics & Gynecology, Minia University Maternity Hospital, Minia, Egypt.

Data collected from patients, data files and case notes of all patients of ruptured uterus managed at Minia University Maternity Hospital from January 2019 to December 2019 (1 year) after being approved by the department ethical committee.

A written informed consent was taken from all patients.

Study design:

Observational prospective Study.

Inclusion criteria:

All cases of ruptured uterus managed at our hospital during the period from January 2019 to December 2019 (1 year) included in the study

regardless of the gestational age at time of uterine rupture including :

- Complete, incomplete uterine rupture.
- Cases of antepartum and interpartum uterine rupture.
- Cases of uterine rupture complicating induction of abortion whatever it's method.
- Iatrogenic rupture uterus in both scarred & unscarred uterus.
- Pregnancy in anomalous uterus leading to uterine rupture.
- Rupture uterus due to trauma [direct or indirect].

Procedure of the study:

Patient's demographic data as regard age, residence [urban/rural areas], socioeconomic status, parity, antenatal care in current pregnancy, booked or un booked status collected from patients' files and hospital medical records.

Detailed obstetric and surgical past history data including history of scarred uterus:

(number and type of previous C.S [UUS/LUS] if available ,history of myomectomy, previous uterine rupture), and history of D&C also collected.

Present history details of the pregnancy and labor in which uterine rupture has occurred obtained, with details of labor or abortion prior to the occurrence of uterine rupture whether spontaneous or induced, if induced the method of induction used. Determination of the type of uterine rupture whether antepartum or intrapartum.

Whether ruptured uterus occurred inside or outside the hospital and diagnosed before or on abdominal exploration.

Details of physical examination of the cases at time of presentation to the emergency room collected and included:

General examination

including: vital signs [B.P, Pulse, T,RR,], pallor, jaundice ,cyanosis.

Abdominal examination

including: Inspection of abdominal contour and size, fetal kicking. Palpation; easy palpation of

fetal parts in extra uterine fetuses. Percussion if there is abdominal rigidity or fluid collection. Auscultation of fetal heart sound (FHS) if present or not.

Results

A total of 10132 deliveries were conducted and 125 cases of ruptured uterus were managed at ER of Obstetrics & Gynecology, Mina University Maternity Hospital, during a (1) year period from January 2019 to December 2019.

Thus the incidence of uterine rupture was 1.2/1000 deliveries.

Maternal age varies from 18 -41 years old with gestational age from 19-40 weeks as table (1) including high parity which had more than 3 previous pregnancies and low parity women which had 3 or less than 3 pregnancies, in studied cases 70 women had high parity (56%) and 55 women (44%) had low parity **table (2), figure (1).**

Table (1): distribution of the studied patients with ruptured uterus regarding their clinical data (n=125)

Variables	No	Percent
Age		
Range	18-41	
Mean ±SD	28.9±5.4	
Gestational age		
Range	19-40	
Mean ±SD	35.1±4.5	
Length of hospital stay		
Range	1-15	
Mean ±SD	2.9±1.9	

Table (2): Parity among the studied cases (n=125)

Parity	No	Percent
High parity	70	56%
Low parity	55	44%

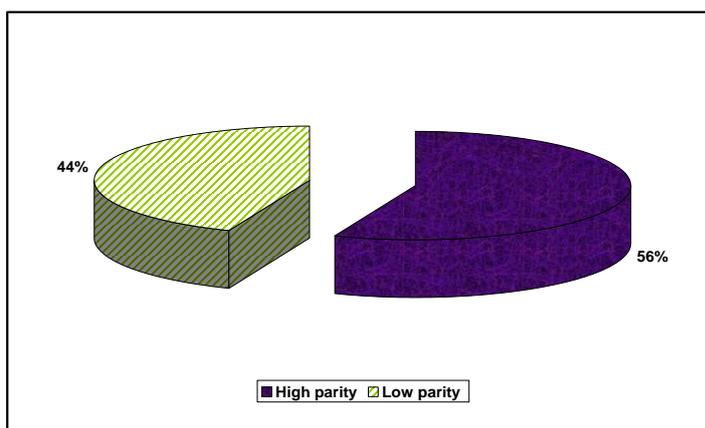


Figure (1): distribution among studied cases according to parity Discussion

Ruptured uterus still remains one of the serious obstetric complications. Lack of health information, illiteracy, poor antenatal care, poverty, home deliveries by traditional birth attendants and delay in referrals all contribute to uterine rupture.

Uterine rupture during labor is more threatening than that occurring in pregnancy, because shock is greater, and infection cannot be avoided. Its incidence varies from 1:149 to 1:2966. (Nahrum et Pham 2012).

In present study total number of deliveries at the Department of Obstetrics & Gynecology, Minia University Maternity Hospital from January 1, 2019 to December 31, 2019 was 10132 among them 5600 delivered by caesarian section, 4532 delivered vaginally, 3750 had previous uterine scar and total number of ruptured uterus during same period was 125.

The incidence of ruptured uterus was 1.2/1000 or 1.2% this is due to complicated cases from peripheral hospitals are referred here. Incidence of rupture uterus varies greatly according to center to center where cases have been being reported. In present study, rupture from scarred uterus occurred in 113 women (90.4%) out of these 112 women (89.6%) had rupture of previous lower segment caesarian scar, (1) woman (0.8%) had rupture of previous myomectomy. The results of present study are consistent with those of Manju et al., who reported that rupture from scarred uterus occurred in 10 women (71.4%), out of these 9 women (64.2%) had rupture of previous caesarian scar

In women with previous LSCS, for deciding mode of delivery, the primary indication for and number of previous caesarian sections must be meticulously screened, the integrity of the scar to be assessed and cephalo-pelvic disproportion to be ruled out so as to avoid rupture uterus.

In present study ruptured uterus in women with previous one caesarian section was the common risk factor (36.8%) (n=125), due to waiting for full-term pregnancy and possibility for allowing VBAC, in contrast to whom with high number of previous caesarian sections (previous 5 =2.4%) which admitted to hospital early with good antenatal care and good preparation for elective caesarian section.

A trial of labor following a previous CS (VBAC) increases the risk of uterine rupture compared to the elective repeat caesarian section.

The risk is influenced by the number of previous cesarean deliveries and on whether the labor is induced, augmented or spontaneous. The inter-delivery interval may also influence this risk.

In a study by Ravasia et al., of 1,544 patients with a previous cesarean delivery who later labored spontaneously, the uterine rupture rate was 0.45% (Ravasia, Wood et Pollard 2000)., this results are with our study in which ruptured uterus due to vaginal birth after caesarian section (VBAC) was 23 cases (0.61%) of 3,750 with a previous cesarean delivery .

Short interpregnancy interval of less than 6 months is an independent risk factor for uterine rupture and major maternal morbidity in patients who attempt VBAC, increasing morbidity rate two-fold to three-fold. (Stamilio et al.,) compared with a double layer closure, a single layer closure of the primary cesarean may increase the risk of uterine rupture 4-fold during a subsequent trial of labour (Bu Joed E et al.,).

Grand multiparity is another important risk factor for uterine rupture. With each successive pregnancy, the risk of uterine rupture increases. Rupture in these grand multi-parity is because of evident uterine contractions against obstruction rather than increased proportion of fibrous tissue in uterine wall with successive pregnancies.

Conclusion

Ruptured uterus still remains one of the serious obstetric complications.

This prospective observational study concluded that most common cause of rupture uterus was scarred uterus followed by vaginal birth after caesarian section (VBAC).

A lot of the women had no antenatal check-up and/or were managed initially by untrained personnel. Thus, in most of the cases, uterine rupture is a preventable complication. Antenatal and intranatal care, identification of high risk cases and education of the people about supervised pregnancy and delivery will reduce the occurrence of uterine rupture.

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