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Research Article

**CLINICAL APPEARANCE, PREDISPOSING FEATURES,  
MODALITIES AND FETOMATERNAL CONCLUSION AMONG  
PATIENTS WITH UTERINE RUPTURE**

Dr Salwa Naeem, Dr Tasleem Akram, Dr Anam Sarfraz

Allied Hospital Faisalabad

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**Abstract:**

**Objective:** The objective is to find out the prompting features, various modes of appearance, modalities of management and feto-maternal conclusion in the patients with uterine rupture.

**Methodology:** There was no need to take consent of the patients because it was a retrospective research work. In this research work, we carried out the retrospective analysis of sixty one gravid patients of uterine rupture from 2011 to 2018. SPSS V. 23 was in use for statistical analysis of collected information. Ethical committee of the institute gave the permission to conduct this research work.

**Results:** The patients of older ages with high amount of previous pregnancies were present with long periods of stay in hospitals. The rate of prevalence of ruptured uteri measured as 0.1160%. Insistence for delivery through vagina after the CS (Cesarean Section) was the most common reason of the rupture of uterine among patients (31.10%). Most common coexistent pathology of obstetrics was ablatio placenta present in 4.90% patients. The most common symptom at the time of presentation was bleeding (44.30%). Most susceptible uterus part for rupture was the isthmus in 39.30% patients. There was very long duration of stay in the hospital, if there was long interval between surgical intervention and the incidence of rupture.

**Conclusion:** Deliveries in the hospitals, thorough vigilance during labor and regular antenatal care with timely referral to the well-equipped heal care center may decrease the prevalence rate of this very complication. Hazardous risks are the conclusion of the gravid uterus's rupture.

**KEY WORDS:** Rupture, complication, CS, gravid, hazardous, uterine, ethical, delivery, pregnancy.

**Corresponding author:**

Dr. Salwa Naeem,

Allied Hospital Faisalabad

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**INTRODUCTION:**

The main rationale of this research work was to review the reasons and risk factors of uterine rupture and investigate the presentation modes, associated complications, management modalities and fetomaternal outcomes. UR is very severe and life taking complication which can lead to hysterectomy, heavy bleeding, shock as well as high rate of fetomaternal morbidity and mortality. Better antenatal care and labor management with advances technologies can support in the reduction of the prevalence of the uterine rupture. But uterine rupture is still a very frequent occurring and catastrophe of severe nature among the patients of the countries which are under development [1-3]. Immediate abnormalities like rupture of uterine bladder, anemia or serious shock and complication for long term as foot drop, complete infertility or vesico-vaginal fistula may be the outcome because of uterine rupture [4,5]. Previous CS, uterine abnormalities, tumors, multi-parity, utilization of the oxytocin, placenta percreta and fetal abnormalities are the most important risk factors for uterine rupture [4]. There is variation in the incidence rate of uterine rupture between 1 out of 250 and 1 out of 5000 deliveries [3,6].

Underlying factors for uterine rupture may include an adverse system of referrals, non-adherence to antenatal care and delay in obtaining the clinical care [5]. Lower socio-economic status, child births of having more than 3.50 kg weight, positivity of HIV infection and past history of CS are the other main risk factors for uterine rupture. Fetomaternal conclusion of uterine rupture depends upon the availability of the health care facilities in various regions.

**METHODOLOGY:**

We obtained the approval of ethical committee for the conduction of this research work. We carried out this retrospective research work on gravid patients of uterine rupture having greater than 20 gestation week from 2011 to 2018 in the Obstetric Department of Sir Ganga Ram Hospital, Lahore. We assessed the patients in terms of their characteristics of

demography like parity number, age of patients, week of gestation, previous obstetric, presentation mode, utilization of uterine stimulant, labor course, rupture site & type, surgical treatment, duration of stay in hospital and fetomaternal outcome. We defined the uterine rupture either as defect of the full-thickness of uterine in addition with acute maternal bleeding that needs the surgical intervention. We termed the patients with incomplete uterine rupture who were present with uterine dehiscence or some other defects of partial nature.

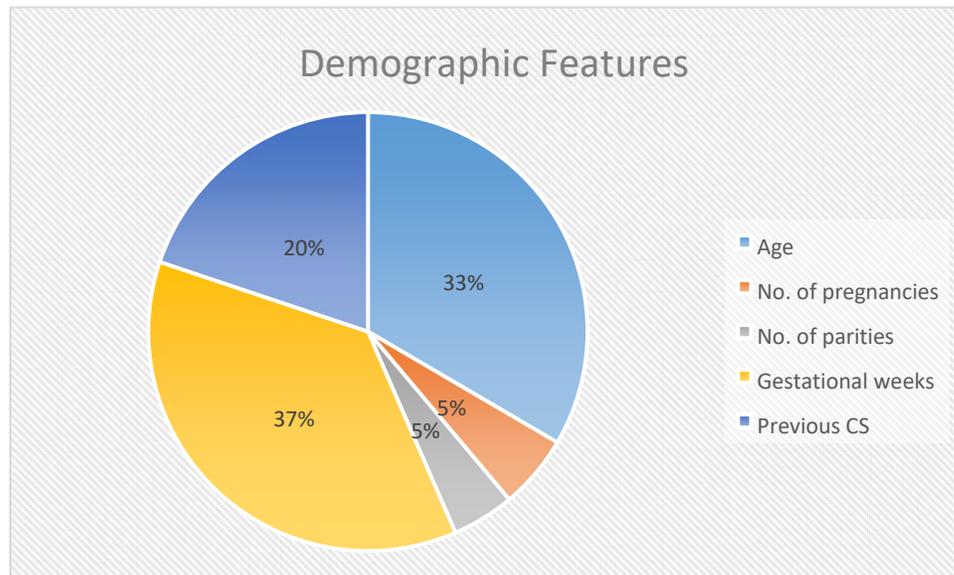
The expression of the data carried out in averages and standard deviations. P value of less than 0.050 was the significant one. SPSS V.23 was in use for the statistical analysis of the collected information. We applied the parametric tests to the normal distribution data. We used Pearson Chi-square test for the comparison between independent groups. For the calculations of the correlation coefficients, we used the Kendall's tau b method.

**RESULTS:**

In the duration of this research work, there were total sixty thousand deliveries of which sixty one patients found with rupture of uterus with a rate of incidence 0.1160%. A sum of total sixty one patients of uterine rupture comprising 93.40% (n: 57) patients of complete and 6.60% (n: 4) patients of incomplete UR were the participants of this research work in the duration of this research work. Total six patients gave delivery through vagina at their homes but referred to our institute because of heavy bleeding through vagina. Three among them were present with past history of CS. The detection of uterine rupture carried out in these patients in the duration of surgical intervention for intra-abdominal hemorrhage. Maternal characteristics of demography are present in Table-1. The average maternal age was thirty-two years with a range from 20 to 45 years and average parity was 4.40 from 0 to 11. There was occurrence of CS in 44.30% (n: 27) patients and 55.70% (n: 34) patients gave birth through vagina.

**Table-I: Demographic features of uterine rupture cases.**

Features	Average	Range
Age	32.00	20 - 45
No. of pregnancies	5.20	1 - 12
No. of parities	4.40	0 - 11
Gestational weeks	35.10	20 - 40
Previous CS	19.00	31.10%

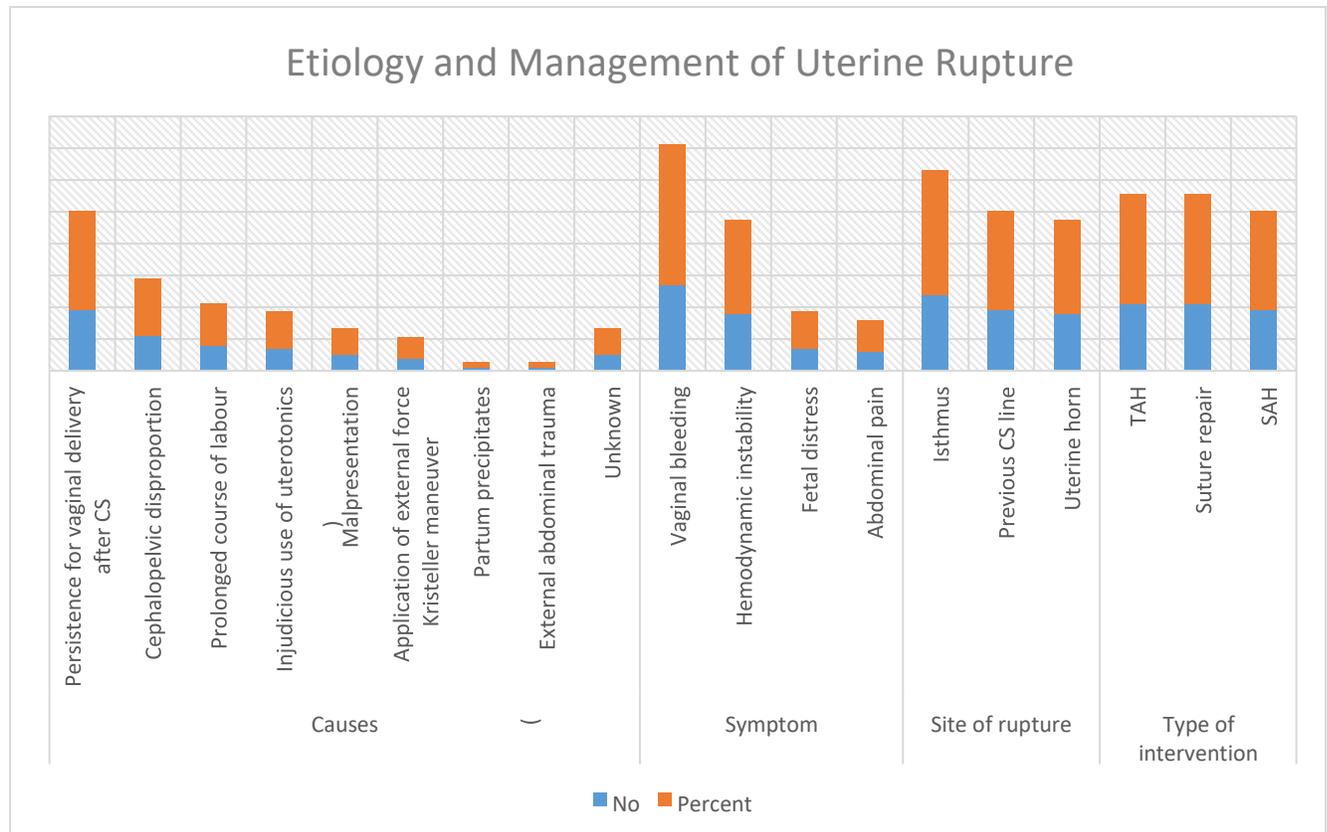


We preferred the suture repair in 34.40% patients. Most frequent obstetric pathologies in addition with uterine rupture, ablatio placenta available in 4.90, placenta Previain 3.30% and uterinedidelphys in 1.60% patients. Duration between onset of uterotonic infusion and pain of labor was  $8.440 \pm 4.120$  hours. Total labor duration in the patients with prolonged labor was  $29.150 \pm 9.280$  hours. Isthmus was the most common ruptured site. Total 31.10% (n: 19) patients were present with past history of cesarean section.

We performed the hypogastricartery ligation in 29.50% (n: 18) patients. Details related to the procedures are present in Table-2.

**Table-II: Details regarding the etiology and management of uterine rupture.**

Details		No	Percent
Causes	Persistence for vaginal delivery after CS	19.0	31.10
	Cephalopelvic disproportion	11.0	18.00
	Prolonged course of labour	8.0	13.10
	Injudicious use of uterotonics	7.0	11.50
	Malpresentation	5.0	8.30
	Application of external force (Kristeller maneuver)	4.0	6.60
	Partum precipitates	1.0	1.60
	External abdominal trauma	1.0	1.60
	Unknown	5.0	8.20
Symptom	Vaginal bleeding	27.0	44.30
	Hemodynamic instability	18.0	29.50
	Fetal distress	7.0	11.50
	Abdominal pain	6.0	9.80
Site of rupture	Isthmus	24.0	39.30
	Previous CS line	19.0	31.10
	Uterine horn	18.0	29.60
Type of intervention	TAH	21.0	34.40
	Suture repair	21.0	34.40
	SAH	19.0	31.10

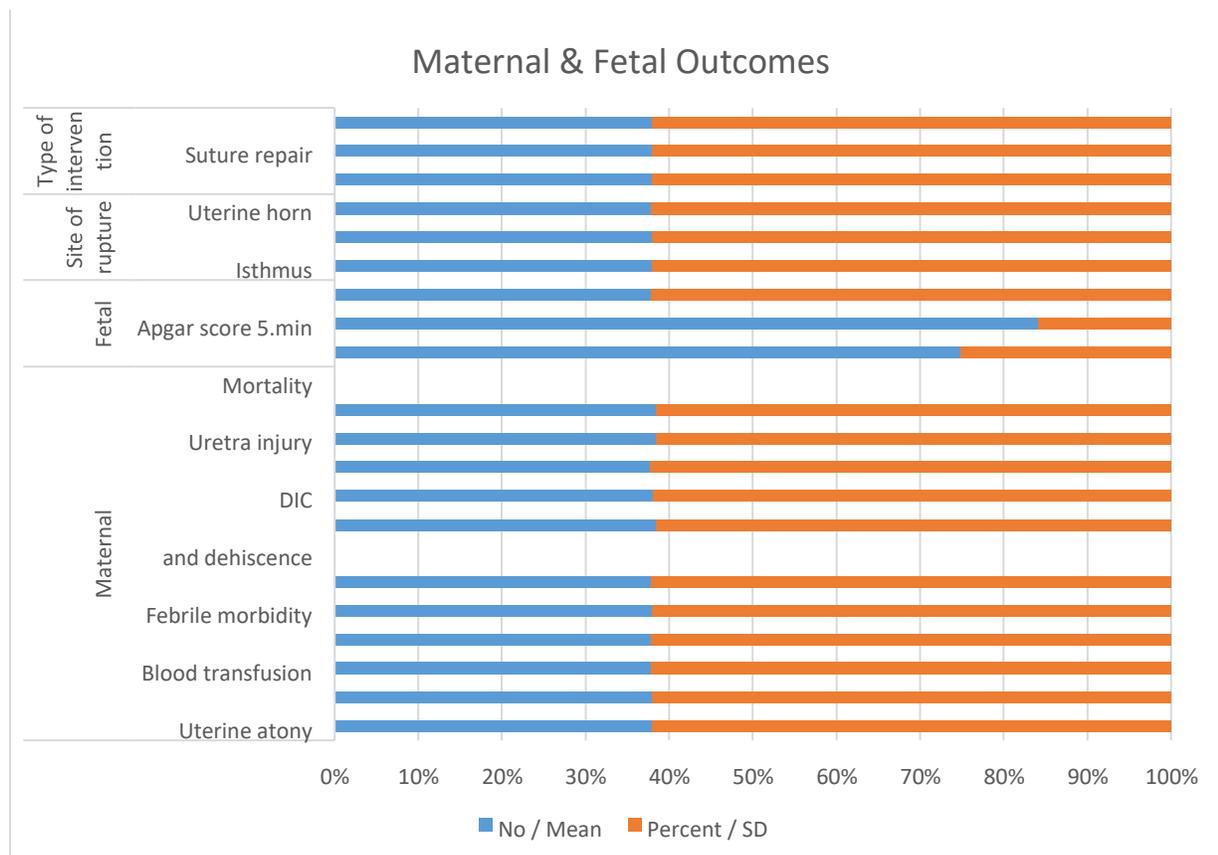


Mean hospital stay after surgical intervention was 8.40 days with a range from 4 to 27 days. The average time of surgery was 128.50 minutes with a range from 90 to 180 minutes. We detected only 2 fetal abnormalities in this research work. There was need of blood transfusion for every patient. The rate of febrile morbidity was 18.0%. Total 22.90% (n: 14) patients encountered the injuries of urinary system. There was no mortality in this research study. Feto-maternal outcomes are present in Table-3.

**Table-III: Maternal and fetal outcomes.**

Outcomes		No / Mean	Percent / SD
Maternal	Uterine atony	19	31.1
	Vesicouterine rupture	8	13.1
	Blood transfusion	61	100
	Relaparataromy due to intra-abdominal	7	11.5
	hemorrhageFebrile morbidity	11	18
	Wound infection and dehiscence	5	8.2
	Acute renal failure	2	3.2
	DIC	6	9.8
	Ureter injury	4	6.6
	Urethra injury	1	1.6
	ARDS	1	1.6
	Mortality	0	0

Fetal	Apgar score 1.min	5.22	1.76
	Apgar score 5.min	7.56	1.42
	Fetal birth weight (g)	2940.86	-
	Mortality	25	41
Site of rupture	Isthmus	24	39.3
	Previous CS line	19	31.1
	Uterine horn	18	29.6
Type of intervention	TAH	21	34.4
	Suture repair	21	34.4
	SAH	19	31.1



Association analysis of different variables showed that age and amount of pregnancies were present with correlation with hospital stay after surgical intervention for uterine rupture. Delay between uterine rupture and operational intervention have association with total stay in hospital (Table-4).

**Table-IV: Correlation analysis of variables correlated with the duration of hospitalization.**

Correlations	r	p Value
Age vs Duration of hospitalization	0.2370	0.0120
Number of previous pregnancies vs Duration of hospitalization	0.0780	0.0190
Surgical delay vs Duration of hospitalization	0.2070	0.0290

**DISCUSSION:**

The prevention from this complication is possible in majority of patients but the rate of incidence of fetomaternal morbidity and mortality are still very high [5,7,8]. There can be difference in the presentation's modes of uterine rupture in scarred&unscarred uteri. UR of unscarreduterus has more dangerous fetomaternal in comparison with the scarred uterus [4,5]. Hysterectomy was the major surgical intervention in the patients of uterine rupture. But in the patients where there is an issue of fertility preservation, preference is given to the suture repair. Improvement in the access to the health care sources and programs may support the prevention of high amount of morbidities and mortalities because of this complication. In the literature of this field, the rate of mortality can be as high as 13.50%, whereas many research works from countries which are under development reported the low rates in their populations [1,3,5,and 7]. Most of the deaths occurs before the hospital admissions.

All the patients with previous history of CS should deliver in with full facilities for surgical interventions and transfusion of blood in emergency [8,9]. Our country, Pakistan is a developing country, but very low rate of prevalence show the standard of obstetric care and hospitals. Some of the prompting factors of uterine rupture in the countries which are under development are age from 31 to 35, parity number of greater than 3, adverse antenatal care, grandmulti-parity, prolonged labor, breech extraction, utilization of oxytocin and prostaglandins [5,7-10]. In some of the circumstances where there is preference of suturerepair for the preservation of the fertility, there is always a risk of recurring rupture [9-11, 12]. With awareness, in time diagnosis, fast surgical intervention and neonatal care, there can be reduction in the maternal&perinatal morbidity as well as mortality [10-12]. Gravid uterus rupture is very serious complication in the period of pregnancy with very high rate of morbidity as well as mortality.

**CONCLUSION:**

Uterine rupture is very important risk factor for the high rate of feto-maternal morbidity as well as mortality. There is high risk of this complication in females present with the hypovolemia. Timely diagnosis and fast recourse to laparotomy is vital for the safety of the fetus and for the prevention of other associated complications. Enhanced availability to antenatal care, referral system, awareness and relevant programs for females having pregnancy may help to prevent the incidence of uterine rupture.

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