Predisposing Factors and Outcome in Patients with Ruptured Uterus

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ABSTRACT

Background: Uterine rupture is one of the major causes of antepartum as well as postpartum hemorrhage leading to significant maternal and fetal morbidity and mortality.

Objective: Aim of this study was to evaluate risk factors, clinical presentation, management and maternal and fetal outcome in patients with rupture uterus.

Material and Methods: A descriptive cross sectional study was conducted at Gynae B Unit, Mardan Medical Complex, Mardan. It was a two year study from 1st January 2017 to 31st Dec 2018. Data included patients from outpatient department and emergency admissions through casualty. All cases of intraoperative finding of ruptured uterus of any age and parity at gestation 28 weeks or more were included in the study while patients with rupture due to trauma and ectopic pregnancies were excluded from the study. Data was collected for clinical presentation, risk factors, surgical management , maternal and fetal outcome.

Results: The frequency of ruptured uterus was 18 per 10000 with incidence of 0.18 % in this institute. Mean age at presentation was 33.27$\pm$2yrs and 59(80%) were multiparous. Unbooked women were 68(93%). Patients delivered at home by untrained attendants were 60(62%) while 34(46%) were delivered by trained staff. The most common risk factor was oxytocin augmentation 33(45%) followed by previous scar in 22(30%). Patients presented with more than one symptoms in 27(37%) cases, followed by vaginal bleeding in 19(26%) and abdominal pain 15(20%). 62(84%) Patients with uterine rupture in intrapartum period were 62(84%) cases. Surgical findings at laparotomy was complete rupture in 64(87%) patients while 9(12%) had incomplete rupture. The commonest site of rupture was lower uterine segment in 41(56%) cases followed by rupture at previous scar in 13(17%) cases. Surgical treatment was subtotal abdominal hysterectomy in 43(58%) cases followed by repair of rupture site in 27(36%). The most common complication was anemia in 56(76%) cases. Maternal death occurred in 4(5%) patients. Fetal death occurred in 59(80%) cases.

Conclusion: Uterine rupture is a serious obstetrical emergency increasing both maternal and fetal morbidity and mortality. It was concluded from our study that oxytocin use and multiparty was the most common risk factor even in safe hands resulting in more than 50 percent of the patients losing their future fertility.

Key Words: *Complete rupture, Polyhydromnios, Oxytocin, Cesarean section, Hysterectomy.*

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INTRODUCTION

Uterine rupture is the breach in the continuity of musculature of the uterus. Uterine rupture is said to be complete if the rupture involves the entire uterine wall leading to direct connection between peritoneal cavity and uterine cavity and incomplete if visceral peritoneum or broad ligament is intact. Uterine rupture is a serious, life threatening obstetrical emergency leading to massive Obstetrical hemorrhage requiring hysterectomy, and even lead to perinatal and maternal mortality.[1,2]

The risk of uterine rupture in an intact uterus is very rare at 2 per 10000(0.02%) while the risk in a planned vaginal birth after c section is 20-50 per 10000(0.2-0.5%). The incidence has dropped in developed countries and is most often seen in women planning vaginal birth after c section. However, the incidence in developing country like Pakistan is still high due to poor socioeconomic conditions, delivery by unskilled personal, increasing c section rates and patients fear of operative deliveries have increased the incidence of uterine rupture. Uterine rupture in an unscarred uterus is a rare event , delay in diagnosis is more common as compared to patients with previous scar. It is also associated with more fatal maternal and fetal outcome than patients with a scarred uterus.

Rupture uterus is associated with significant maternal morbidity. Immediate complications include Anemia, need of massive transfusions, rupture bladder, shock, renal failure and prolonged hospital stay, wound infection. Long term complications include infertility, and vesico vaginal fistula .Causes of uterine rupture in an unscarred uterus are grand multiparity, malpresentations, obstructed labour, injudicious use of oxytocin and prostaglandins in multiparous, uterine and fetal anomalies and patients with scarred uterus(c section, myomectomy, uterine instrumentation).[3,4]

The sign and symptoms associated with uterine rupture depend on timing, site and extent of rupture. Presence of any of the features below is suggestive of uterine rupture.

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1. Abnormal CTG.
2. Severe abdominal pain persisting between contractions.
3. Abnormal vaginal bleeding.
4. Hematuria.
5. Cessation of uterine contraction.
6. Recession of presenting part.
7. Signs of maternal shock.
8. Change in abdominal contour.

In 65-75% of cases abnormal CTG is the consistent findings[5]. However, 50% of cases present with combination of findings.90% of uterine ruptures occur during labour and 8% post vaginal delivery and to a lesser extent during pregnancy. Diagnosis is mostly made clinical on the basis of sign and symptoms [6].

Once diagnosed, further management requires supportive therapy to stabilize women vitally until appropriate surgical intervention can be carried out to arrest bleeding. Lifesaving laparotomy as immediate as possible is done to reduce fatal morbidity and mortality. After delivery of the fetus further surgical management depends upon extent of rupture, amount of hemorrhage general condition of the mother, desire for future childbearing [7,8].Hysterectomy is the treatment of choice in intractable hemorrhage and where repair is not possible [9,10].Repair is done in young stable patient desiring future childbearing. Elective c section at 36weeks is the plan of delivery in next pregnancy.

Mardan being a tertiary level referral hospital receives most of the cases of ruptured uterus. Aim of the study is to find the incidence of uterine rupture, review the risk factors and causes of uterine rupture, mode of presentation, complications, management and maternal and fetal outcome at Mardan medical complex, Mardan.

MATERIAL AND METHODS

A Case control study involving all the cases of intraoperative findings of complete rupture uterus presenting to labour room were included in the study. The duration of study was two years from 1st January 2017 to 31 December 2018 in the department of Gynae and Obstetric at Mardan medical complex, Mardan. Patients with rupture secondary to abdominal trauma and ectopic pregnancy were excluded from the study.

After admission all the data was collected on the Performa. For each case we collected the following data, maternal demographic data, and detail history including risk factors, method of induction of labour, mode of delivery, sign and symptoms of presentation, surgical findings, management and maternal and fetal outcome.

Study variables like age, gestational age, presenting symptoms, ultrasound findings, maternal complications and maternal death will be analyzed for descriptive statistics. Frequencies were determined for risk factors, presenting symptoms, phase of labour, ultrasound findings, surgical findings, management and maternal and fetal complications. Mean $\pm$ standard deviation was calculated for age, gestational age.

RESULTS

During the study period of two years total number of patient delivered were 39086 and 73 patients were diagnosed with rupture uterus making an incidence of 0.18 % in this institute. Age was divided into three groups. Mean age at presentation was 33.27yrs $\pm$ 2.1yrs. Most of the patients 63(86%) presented at term gestation. Unbooked patients were 68(93%) and 59(80%) of patients were multiparous. Patients presenting at term gestation were 63(86%) and 60(62%) of patients delivered at home. Most of the patients 62(84%) ruptured during labour .Majority of patients 34(46%) were delivered by untrained birth attendants, 27(37%) by trained birth attendants and 12(16%) by doctors. Most of the women 27(36%) presented with more than one symptom followed by vaginal bleeding in 19(26%) and abdominal pain in 15(20%) cases. However, other clinical risk factors are shown in the table 1.

TABLE 1: CLINICAL FEATURES

N=73

CLINICAL FEATURES	FREQUENCY AND PERCENTAGES
RISK FACTORS	
Previous scar	22(30%)
Malpresentation	1(1%)
Obstructed labour	10(13%)
Oxytocin augmentation	33(45%)
Prostaglandins and misoprostol	6(8%)
Instrumental delivery	1(1%)

TABLE 2: SURGICAL FINDINGS
N=73

TYPE OF RUPTURE	PERCENTAGES (%)
Complete	64(87%)
Incomplete	9(12%)
SITE OF RUPTURE	
Upper segment	4(5%)
Lower segment	41(56%)
Involvement of cervix and vagina	13(17%)
Rupture of bladder	2(2%)
Rupture at previous scar	13(17%)
SURGICAL PROCEDURE	
Subtotal abdominal hysterectomy	43(58%)
Repair	20(27%)
Repair plus BTL	7(9%)
Repair of bladder	3(4%)

TABLE 3 : MATERNAL AND FETAL OUTCOME
n = 73

OUTCOME VARIABLE	FREQUENCY AND PERCENTAGE
MATERNAL OUTCOME	
Fistula	2(2%)
Reopening	3(4%)
Death	4(5%)
Anemia less than 7mg/dl	56(76%)
Blood transfusion	63(86%)
FETAL OUTCOME	
Dead	59(80%)
Alive	14(19%)

DISCUSSION

The results of our study showed that 73 patients presented with rupture uterus in two year study period and incidence was 0.18% comparable with Gupta an Indian study 0.17% and Nigerian study 0.4% [11,12] , while incidence was lower than many local studies at Bannu 1.6% and study by Omole Ohonsi 1.4% and 1.3% by AL-Zirqi.[8,13,14.]

Among maternal risk factors age and parity were found to be the major risk factors, 56(76%) of patients were in the age group between 26-35.The reason being most of the women are producing children in this age group, 59(80%) patients were multipara ,the reason being increased fragility and fibrosis of the myometrium tissue with subsequent pregnancies. The results were comparable with results of most of international studies [15, 16, 17]. 68(93%) of patients in our study were unbooked and results were comparable to study by Abha S where 92.5% of patients were unbooked [18.]

59(80%) of patients were delivered at home and results were consistent with many local and international studies [19].34(46%) of the patients were delivered by untrained personal having no knowledge of labour management which is low as compared to 95% results shown by study at Bannu teaching hospital [20] .The most common risk factor was induction and augmentation with oxytocin in 30(45%) of cases followed by patients with previous c section 22(30%). The result of our study is consistent with results of study at Bannu Teaching hospital and study by Iqbal al Zarqi at Norway which have shown that prostaglandins and oxytocin induction and augmentation are the significant risk factors for complete uterine rupture in a scarred and unscarred uterus [20,21].However as most of the patient were received ruptured so, the dose and the route of administration resulting in rupture could not be found. 22(30%) of patients had history of previous c section who preferred delivery at home due to fear of hospital delivery and repeat c section and result were comparable to results of Gupta 18.8% and Qazi Q 22%.[12,13].

27(37%) of patients presented with more than one symptoms followed by 19(26%) patients who presented with vaginal bleeding, whereas, study by Zwart JJ at Neitherland and Anne Pinton have shown abdominal pain and abnormal fetal heart rate to be the most common clinical presentation [17,23].

62(84%) of the patient rupture during labour while only 9(12%) patients were diagnosed in the postpartum period. Postpartum hemorrhage is a significant sign in patients with uterine rupture after delivery and it accounts for 10% of cases very close to our result.

At laparotomy 64(87%) of patients had complete uterine rupture whereas 9(13%) patients had incomplete rupture. Lower uterine segment was the most common site of rupture in majority of patients 41(56%). After stabilization of the patient with initial fluid replacement and blood transfusion the most common surgical intervention was subtotal abdominal hysterectomy in 43(58%) cases, repair was done in29(34%) patients with BTL done in 9 patients. However the results of study at Bannu have shown higher rate of hysterectomy 76.6% while study by Singh M and local studies have shown higher repair rate of 59% thus conserving fertility [13, 24].Repair of bladder was done in two cases 2 with unilateral ureterostomy with passage of stent in one case. Rupture uterus is one of the causes of peripartum hysterectomy but choice of surgical intervention depends on maternal hemorrhage and fertility of the patient. Early resort to hysterectomy was done to save maternal blood loss and maternal life. 56(76%) patients had anemia less than 7mg/dl at presentation and 63(86%) required more than two blood transfusions.11 patients had serious maternal outcomes with 2 patients had vesicovaginal fistulae there were two cases of post opt urinary incontinence. Many local and international studies have shown higher figures [19,20.] Three (4%) patients had reopening for intraabdominal hemorrhage due to slipped pedicle, while death occurred in four cases (5%). Cause of death was DIC in two patients and renal failure in two patients. The case fatality rate was low in our study as compared to many local studies showing a much higher fatality rate, [20]. but comparable to results of international studies [21,22].Coming to fetal outcome 59(80%) of babies were delivered dead and results were much higher than study by Astatikie G [23,]but comparable to other local and international studies [24,25.]

CONCLUSION

Uterine rupture is a serious obstetrical emergency putting both mother and fetus at risk of serious morbidity and mortality. It was concluded from our study that in our area mother extent to uterine rupture is high. Leading factors to this may be the injudicious use of oxytocin, and women with previous uterine scar even in safe hands resulting in more than 50 percent of the patients losing their future fertility.

Recommendations

Women should be educated to seek proper health care and avail facilities at hospitals where supervised deliveries and emergency care is available to improve both maternal and fetal outcome.

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