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A Retrospective Study of Uterine Rupture in Tertiary Care Hospital Over Three Years

Archish Desai[1], Dipali Sivasane[2], Dinal Gandhi[3], Zankhana Modi[4], Bhumi Hapaani[5], Shivani Patel[6]

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[1]Associate Professor, [2]Assistant Professor, [3,6]Third Year Resident, [4,5]Second Year Resident, Department of Obstetrics and Gynaecology, Surat Municipal Institute of Medical Education & Research (SMIMER) Medical College, Surat, Gujarat 395010, India.

Corresponding Author:
Dipali S Sivasane,
Assistant Professor, Department of Obstetrics n Gynaecology, Surat Municipal Institute of Medical Education & Research (SMIMER) Medical College, Surat, Gujarat 395010, India.

E-mail: dazzlingdip@gmail.com

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Abstract

Introduction: Rupture uterus is a rare but potentially catastrophic obstetric complication with serious maternal morbidity and fetal mortality. This is a three year (2014-17) retrospective clinical study of cases of uterine rupture in labour room in a tertiary care institute. *Aim:* Aim of study was to evaluate the incidence of uterine rupture, associated risk factors, diagnosis (clinical features), complications, different surgical modalities of management and maternal n fetal outcome. *Material & Methods:* Retrospective analytical study of 14 cases of rupture of uterus in SMIMER, surat was collected from case records of 16221 deliveries during a three year span of (July, 2014-July 2017). Parameters like age, gravida, cause of rupture, type, site of rupture, surgical management and maternal n fetal outcome were recorded. The collected data was analysed by SPSS software v19. *Results:* Out of 16221 deliveries during the 3 year period there were 14 cases of uterine rupture with incidence of 0.86 in 1000 deliveries. Mean age of rupture was ~27 years. 85.7% were multigravida & majority cases (64.2%) were unregistered cases. Only 36% had the required min of 3 ANC visits. 57% of cases of ruptured uterus had past history of caeserian section. Though prolonged labour was seen in only 21.4% of cases, it was seen in 50% of cases in unscarred deliveries. 14% cases shows possibility of inadvertent use of oxytocin use whereas 7% had undergone instrumental delivery. 64.2% cases had complete rupture; majority (78%) had a rupture in lower segment. Apart from minor postoperative complications 21% had broad ligament haematoma & 7% had associated bladder injury. 1 pt developed vesicovaginal fistula. Repair was possible in 64% cases, whereas other remaining cases landed up in hysterectomy. Perinatal mortality was in 85% cases. Whereas maternal deaths was seen in 28% cases. *Conclusion:* Vigilant monitoring of first n second stage of labour by partogram, judicious use of oxytocin, timely recognition and early intervention of prolonged and obstructed labour and scar dehiscence in high risk pregnancies will reduce the incidence of uterine rupture. Proper antenatal councelling and care will definitely play a major role in reducing its incidence.

Keywords: Rupture of uterus; Caeserian section; Fetal Mortality; Maternal Morbidity.

Introduction

Uterine rupture is one of the serious n potentially catastrophic event in obstetrics, where integrity of myometrial wall is breached including serosal

layer. Though it's preventable, the diagnosis is often missed or delayed leading to maternal n fetal morbidity n mortality. In a WHO systematic review of maternal mortality n morbidity, prevalenceof uterine rupture in previous scarred uterus was 1% [1]. The incidence of uterine rupture in developed n developing countries varies from 1 in 250 to 1 in 5000 deliveries depending upon the quality of obstetric care given and the population dealt with. The incidence of uterine rupture in india varies from 0.3/1000 to 7/1000 deliveries in india.

The incidence of ruptured uterus is high in women with previous scar ranging from 0.3-1.7% in comparison to unscarred uterus where it ranges from 0.03-0.08% which seems to be very rare. Spontaneous rupture of intact uterus may be due to injudicious use of oxytocics, Cephalopelvic disproportion, malpresentation, multiparity, instrumental deliveries, uterine anomaly etc.

Though most of the times initial sign n symptoms are nonspecific making diagnosis difficult, common clinical manifestations are maternal tachycardia, pallor, fetal distress, bleeding per vagina, loss of station of presenting part. Hence, careful monitoring of labor for uterine contractions n fetal wellbeing is important parameters for early detection.

Objective of our study is to analyse the cases of uterine rupture according to risk factors, type and site of rupture, associated complications n surgical management & to evaluate maternal n perinatal outcome. This will be helpful to reduce the incidence of uterine rupture n improve the perinatal outcome.

Material & Methods

This is a retrospective analytical study of patients, admitted or diagnosed of uterine rupture in emergency department of obstetrics and gynaecology, SMIMER hospital, a tertiary care hospital, over the period of 3 years from July, 2015-June, 2017. All patients admitted with or developed uterine rupture in the hospital during study period were included in the present study.

Those cases suspected clinically uterine rupture and confirmed on laparotomy were isolated among all patients. Their relevant history was documented, associated risk factors evaluated. Intraoperative findings regarding site, extent of rupture, associated complications and adjacent organ injury were noted. Different mode of management were studied. Post operative maternal morbidity and neonatal morbidity & mortality was studied and perinatal outcome was measured.

All the data was entered in epidata and analysed. Approval from ethical committee of hospital was taken.

Results

Total deliveries during the 3 years study period were 16221. There were 14 cases of uterine rupture, incidence rate being 0.86/1000 deliveries (Table 1). Majority of cases were of 26-30 yrs of age. Median age of women was 27.6 yrs (Table 2). Most of the women were of multigravida (86%) (Table 3). 64% of patients were unbooked suggesting inadequate antenatal care (Table 4).

Previous caeserian delivery was the most common cause (57%) among uterine rupture followed by obstructed labour (14%), instrumental delivery (7%), inadvertant use of oxytocics (14%), grand multipara (7%). No patient had other past surgery apart from LSCS (Table 5). 79% cases had lower segment rupture. In developed countries, uterine rupture most commonly occurs in uterus scarred by previous caesarean section (CS), mainly at term and during labour, and is even more frequent when labour is induced or augmented. Awareness of this risk has contributed to a more cautious policy towards trial of labour after caesarean Section (TOLAC) [1] (Table 6) . Conservative management in form of rent repair was done in 64%, others required obstetric hysterectomy. There was broad ligament haematoma seen in 3 cases and 1 patient had associated bladder injury (Table 7). Other postoperative morbidity includes paralytic ileus (7%), wound sepsis (8%), septic shock (7%) and postoperative pyrexia (22%). 85% cases required 2 or more blood transfusion. 50% patients required longer hospital stay (>7 days) (Table 8). Maternal mortality was seen in 4 cases. Out of 4 cases 3 had irreversible hypovolemic shock with sudden cardiac arrest and 1 developed septic shock. Whereas perinatal mortality was seen in 85% cases. Out of total 59 maternal deaths in 3 years 7% (4 cases) attributed to uterine rupture.

Table 1:

Statistical data	No.
Total deliveries	16221
Uterine rupture	14
Incidence	0.86/1000 deliveries

Table 2: Distribution according to age

Age (yrs)	Number (%)
20-25	4 (22)
26-30	9 (64)
>30	1 (14)

Table 3: Distribution according to gravida

Gravida	Number	Incidence (%)
Primi	2	14.3
Multi	12	85.7

Table 4: Distribution according to antenatal care

ANC care	Number	Percentage
Emergency	9	65
Registered	5	35

Table 5: Causes of uterine rupture

Etiology	No of cases	Percentage
Prev LSCS	8	58
Obstructed labour	2	14
Instrumental delivery	1	07
Oxytocics	2	14
grandmultipara	1	07

Table 6: Intraop findings

		No.	Percentage
Site of rupture	Upper segment	0	0
	Lower segment	11	78
	Both	3	22
Mode of management	Rent repair	9	64
	Obs hysterectomy	5	36
Intraop complication	Broad ligament haematoma	3	21
	Bladder injury	1	7
	Bld transfusion (>2)	12	85

Table 7: Postop complications

Complications	No.	Percentage
Paralytic ileus	1	7
Wound infection	1	7
Septic shock	1	7
Fever	3	21

Table 8: Fetomaternal outcome

Mortality	No	Percentage
Maternal	4	28
Fetal	12	85

Discussion

Ruptured uterus is one of the catastrophic obstetric complications affecting fetomaternal outcome significantly (Table 1). Considering a tertiary care hospital, having adequate anteparum care n intrapartum monitoring facilities, incidence of uterinerupture in the present study is quite low which is 0.86 per 1000 deliveries., which is comparable to other Indian studies like rashmi et al. [4] having incidence 0.1%. Also other Indian studies have comparable incidence with our study varying from 0.06-0.08%.

A WHO systematic review of maternal morbidity and mortality showed that the prevalence of ruptured uterus ranged between 0.006% for women without previous caesarean section from a developed country and 25% for women with obstructed labour in a least developed country [1]. But incidence rate is quite high in other Indian studies like Mehbuba et al. [6] who had a figure of 1.14%. In other developing countries it is reported to be 0.8% in Ghana, 0.76% in Uganda, 0.74% in Pakistan, 0.9% in Nepal, 2.8%.15-18 [4]. Studies from developed countries showed incidences as low as 0.035 %. [6].

Lack of health awareness, illiteracy, poverty are the factors responsible for poor antenatal care, home delivery by traditional birth attendants and delay in referrals contributing to increased risk for uterine rupture.

In our study, 64% cases were in the 26-30 year age group (64%) (Table 2). Thiswas similar to the study by Sunanda et al. [7] who found median age being 25 yrs and Rashmi et al. [2], who found 22-30 yrs age group being commonest median age being 25 yrs.

We found that around 85% cases were multi that is 2 or more gravida. This is also comparable with above studies, who found 92 and 95% multi among cases of ruptured uterus [4,1]. In our study, 65% cases were unregistered indicating importance of regular antenatal check up for better perinatal & maternal outcome. This is comparable to Setu et al. [8] with 75% and Naushba et al. [9] with 80% unbooked cases.

Patients with previous uterine surgery are more prone for uterine rupture in subsequent delivery depending upon the indication of previous LSCS, interconceptional period, number of caeserian deliveries. Multigravida with previous LSCS are most high risk cases vulnurable for rupture. Most common cause of uterine rupture in present study was previous surgical delivery seen in 57% cases which is comparable to other similar Indian studies like Sahu et al. who conducted study in 2006 at JIPMER, Pondicherry [4] and rashmi et al. [2]. common causes among unscarred uterus was being multigravida with obstructed labour (14%) and inadvertant use of oxytocics (14%) leading to uterine hyperstimulation [1]. Primi patient was

there who suffered rupture due to instrumental delivery and 1 grandmultipara was there who had spontaneous rupture in early labour without use of oxytocics. Similar incidences were seen in other similar studies like setu et al. [8] and sahu et al. [4] n other studies.

Most common site of rupture was anterior wall lower uterine segment which was seen in 78% cases, whereas in other cases rupture involved upper as well as lower uterine segment, this indicates the rising trend of LSCS in last decade rather than difficult vaginal delivery. This is again comparable to other similar studies, where previous scarred uterine rupture was seen in 89% cases [4] and 60% [9]. Management mode varied according to intraoperative findings. This is corresponding to the higher incidence of prev LSCS scar rupture managed conservatively. Obstetric hysterectomy rate varied in different studies like 41% in pondichery study [4], 32% in Andhra Pradesh [3]), and only 17% in dehli [2]. BT required in almost all cases n 11 cases required ICU management. Internal iliac ligation was done in 4 cases.

Considering high risk patients, though more expected, less complication were seen in our study as follows. Bladder injury was seen in 1 patient whereas 3 patients had developed broad ligament haematoma. During postoperative period 1 developed paralytic ileus, 1 had wound sepsis and 1 septic shock. 3 had postop pyrexia.

Maternal outcome depends upon the coexisting medical or obstetric conditions, type of rupture, time interval between rupture and treatment, operative procedure n availability of advanced facilities. Inour study, 4 pts succumbed due to uterine rupture, whereas 4 patients out of 59 cases of maternal mortalityin the given period in the institute were due to rupture. As compared to maternal outcome, perinatal outcome was poor with 86% fetal mortality. Early diagnosis and immediate operative intervention can improve the maternal as well as fetal outcome. This becomes the mainstay for it.

Conclusion

Uterine rupture is a major concern for maternal morbidity and fetal mortality. Vigilant monitoring of first & second stage of labour by partograph, judicious use of oxytocin, timely recognition n early intervention of prolonged and obstructed labour and scar dehiscence in high risk pregnancie like multigravida and previous LSCS will reduce the incidence of uterine rupture. Proper antenatal councelling and care will definitely play a major role in improving maternal and fetal outcome.

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