EUROPEAN
ACADEMIC
RESEARCH

Frequency of Factors Leading to Rupture of Uterus

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Abstract:

INTRODUCTION: *Uterine rupture is a life threatening condition defined as breach in the integrity of the myometrial wall with spillage of uterine contents into the peritoneal cavity.[1] Complete rupture may communicate directly with the peritoneal cavity involving entire uterine wall or may be incomplete that is separated from it by visceral peritoneum over the uterus.[2] We want to conduct this study to highlight the frequency of problem in local population. The results of this study will provide significant information of underlying causes of this life threatening problem, so that policy makers, planners, health managers and caregivers to institute revise their policies and protocols and helpful interventions could be taken to minimize morbidity and mortality .*

OBJECTIVE: *To determine the Frequency of Factors Leading to Rupture of Uterus at Bolan Medical College/ BMCH, Quetta*

SETTING: *Department of Obstetrics and Gynecology, PGMI (Bolan Medical College Hospital), Quetta*

STUDY DESIGN: *Cross sectional study.*

DURATION STUDY: *from 1st August, 2020 to 31st August 2021*

MATERIALS AND METHODS: *In this study a total of 382 patients were included. Patient's details like age, parity, gestational age at presentation, BMI, were noted. Then females were managed as per standard hospital protocol. For identification of factors leading to ruptured uterus history was taken and medical record was assessed to note oxytotic drugs administration.*

RESULTS: *In this current study a total of 382 women were observed in which age distribution was analyzed as 138 (36%) women were in age 18-30 years and 244 (64%) women were in age 31-45 years. Status of parity was analyzed as 130 (34%) women were primi para while 252 (66%) women were multi para. Gestational age was analyzed as 230 (60%) women had gestational age range 37-39 weeks while 152 (40 %) women had gestational age range 40-42 weeks. Status of BMI was analyzed as 160 (42%) women had BMI ≤25 Kg/m² while 222 (58%) women had BMI >25 Kg/m². Mean BMI was 25 Kg/m² with SD ± 0.494.*

CONCLUSION: *Our study concludes that the factors leading rupture of uterus were use of oxytotic drugs (65%), previous C section (24%) and obstructed labor (11%).*

Keywords: factors, rupture of uterus, parity.

INTRODUCTION

Uterine rupture is a life threatening condition defined as breach in the integrity of the myometrial wall with spillage of uterine contents into the peritoneal cavity.[1] Complete rupture may communicate directly with the peritoneal cavity involving entire uterine

wall or may be incomplete that is separated from it by visceral peritoneum over the uterus.[2]

The incidence of uterine rupture is unevenly distributed in different parts of the world. In countries like in Norway, with appreciable maternal health facilities, a 4 decade study described that the incidence rates per 10,000 maternities in the first, second, third, and fourth decade1.2, 0.9, 1.7, and 6.1, respectively. This can clearly reflects that such rise in cases of rupture uterus is due to increased frequency of cesarean sections.[3]

In a study on Nordic countries the frequency of uterine rupture was 5.6/10000 deliveries.[4] The situation is also alarming in Asia, the consequence of uterine rupture is jeopardizing maternal life. According to an Indian study 4.52% of maternal mortality is due to uterine rupture.[5]

Several factors increase the risk of uterine rupture. Spontaneous rupture of an intact uterus may be due to injudicious use of oxytocin, prostaglandins, cephalopelvic disproportion, malpresentation, multiparity, difficult instrumental delivery, and obstetrical manipulations.[4]

Other indirect factors are also important e.g. poverty, illiteracy, cultural constraints, advanced age, grand multiparity, unskilled delivery, lack of antenatal care, and poor access to maternal health services.[5] In a study by Qazi et al, direct risk factors was reported in proportion as: injudicious use of oxytocin drugs (51.6%), obstructed or neglected labor (12.5%) and previous caesarian section (18.8%).[6] Another study found that proportion of injudicious use of oxytocin drugs (14%), obstructed or neglected labor (4.7%), previous caesarian section (4.6%).[7] While another study found that proportion of injudicious use of oxytocin drugs (100%), obstructed or neglected labor (53.33%), previous caesarian section (46.6%).[8]

Rationale of this study is to determine the frequency of various factors leading rupture of uterus. Literature showed that previous caesarean section, obstructed labour and injudicious use of oxytocin drugs are main factors of ruptured uterus. So we would conduct this study to highlight the frequency of problem in local population. The results of this study would provide significant information of underlying causes of life threatening problem, the purpose that policy makers, planners, health managers and caregivers to institute revise their policies and protocols and helpful interventions would be taken to minimize morbidity and mortality

METHODOLOGY

This Cross sectional study was conducted at department of Obstetrics and Gynecology, Postgraduate Medical Institute, Quetta. Total 382 patients included with 95% confidence level, 5% margin of error and taking expected percentage of previous caesarian section i.e. 4.6%[7] in patients with ruptured uterus, Inclusion criteria was applied like (females of age 18-45 years, parity >1 with ruptured uterus. Hemodynamically unstable patients (bleeding >200ml, BP≥140/90mmHg, convulsions), Placental abruption (on ultrasound), as bleeding from uterus from all above mentioned criteria will of any pathology other then rupture of uterus that is not part of study, traumatic rupture of non-gravid uterus were excluded.

DATA COLLECTION PROCEDURE: 140 females meeting our selection/inclusion criteria will enrolled from emergency of Department of Obstetrics and Gynecology, Postgraduate Medical Institute, Quetta. Informed consent will obtain before using their data for researcher purpose. Demographic details like name, age, parity, gestational

age at presentation, BMI, will note. Then females will manage as per standard hospital protocol. For identification of factors leading to ruptured uterus history will be taken and medical record will assessed to note oxytotic drugs administration. All this information will record on a proforma by the researcher herself (attached).

DATA ANALYSIS: Data will analyze using SPSS 21.0. Mean and standard deviation will computed for quantitative variables like age, gestational age, weight, height and BMI. Frequency and percentage will calculated for factors leading to rupture, perinatal death, parity. Data will stratified by age, parity, gestational age and BMI. Post-stratification chi-square test will applied to compare aforementioned factors in stratified group. P-value ≤0.05 will considered as significant.

RESULTS

In this current study a total of 382 women were observed in which age distribution was analyzed as 138 (36%) women were in age 18-30 years and 244 (64%) women were in age 31-45 years. Mean age was 33 years with standard deviation ± 10.41. (Fig No 1)

Status of parity was analyzed as 130 (34%) women were primi para while 252 (66%) women were multi para. (Fig No 2)

Gestational age was analyzed as 230 (60%) women had gestational age range 37-39 weeks while 152 (40 %) women had gestational age range 40-42 weeks. Mean POG was 39 weeks with SD ± 0.480. (Fig No 3)

Status of BMI was analyzed as 160 (42%) women had BMI ≤25 Kg/m^2 while 222 (58%) women had BMI >25 Kg/m^2. Mean BMI was 25 Kg/m^2 with SD ± 0.494. (Fig No 4)

Factors leading to rupture of uterus were analyzed as 248 (65%) women had rupture of uterus due to Use of oxytotic drugs, 92 (24%) women had rupture of uterus due to previous C section and 42 (11%) women had rupture of uterus due to obstructed labor. (Table No 1)

Stratification factors leading to rupture of uterus with respect to age, parity, gestational age and BMI is given in Table no 2,3,4,5.
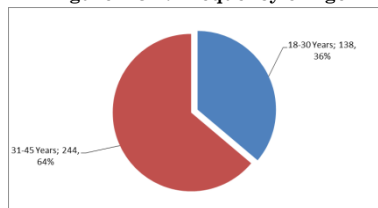
Figure NO 1: Frequency of Age

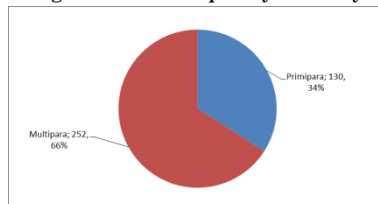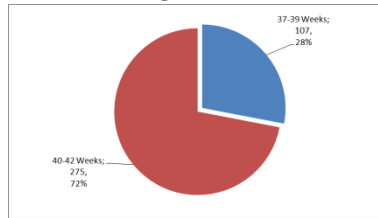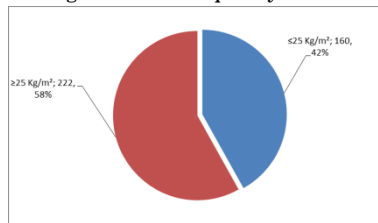**Figure NO. 2: Frequency of Parity**

Figure No 3.

Mean POG was 39 weeks with SD ± 0.480

Figure No 4.: Frequency of BMI

Mean BMI was 25 Kg/m- with SD ± 0.494

TABLE 1. Frequency of Factors Leading to Rupture of Uterus

Factors	FREQUENCY	PERCENTAGE
Use of Oxytotic Drugs	248	65%
Previous C Section	92	24%
Obstructed Labor	42	11%
Total	382	100%

TABLE 2. Stratification of Factors Leading to Rupture of Uterus with Respect to Age

Factors		18-30 years	31-45 years	Total	P value
Use of Oxytotic Drugs	Yes	55	58	133	0.001
	No	83	186	269	
Total		138	244	382	
Previous C Section	Yes	64	55	119	0.000
	No	74	189	263	
Total		138	244	382	
Obstructed Labor	Yes	38	93	131	0.036
	No	100	151	251	
Total		138	244	382	

TABLE 3. Stratification of Factors Leading to Rupture of Uterus with Respect to Parity

Factors		Primi para	Multi para	Total	P value
Use of Oxytotic Drugs	Yes	47	66	113	0.043
	No	83	186	269	
Total		130	252	382	
Previous C Section	Yes	64	55	119	0.000
	No	66	197	263	
Total		130	252	382	

Factors		Primi para	Multi para	Total	P value
Use of Oxytotic Drugs	Yes	47	66	113	0.043
	No	83	186	269	
Total		130	252	382	
Previous C Section	Yes	64	55	119	0.000
	No	66	197	263	
Total		130	252	382	
Obstructed Labor	Yes	38	93	131	0.036
	No	92	159	251	
Total		130	252	382	

TABLE 4. Stratification of Factors Leading to Rupture of Uterus with Respect to Gestational Age

Factors		≤ 37 weeks	> 37 weeks	Total	P value
Use of Oxytotic Drugs	Yes	113	0	113	0.000
	No	117	152	269	
Total		230	152	382	
Previous C Section	Yes	64	55	119	0.000
	No	66	197	263	
Total		130	252	382	
Obstructed Labor	Yes	77	54	131	0.680
	No	153	98	251	
Total		230	152	382	

TABLE 5. Stratification of Factors Leading to Rupture of Uterus with Respect to BMI

Factors		≤ 25 Kg/m²	> 25 Kg/m²	Total	P value
Use of Oxytotic Drugs	Yes	77	36	113	0.000
	No	83	186	269	
Total		160	222	382	
Previous C Section	Yes	67	52	119	0.000
	No	93	170	263	
Total		160	222	382	
Obstructed Labor	Yes	60	71	131	0.262
	No	100	151	251	
Total		162	222	382	

DISCUSSION

Uterine rupture is a life threatening condition defined as breach in the integrity of the myometrial wall with spillage of uterine contents into the peritoneal cavity.[1] Complete rupture may communicate directly with the peritoneal cavity involving entire uterine wall or may be incomplete that is separated from it by visceral peritoneum over the uterus.[2]

In this current study a total of 382 women were observed in which mean age was 33 years with standard deviation ± 0.480. Thirty Four percent women (34%) were primi para and 66% women were multi para. Mean POG was 39 weeks with SD ± 0.474. Factors leading to rupture of uterus were analyzed as 248 (65%) women had rupture of

uterus due to use of oxytotic drugs, 92 (24%) women had rupture of uterus due to previous C-section and 42 (11%) women had rupture of uterus due to OBG labor.

Similar results were observed in another study conducted by Qudsia Q et al[9] in which the frequency of ruptured uterus in hospital was found in 9/ 1000 deliveries, higher than most other studies. Amongst etiological factors the most important were great multiparity 27 (42.2%), in-judicious use of Oxytocin 33 (51.6%), obstructed labour 8 (12.5%) and previous caesarean section 12 (18.8%). Of the total number of patients, 49 (76.6%) underwent abdominal hysterectomy (either subtotal or total), 3.1% of them needed bladder repair and 15.6% underwent repair of uterus. 5 (7.8%) died either due to irreversible shock or disseminated intravascular coagulation, 4% of patients had in-continence of urine, 53 (82.8%) of cases delivered dead babies and 9 (14.1%) had severe birth asphyxia needing neonatal intensive care.

Similar results were observed in another study conducted by Igwegbe AO et al[10] in which out of 5,585 deliveries over the study period, 47 had uterine rupture, giving an incidence of 0.84% or 1 in 119 deliveries. All the patients were multiparous and majority (63.8%) was unbooked. Traumatic (iatrogenic) rupture predominated (72.1%). Uterine repair with (55.8%) or without (34.9%) bilateral tubal ligation was the commonest surgery performed. Case fatality rate was 16.3%, while the perinatal mortality rate was 88.4%. Average duration of hospitalization following uterine rupture was 10.3 days. More over proportion of injudicious use of oxytocic drugs (14%), obstructed or neglected labor (4.7%), previous caesarian section (4.6%).

Similar results were observed in another study conducted by Rizwan N et al[11] the total number of deliveries during the year January to December 2008 was 2010. There were 15 cases (0.74%) of uterine rupture. Out of these only three (20%) were booked. Most of the patients (60%) presented between the ages 26-30. Majority of uterine rupture occurred in para 2-4 (53.33%). Common cause of uterine rupture was prolonged neglected obstructed labour. Previous caesarean section scar was found in 41.66%. Anterior uterine wall was involved in 60% of cases. Rupture was complete in 73.33% of cases. Hysterectomy was performed in 53.33%. There were three maternal (20%) and 11 intrauterine deaths (73.33%). Live birth rate was 26.66%

CONCLUSION

Our study concludes that the factors leading rupture of uterus were use of oxytotic drugs (65%), previous C section (24%) and obstructed labor (11%).

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FREQUENCY OF FACTORS LEADING TO RUPTURE OF UTERUS

Date:_____   Registration no:_____

Patient Name:_____ W/O _____

Maternal Age (years):_____

Parity_____

Gestational age: _____ weeks

BMI:_____

FACTORS:

Use of Oxytotic Drugs: Yes

                                        No

Previous C Section: Yes

                                        No

Obstructed Labor   Yes

                                        No