A 2-Year Review of Ruptured Uterus and its Outcome in Rangpur Medical College Hospital

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Abstract

Backgroud:
Uterine rupture is one of the major and preventable obstetric complications which contribute significantly to maternal and perinatal morbidity and mortality in the developing countries. Fortunately, uterine rupture is a preventable condition. In order to reduce maternal and perinatal mortality and morbidity it is essential to determine the risk factors for rupture uterus.

Objectives:
The aim of the study is to find out the obstetric risk factors, incidence, and the causes of uterine rupture, management modalities, and the associated maternal and perinatal mortality and morbidity.

Methods:
All the cases referred to the Rangpur Medical hospital with uterine rupture and cases delivered in the hospital with a ruptured uterus from January 2016 to December 2017 were included in the study. Age, parity, gestational age, mode of delivery, type of rupture, operative treatment, and the fetomaternal outcome was noted.

Results:
The incidence of rupture uterus in the present study was 9.9 per 1000 deliveries. Most of the patients were young with an age group of 25-29(38.6%), mean age 29.48 years and in 2nd and 3rd gravid (50.0%). Only 10(14.3%) of the patients were booked for antenatal care, the rest 60(85.7%) did not have any sort of antenatal care. Previous cesarean scar (41.43%) and injudicious use of oxytocin (17.14%) were common risk factors. Maternal mortality was 2.9% whereas blood loss of more than 1000ml in 58(82.8%) patients followed by surgical site infection (SSI) and perinatal mortality was also high (81.4%). Total abdominal hysterectomy was the commonest surgery performed.

Conclusion:
Uterine rupture constituted a major obstetric emergency in this study. An 'unbooked' status was a key associated factor. Proper antenatal care, early referral of patients with risk factors to centers equipped with facilities for surgical intervention, facilities for blood transfusion; careful monitoring of labour with partogram, judicious use of oxytocin will reduce the incidence of rupture uterus.

Keywords: Ruptured uterus, Etiology, Fetomaternal outcome

Introduction:

Uterine rupture during pregnancy is a rare event but is a life-threatening obstetric catastrophe leading to maternal and perinatal morbidity and mortality.[1,2] While it is rare in high-income countries, it remains a public health problem in low-income countries. Incidence of rupture uterus varies from 0.5 to 9 per 1000 deliveries. Uterine rupture is seen mostly during labour, but can occur during all trimesters of pregnancy.[3] Previously rupture of unscarred uterus secondary to neglected prolonged and obstructed labour was more common but with increasing rate of cesarean section, rupture of the scarred uterus has become more common. Uterine rupture during pregnancy is an obstetric emergency. It is most commonly associated with a scar on the uterus followed by multiparous patients with inadvertent use of oxytocin or obstructed labour. Congenital uterine anomalies, grand multiparity, previous myomectomy, and cesarean scars, fetal macrosomia, abnormal lie, induction or augmentation of labour, neglected labour, instrumental delivery, external version, and uterine trauma are all associated with

increased risk of uterine rupture.[4-6] Immediate maternal complications of the ruptured uterus are hypovolemic shock, infection, and death while for the fetus, hypoxia, shock, anemia, and death may ensue.[7] Due to multiple reasons including, lack of health education, ignorance, or poverty; a significant proportion of women in our country do not get a regular antenatal checkup, preferring home delivery instead of hospital delivery. They visit the hospital in an emergency situation after prolonged dysfunctional labour when a traditional birth attendant fails to deliver the baby. The prolonged and obstructed labour increases the risk of uterine rupture and rupture of previous uterine scar.[8] The rising trend of cesarean deliveries has increased the risk of a ruptured uterus during a subsequent pregnancy. Fortunately, uterine rupture is a preventable condition. In order to reduce maternal and perinatal mortality and morbidity and to meet the Millennium Development Goals (MDGs) 4 and 5; it is essential to determine the risk factors for rupture uterus, still an important cause of maternal mortality and morbidity.[9] The aim of the present study is to identify the obstetric risk factors, incidence, and causes of ruptured uterus and define the associated maternal and perinatal mortality and morbidity in a tertiary care hospital of Bangladesh.

Methods:

This hospital based prospective, observational study was carried out in Rangpur medical college hospital at in-patient department of obstetrics and gynecology from January 2016 to December 2017. Inclusion criteria were (1) Any rupture after 28 weeks of gestation. (2) Any rupture occurring in the institute. (3) Cases delivered outside the hospital with rupture of uterus which is referred to the institution. Exclusion criteria were (1) Any rupture before 28 weeks of gestation. (2) Any rupture occurring as a result of road traffic accident or blunt injury or trauma to abdomen. Data were analyzed in term of total number of deliveries, incidence of rupture uteri, age, parity, gestational age, type and site of the rupture, its causes and operative treatment. Fetomaternal outcomes were also analyzed. Permission was taken from the Hospital ethical committee.

Results:

A total of 70 uterine ruptures were managed during the study period out of 7010 deliveries in the institution giving an incidence of 0.99% (1 in 100 deliveries). (Table-I). Among the 70 uterine ruptures, 26 cases were seen in unscarred and 44 in the scarred uterus (previous cesarean section) (Table-II). Complete uterine rupture is seen in 44 patients (23 in unscarred and 21 in scarred) and incomplete rupture in 26 patients (3 in unscarred and 23 in scarred). The anterior rupture was common in the scarred (34/37) whereas lateral rupture was common in the unscarred (18/28) (Table-II).

Table-I: Distribution of the number of cases and incidence of Rupture Uterus

Year	No.of Cases	Number of Deliveries	Incidence (Per 1000 deliveries)
2016	29	3250	8.9
2017	41	3760	10.9
Total	70	7010	9.9

Table-II: Type and Site of Rupture

	Unscarred (n=26)	Scarred (n=44)	Total (n=70)
Type of Rupture			
Complete uterine rupture	23	21	44
Incomplete rupture	3	23	26
Total	26	44	70
Site of rupture			
Anterior	03	34	37
Lateral	18	10	28
Fundal	05	00	05
Total	26	44	70

The age of the patients was ranged from 20 to 40 years. Patients aged 25-29 years had the highest incidence of uterine rupture (38.6%). Most of the patients were young with a mean age of 29.48 years. The oldest individual was 40 years and the youngest was of age 20 years. The highest incidence of uterine rupture was seen in multiparous women. Maximum patient being in 2nd and 3rd gravid (50.0%) with a mean of 3.4 and the highest parity was of 9th. Only 10 (14.3%) of the patients were booked for antenatal care, the rest 60(85.7%) did not have any sort of antenatal care (Table-III).

Table-III: Socio-demographic characteristics of the patients (n=70)

Characteristics	Frequency (n)	Percentage (%)
Age (Years)		
20-24	09	12.9
25-29	27	38.6
30-34	14	20.0
35-39	15	21.4
40-44	05	7.1
Parity		
Primiparous (Para-1)	22	31.4
Multiparous (Para 2-3)	35	50.0
Grand multiparous (Para 4 or more)	13	18.6
Booking status		
Booked	10	14.3
Unbooked	60	85.7
Education		
None	13	18.6
Primary	33	47.2
Secondary	19	27.1
Degree	05	7.1
Occupation		
Housewife	57	81.4
Service holder	13	18.6
Gestational Age (Weeks)		
28-32	8	11.43
33-36	17	24.29
37-40	45	64.28

Previous cesarean scar (41.43%) and injudicious use of oxytocin (17.14%) were the commonest precipitating factor causing a uterine rupture in our study followed by grand multiparity and obstructed labour (Table-IV).

Table-IV: Etiological factors attributable to uterine rupture (n = 70)

Etiology	Frequency (n)	Percentage (%)
Previous LUCS	29	41.43
One LUCS	17	24.29
Two LUCS	10	14.28
Three LUCS	02	2.86
Obstructed labour	05	7.14
Grand multiparity	10	14.28
Injudicious use of Oxytocin	12	17.14

Various types of surgical procedures were performed on patients with uterine rupture. Total abdominal hysterectomy was needed in 38 (54.3%) patients (23 in unscarred and 15 in scarred) whereas repair and tubal ligation was possible in 5(7.1%) patients (3 in unscarred and 2 in scarred) (Figure-1).

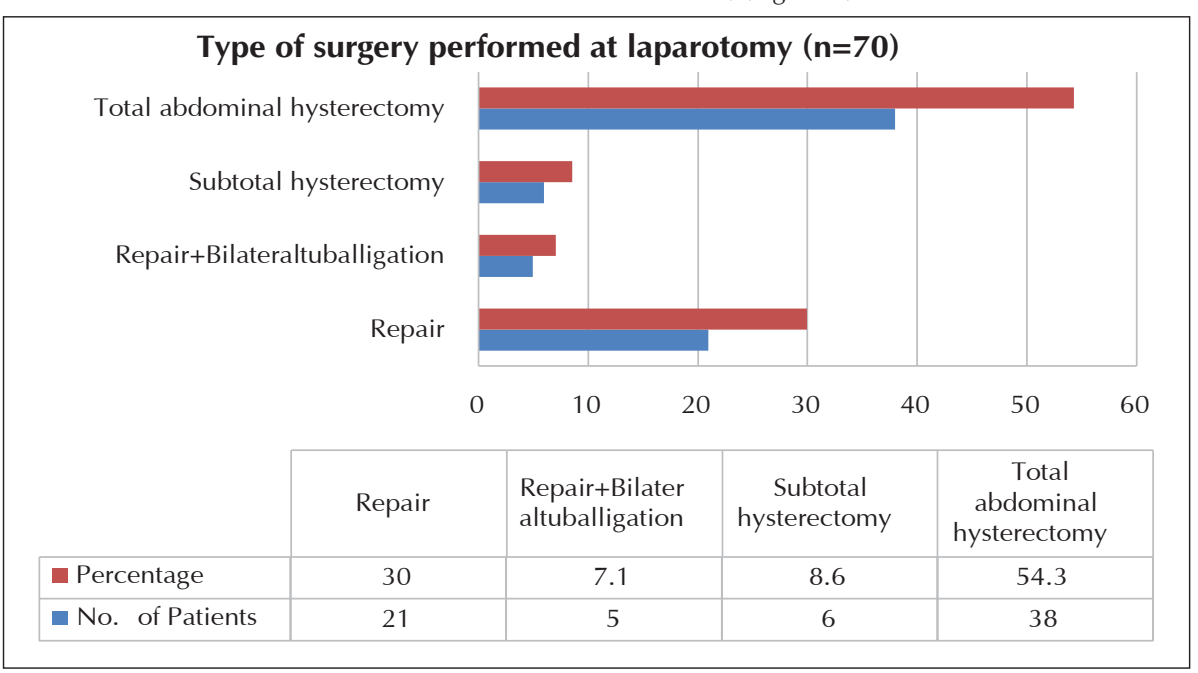
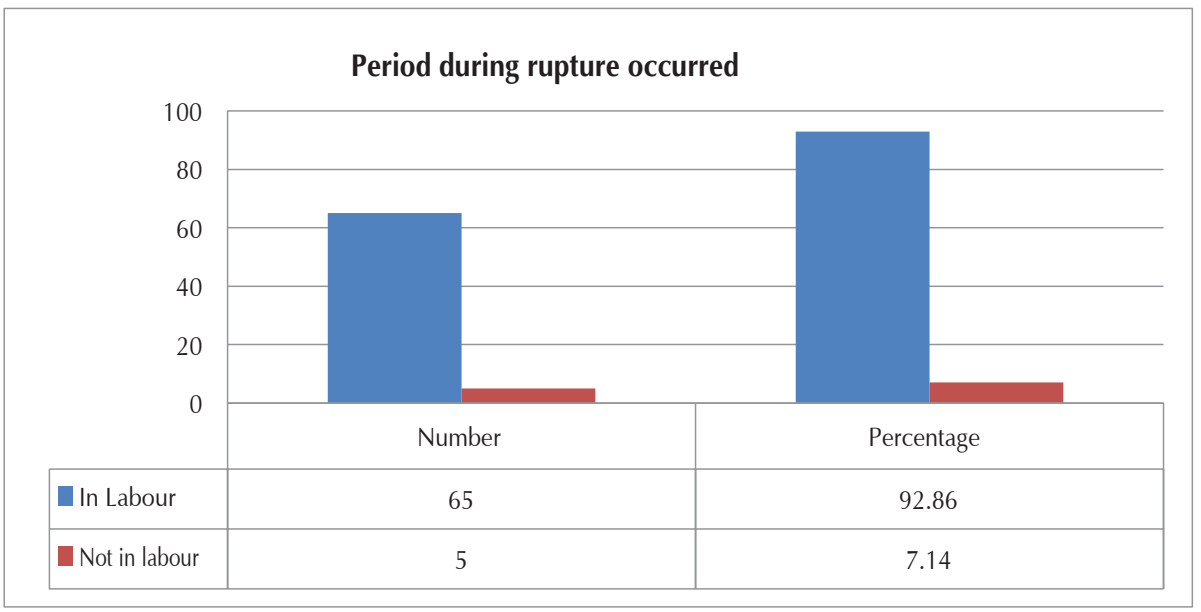


Figure-1: Type of surgery performed at laparotomy (n=70)

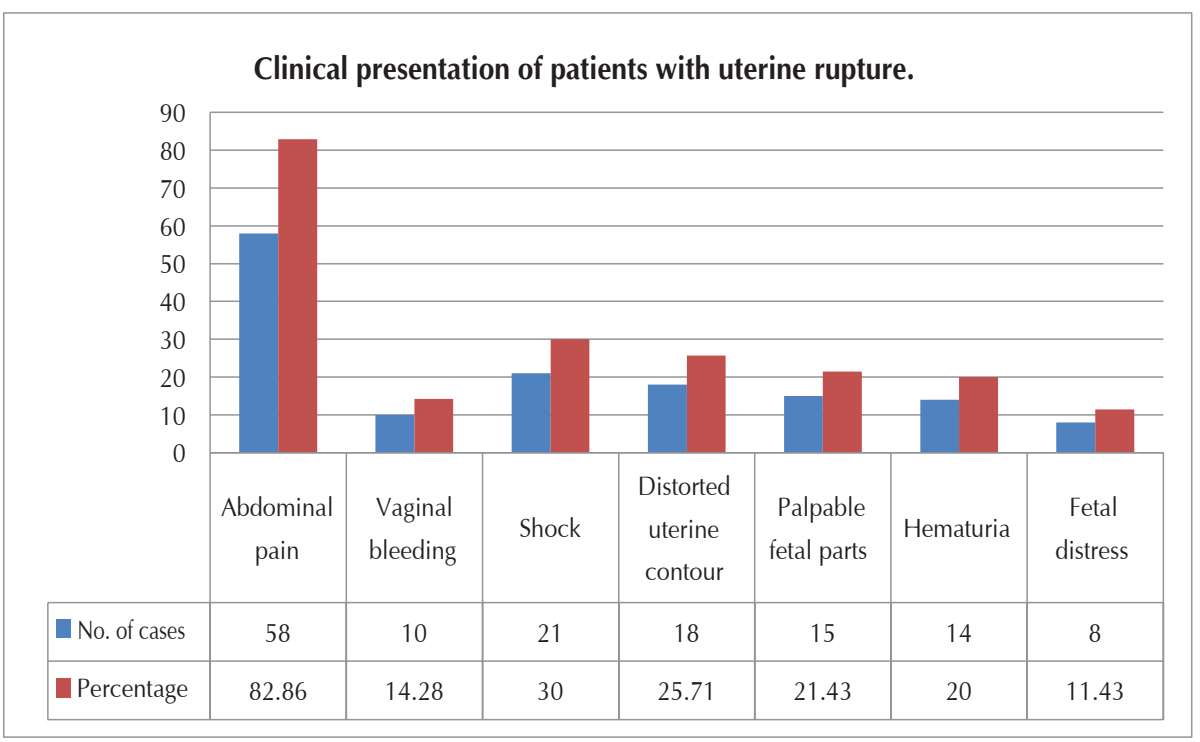
Most of the patients were in labour at the time of rupture (92.86%), whereas 5 (7.14%) patients with prior one or two lower segments cesarean section were not in labour (Figure-2).

The clinical presentations of the patients with rupture of the unscarred uterus were more dramatic with extensive tears, hypotension, and shock. On the other hand, ruptures of the scarred uterus were usually incomplete and transverse (Figure-3).



	Number	Percentage
In Labour	65	92.86
Not in labour	5	7.14

Figure-2: Period during rupture occurred



	Abdominal pain	Vaginal bleeding	Shock	Distorted uterine contour	Palpable fetal parts	Hematuria	Fetal distress
No. of cases	58	10	21	18	15	14	8
Percentage	82.86	14.28	30	25.71	21.43	20	11.43

Figure-3: Clinical presentation of patients with uterine rupture.

There were only 2 (2.9%) maternal mortality whereas blood loss of more than 1000 ml in 58 (82.8%) patients leaded the list as the morbidity followed by surgical site infection (SSI).Most of the patients received blood transfusions either intraoperatively or postoperatively. Perinatal mortality was high (81.4%) among them 74.3% was fresh stillbirths (Table-V).

Table-V: Complications, maternal and fetal outcome.

Complications	Frequency	Percentage
Blood loss (>1000ml)	58	82.8
Urinary Bladder injury	03	4.3
Surgical site infection (SSI)	12	17.1
Maternal Outcome		
Mother alive	68	97.1
Maternal death	02	2.9
Perinatal Outcome		
Fresh stillbirths	52	74.3
Macerated stillbirths	05	7.1
Baby alive	13	18.6

Discussion:

Rupture of gravid uterus is a catastrophic event which affects the reproductive function of the woman. It is a major contributor to the maternal and perinatal morbidity and mortality. It is associated with an environment where there is inadequate obstetric services and delivery is either unsupervised or conducted by unskilled birth attendants coupled with poor health seeking behavior. An incidence of 1 in 100 deliveries (0.99%) reported in this study is high compared with an incidence of 1 in 131 reported in Uganda.[10] This incidence is high when compared with another Nigerian study with an incidence of 1 in 258.[11] In addition, skilled obstetric care is limited and relatively expensive. Furthermore, a woman with previous cesarean delivery would prefer attempted vaginal delivery with an unskilled attendant to undergo another cesarean section regardless of the inherent health threat.[7,12-14] Ignorance and poor socioeconomic status are the major factors associated with the high incidence of uterine rupture in this setting. Majority (85.7%) of the patients in this study were unbooked. The occurrence of uterine rupture among mostly unbooked patients has also been noted in other studies.[7,12,15-18] The differences in the level of obstetric practices, availability, and utilization of the essential obstetric care services would account for the persistent high rate of uterine rupture in our environment and its rare occurrence in the developed economies. Other contributing factors include transportation difficulties and poor attitude of healthcare providers.[12,19] Thus, there is an urgent need for good communication network between the tertiary health institutions and the peripheral health units to ensure proper referral of the complicated cases. There were two maternal deaths in this study giving a mortality of 2.9%, both were unbooked and due to blood loss. Late presentation to the hospital is a major cause of this poor prognosis. This late presentation could be as a result of poverty, delayed referral, poor transport network, and poor ambulance services. The high perinatal mortality rate recorded in this study supports the preposition that uterine rupture is a major cause of maternal and perinatal morbidity and mortality in our environment.[13] Similar high perinatal mortality rate has also been reported in other studies.[12,16]

Conclusion:

Uterine rupture still constitutes a major obstetric complication, and inadequate utilization of antenatal services is a major contributory factor. Thus, efforts need to be made to improve proper utilization of limited health facilities, by increasing the socioeconomic status of women, providing easy access to emergency obstetrics care as well as improving the communication and transportation systems. There is also a need for the proper education of females about the associated risk after a previous cesarean section if pregnancy and labor are unsupervised in the next confinement. Health education and counseling of potential and expectant mothers would be of immense significance.

Conflict of interest:

The authors have no conflicts of interest to disclose.

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