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Research Article

Rupture uterus: a clinical analysis

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ABSTRACT

Background: Rupture uterus is one of the major causes of maternal mortality. It not only causes mortality, the survivor suffers much morbidity also. Finding out the etiology of rupture uterus, can help us to reduce its incidence. Present study is undertaken to know the scenario of rupture uterus in our institution.
Methods: It is a retrospective study from 2011 to 2015. Data was obtained from the record section of the hospital. All rupture uterus cases were included. Previous mode of delivery, etiologies of rupture, operation performed etc. were studied.
Results: Incidence of rupture uterus was 1 in 618 deliveries. Maternal mortality was 25%, perinatal mortality was 88.5%. Unbooked cases were 90.4%. Previous mode of delivery was vaginal delivery in 67.3% cases. Most common cause of rupture uterus was oxytocin overdose (26.9%) and handled labor (30.8%). Complete rupture was found in 75% cases. Subtotal hysterectomy was performed in 46.1% cases.
Conclusions: Mandatory antenatal care (90.4% unbooked cases) and safe institutional delivery (oxytocin overdose and handled labor common cause) may change the rupture uterus scenario.

Keywords: Oxytocin, Handled labor, Subtotal hysterectomy, Unbooked case, Maternal mortality

INTRODUCTION

Rupture uterus is a potentially catastrophic condition during pregnancy or delivery, when myometrial wall integrity is breached. It is of 2 types - incomplete and complete. In incomplete variety the peritoneum is not ruptured, it is intact. In complete variety the peritoneum also ruptured and the uterine content (e.g. fetus, placenta, amniotic fluid etc.) may spill into the peritoneal cavity or within the leaves of the broad ligament. Uterine scar dehiscence is the asymptomatic separation or thinning of the uterine previous scar without involving the peritoneal coat and without any hemorrhage.[1]

A uterine rupture is a life-threatening condition for both the mother and fetus. Prevalence ranges from 1 in 2000 to 1 in 200 deliveries.[1] Rupture due to obstructed labour has been reduced, but total uterine rupture scenario has not been changed due to increased incidence of caesarean section (scar rupture). Present study aims to analyse the clinical scenario of rupture uterus in our set-up.

METHODS

This is a retrospective study of last 5 years (2011-2015) at Katihar Medical College, Bihar, India. The data was obtained from the register available in the medical record section of the hospital. Institutional ethics committee approval has been obtained. Cases with rupture uterus were included in the study. The age, parity, (booked/unbooked), past history of caesarean section, type (complete/incomplete), treatment (repaired/hysterectomy), blood transfusion, condition of the fetus (alive/dead), post-operative complication, maternal mortality were analyzed. Total number of deliveries within this period was recorded and incidence rate was calculated.

RESULTS

In 5 years total number of deliveries was 32,143 and number of rupture uterus was 52. So the incidence of rupture uterus is 1 in 618 deliveries. Out of the 52 patients 13 expired (25%). Regarding baby, out of 52 cases 46 expired (88.5%). Year wise incidence is shown below (Table 1).

Ages between 26-30 years comprised highest (40.4%). Gravida 2, 3, 4 contributed almost equal (23-25%). Most of the patients had received either no or inadequate antenatal check-up (unbooked cases) (Table 2).

Table 1: Incidence.

Year	No. of case	No. of Delivery	Incidence rate	Maternal Mortality (%)	Perinatal mortality (%)
2011	13	3695	1 in 284 deliveries	5 (38.5%)	12 (92.3%)
2012	17	7511	1 in 442 deliveries	3 (17.6%)	15 (88.2%)
2013	10	7348	1 in 735 deliveries	1 (10%)	9 (90%)
2014	7	6727	1 in 961 deliveries	3 (42.8%)	6 (85.7%)
2015	5	6862	1 in 1372 deliveries	1 (20%)	4 (80%)
Total	**52**	**32143**	**1 in 618 deliveries**	**13 (25%)**	**46 (88.5%)**

Table 2: Age, parity, booked/unbooked distribution of rupture uterus.

Age (year)	No.	%	Gravida	No.	%	Booked/unbooked	No.	%
20-25	14	26.9	2	12	23	Booked	5	9.6
26-30	21	40.4	3	13	25	Unbooked	47	90.4
31-35	10	19.2	4	13	25	**Total**	**52**	
36-40	6	11.5	5	10	19.2			
41-45	0	0	6	1	1.9			
46-50	1	1.9	7	1	1.9			
Total	**52**		8	0	0			
			9	1	1.9			
			10	0	0			
			11	1	1.9			
			Total	**52**				

Table 3: Gestational age and previous mode of delivery.

Gestational age (weeks)	No.	%	Previous delivery	No.	%
40	29	55.8	Vaginal delivery	35	67.3
39	2	3.8	Previous 1 LSCS	14	26.9
38	1	1.9	Previous 2 LSCS	2	3.8
37	4	7.7	Classical CS	1	1.9
36	3	5.8	**Total**	**52**	
32	3	5.8	32		
28	1	1.9	28		
24	1	1.9	24		
?	8	15.4	?		
Total	**52**				

LSCS-lower segment caesarean section, CS-caesarean section

Regarding gestational age term pregnancy was highest (40 weeks-55.8%). Past obstetric event revealed that vaginal delivery was the commonest mode of delivery (67.3%) (Table 3).

Oxytocin overdose and handled labour were the most common cause of rupture uterus. Subtotal hysterectomy was performed in 46.1% cases (Table 4). Complete transverse rupture was the commonest type of rupture found (44.2 %) (Table 5).

Table 4: Causes of rupture uterus and types of operation performed.

Causes	No.	%	Type of operation	No.	%
Oxytocin overdose	14	26.9	Subtotal hysterectomy	24	46.1
Handled labour	16	30.8	Subtotal hysterectomy with bladder injury repair	5	9.6
Obstructed labour	5	9.6	Subtotal hysterectomy with colporrhexis repair	1	1.9
Caesarean scar rupture	11	21.6	Total abdominal hysterectomy	1	1.9
Malpresentation	4	7.7	Hysterectomy total	31	59.6
Multipara	2	3.8			
Total	**52**		Repair of uterine rent	4	7.7
			Repair with bilateral tubectomy	6	11.5
			Repair with bladder injury repair	1	1.9
			Peritoneal wash (repaired outside)	1	1.9
			Repaired total	12	23
			Operation could not be done before death	9	17.3
			Total	**52**	

Table 5: Type of rupture.

Type of rupture	No.	%
Complete rupture		
Transverse	23	44.2
Transverse with bladder injury	5	9.6
Transverse with posterior wall tear	2	3.8
Transverse with broad ligament hematoma	1	1.9
Vertical	2	3.8
Vertical with colporrhexis	2	3.8
Vertical with bladder injury	1	1.9
'J' shaped tear	2	3.8
Inverted 'T' shaped tear	1	1.9
Incomplete rupture	4	7.7
Clinical diagnosis	9	17.3
Total	**52**	

Table 6: Postoperative complication, blood transfusion and hospital stay.

Postoperative complication	Number	Blood transfusion	Number	Hospital stay (day)			
Wound gapping	5	1 unit	9	Day	Number	Day	Number
Fever	9	2 units	12	Few hours	10	9	5
Burst abdomen	1	3 units	8	1	1	10	4
Paralytic ileus	3	4 units	10	2	1	11-15	13
Respiratory distress	2	5 units	1	3	1	16-20	1
Jaundice	1	**Total**	**40**	7	1	21-25	4
Acute Renal failure	1			8	8	26-30	3

Fever in the post-operative period was the most common complication, followed by wound gapping. Blood transfusion was needed for 40 patients. Most of the expired cases stayed in the hospital for few hours only. Other cases mostly were discharged between 8-15 days. (Table 6) Twelve patients (23%) were presented with shock.

DISCUSSION

Due to various reasons e.g. lack of health education, ignorance, poverty etc. good number of pregnant mother does not come for regular antenatal check-up, and undergoes home delivery, instead of safe institutional delivery. They rush to the obstetrics casualty in moribund condition due to prolonged labour, obstructed labour, shock, rupture uterus etc. Due to its grave consequences the obstetrician should be very vigilant to consider rupture uterus in presence of pain abdomen, vaginal bleeding, loss of station of presenting part, and non-reassuring fetal heart rate pattern in CTG (cardiotocography).

The incidence of rupture uterus was 1 in 618 deliveries. Other studies found the incidence as 1 in 1633 deliveries (0.061%), 1 in 346 deliveries.[2,3] Age of the patient varies from 20-50 years (26-30 years comprised 40.4%) and gravida 2-4 contributes highest. These findings are comparable with other studies.[2,3] Unbooked case was found in 90.4% cases. In other studies unbooked cases was 76.6%, 80%.[2,4]

Previous uterine scar was responsible for rupture uterus in 70.2%, 50.6%, 63.3% cases.[2-4] In present study uterine scar rupture was found in 21.6% cases. Among past operative history, prior caesarean section was commonest.[2-5] Obstructed labour was the etiology in 28.6%, 26.6% cases; whereas in present study it was 9.6% cases.[2,4] This decreasing incidence of obstructed labour is a good sign.

Complete rupture was found in 39 cases (75%), another study found 66% cases.[3] Repair of the rent was done in 83%, 58.3%, 54% cases; in present study in 23% cases repair was done.[2-4] Maternal mortality was 25%. In other studies maternal mortality was 2.76%, 3.33%.[3,4] It is more here because our hospital received many referral cases from the surrounding area in last hours. Perinatal mortality was 94.07%, 78.66%; in present study 88.5%.[3,4]

CONCLUSION

Global scenario of decreasing trend of maternal mortality due to rupture uterus hinting towards the notion that rupture uterus is a preventable condition. Oxytocin overdose, previous caesarean section, grand multiparty, neglected labour, malpresentation etc. are precipitating factors for rupture uterus. Health education to come for regular antenatal check-up is the cornerstone to prevent this fatality (90.4% unbooked cases). Also safe institutional delivery is to be promoted (oxytocin overdose and handled labour is the common cause). Early referral also can save many mothers' life.

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