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Original Article

Frequency of Uterine Rupture and Its Maternal and Fetal Outcomes of Uterine Rupture among Pregnant Women

Aisha Seher[1], Arifa Yousafzai[2], Zakia Minhas[3], Sumera Brohi[4], Mehvish Masood[5], Maryum Noor[6] and Adnan Fazal[7*]

[1]Department of Gynecology and Obstetrics, National Medical Center, Karachi, Pakistan
[2]Department of Gynecology and Obstetrics, THQ Hospital, Topi Sawabi, Pakistan
[3]Department of Health, Peshawar, Pakistan
[4]Department of Gynecology and Obstetrics, Shaikh Zaid Women Hospital, Larkana, Pakistan
[5]Department of Gynecology and Obstetrics, Combined Military Hospital, Sargodha, Pakistan
[6]Department of Gynecology and Obstetrics, Shifa Tamer E Milat University, Islamabad, Pakistan
[7]Department of Cardiology, National Institute of Cardiovascular Diseases, Khairpur, Pakistan

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***Corresponding Author:**
Adnan Fazal
Department of Cardiology, National Institute of Cardiovascular Diseases, Khairpur, Pakistan
dr.adnanfazal@gmail.com

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ABSTRACT

A uterine rupture is when the uterine wall is torn during labor or right after birth. It is although not common but when occurs it is catastrophic obstetrical emergency for both mother and fetus needs prompt diagnosis and expert management. Moreover it may leads women to irreversible infertility as it rottenly ends at hysterectomy. **Objective:** To determine the frequency of uterine rupture and its maternal and fetal outcomes among pregnant women. **Methods:** This Cross Sectional study was conducted at Civil Hospital Karachi in the department of Obstetrics and Gynecology Unit II from 8th December 2018 to 7th June 2019. A total of 317 pregnant women of gestational age >28 weeks, fulfilling the inclusion criteria were enrolled .The data were collected on prepared proforma. **Results:** This study includes 317 patients with age ranges from 25 to 35 years with mean age of 28.44 ± 3.62 years. In this study, frequency of uterine rupture among pregnant women was found in 7(2.2%) women and maternal mortality 1(7.69%). **Conclusions:** Findings of this study suggests that uterine perforation is still high and remained important factor for maternal and fetal outcome.

INTRODUCTION

Despite the fact that uterine perforation is a rare pregnancy hardship, it may be fatal and cause the mother's demise. The time period "uterine rupture" describes when the uterine wall is ripped and loses its electricity during pregnancy, childbirth, or right now following childbirth. The mother and the fetus often suffer detrimental consequences from this disastrous obstetrical prevalence [1]. Past this, it could show the girls have unfavorable aspect effects, together with irreparable infertility brought on by using hysterectomy. Preliminary uterine rupture signs and symptoms are normally ambiguous, making diagnosis difficult and sometimes delaying the commencement of definitive treatment. Between the time of analysis and shipping, just 10–37 minutes, on average, skip earlier than clinically extreme fetal morbidity is inevitable [2, 3]. Fetal morbidity may be delivered via catastrophic bleeding, fetal anoxia, or both. Uterine rupture in pregnancy is an incredibly feared prevalence for scientific professionals because of the inconsistent premonitory signs and symptoms, the signs of uterine

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rupture, and the restricted time for initiating a precise healing remedy. Uterine scar dehiscence, in place of open uterine rupture, entails the disintegration and separation of an earlier uterine scar. More regularly than uterine rupture, uterine scar dehiscence hardly ever causes severe maternal or fetal problems [4]. If uterine perforation occurs all through for the duration of reducing or electric equipment is lively, then there's the ability for major belly trauma resulting in hemorrhage and viscus injury. A laparoscopy and, arguably, a laparotomy are mandatory to check the stomach contents. If there is no injury, hysteroscopy can hold once the perforation has been sutured. Intraoperative hemorrhage of the uterine perforation nut is more often a sign of a surgical procedure deep inside the myometrium [5]. The fetus, placenta, and umbilical wire all live inside the uterine cavity in situations of uterine dehiscence (in place of uterine rupture). The pressing cesarean delivery was finished to limit the risk to the mother and fetus. We therefore performed this study to determine the incidence of uterine rupture, predisposing variables, and therapeutic modalities due to the paucity of local data. Reviewing this data may also aid in the creation of appropriate preventive strategies to lower obstetrical complications and morbidity and death rates for both the mother and the fetus.

METHODS

This Cross Sectional study was conducted at Obstetrics and Gynecology Unit II Civil Hospital Karachi from 8th December 2018 to 7th June 2019. By using WHO sample size calculator taking prevalence of uterine rupture in pregnant women 2.44% with margin of error 1.7% and confidence level 95% then estimated sample size 317 pregnant women. By applying non-probability, consecutive sampling we enrolled 317 patients of age of 25 to 35 years with gestational age of >28 weeks and gravida >2 and we excluded Primigravida with severe anemia HB < 7mg/dl, gestational hypertension and diabetes mellitus, congenital fetal anomaly and having previous history of uterine rupture. Frequency of uterine perforation defined as (complete thickness separation of uterine wall and serosa) were noted. After approval of ethical committee of hospitals all pregnant women meeting criteria were enrolled and informed consent from patients were taken. Demographic characteristics (age, parity and place of residence) and maternal and fetal outcome were noted. All the assessment was done under supervision of consultant having greater than 5 years' experience. Data were analyzed by using SPSS version 20.0. Descriptive statistics were calculated for study variables. Mean and standard deviation were calculated for quantitative variables like age, gestational age and BMI. Frequency and percentage were calculated for previous history of caesarean section, multiparty, residence (urban/ rural) and uterine rupture & its maternal and fetal outcomes. Effect modifiers age of mother, gestational age and multiparty were calculated through stratification. Post stratification chi square test was performed for uterine rupture and P-value ≤ 0.05% was taken as significant.

RESULTS

This study enrolled 317 pregnant women with age ranges 25 to 35 years with mean age of 28.44 ± 3.62 years. Majority of the patients 236 (74.45%) were between 26 to 35 years of age with mean gestational age was 37.53 ± 2.18 weeks and the mean BMI was 29.72 ± 2.97 kg/m2 as shown in Table 1.

Table 1: Descriptive Statistics of Demographic Characteristics

Variables	Range	Mean
Age (Years)	25 - 35	28.44 ± 3.62
Gestational Age (Weeks)	32-40	37.53 ± 2.18
BMI (kg/m2)	28.95-29.32	29.72 ± 2.97

Mean gravidity was 3.32 ± 0.87. Distribution of patients according to gravida, place of living, scarred uterus and frequency of uterine rupture among pregnant women was found in in 7(2.2%) women as shown in Table 2.

Table 2: Descriptive statistics of variables

Variables	Frequency (%)
Gravida	
<3	134 (42.27)
>3	183 (57.73)
Residence	
Urban	123 (38.80)
Rural	194 (61.20)
Uterus	
Scarred uterus	110 (34.9)
Uterine perforation	7 (2.2)

Maternal death was seen in 1(7.69%) of uterine rupture cases. Stratification of uterine rupture with respect to different variables are given in Table 3.

Table 3: Stratification of uterine rupture with respect to different variables

Variables	Uterine perforation		Total	p -vlaue
	Yes	No		
Maternal age				
25-30	2	120	122	0.50
30-35	5	190	195	
Gravida				
<3	1	131	132	0.30
>3	6	179	185	
Uterus				
scarred uterus	5	107	112	0.67
Unscarred uterus	2	203	205	

DISCUSSION

The uterine rupture refers back to the uterine wall being

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torn and losing its integrity because of a breach that occurs at some stage in pregnancy, childbirth, or right after transport. It's a risky obstetrics issue that regularly has negative consequences for both the mother and the fetus. Past this, it is able to display that the ladies have terrible facial outcomes along with hysterectomy-related irreversible infertility. Together, uterine rupture and labor obstruction account for 29% of all maternal deaths. This places problems associated with abortion as the number one cause of maternal mortality, accompanied by uterine rupture and obstructed labor. Even though uterine rupture is a rare prevalence in industrialized countries, it continues to be a severe public health difficulty in growing nations that places the lives of many pregnant women and their fetuses in jeopardy. The prevalence of uterine rupture seems to be lower in prosperous nations than in underdeveloped countries. According to the WHO, the prevalence ranges from 2.8% to 0.6%, with a higher figure in developing countries [6]. In this study, we have enrolled 317 patients, whose age range in this study was from 25 to 35 years, with a mean age of 28.44 ± 3.62 years. The majority of the patients were between 28 and 35 years of age. It was also in agreement with the study by Aziz and Yousafani, where the majority had a mean age of 30.36± 2.61 years [7]; a similar age group was noted in some previous studies [8, 9]. We have a majority of patients belonging to rural areas, about 61.20%, with a mean gravidity of 3.32 ± 0.87; similar figures were also quoted in some old studies [10, 11]. The frequency of uterine rupture in this study was 7 (2.2%) women; this was also in concordance with the findings, which are comparable to the findings by Nyengidiki and Allagoa, who observed uterine perforation at about 2.5% in Nigeria, while in a study in Uganda by Kadowa, observed a bit higher number of 2.9%. It may be due to a lack of health facilities and a higher gravity number [12, 13]. Although in developed countries this number is less, like in Ireland, it is 0.02% [14]. In our study, maternal mortality was about 7.69%, similar to that recorded by Fofie and Baffoe, where maternal mortality was 8.8% [15]. Some previous studies also showed similar data ranges of 6.6% and 7.8% [16, 17]. In our study, the commonest age for uterine rupture was 30-35 years with a mean age of 32.3±4.6 years. This was in agreement with the observations of Mbamara *et al.*, from Nigeria, where the mean age was 30.8±-6.3 years with age ranges of 30-34 years [18]. Uterine rupture has long been linked to multiparty; most cases (85.71%) of the uterine rupture in this study were in the gravida >3 group; these were also in agreement with the observation of Duhan *et al.*, who reported that multiparty was an important risk factor in about 97.9% of cases [19]. Findings of this study suggest that rupture of the uterus was more associated with the scarred uterus. Out of 7 cases, 5(71.4%) were in this group, and it remained one of the significant factors. It was also consistent with the previous study, where Dattijo *et al.*, also had the same findings with more uterine perforation and a history of hysterectomy [20]. This may be due to poor surgical skills and septicemia.

CONCLUSIONS

This study shows that uterine rupture is still high in countries like Pakistan and identified risk factors for uterine rupture can be avoided. Although multiparty and a damaged uterus are still major risk factors for uterine rupture, these risks can be mitigated by selecting patients carefully and lowering the caesarean section rate.

Authors Contribution

Conceptualization: AS, A
Methodology: A
Formal analysis: AS
Writing-review and editing: ZM, SB, MM, MN, AF

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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