



DETERMINANTS OF RUPTURE OF THE UNSCARRED UTERUS AND THE RELATED FETO-MATERNAL OUTCOME

Gynaecology

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ABSTRACT

Objectives – To determine the predisposing factors explaining the appearance of uterine rupture on unscarred gravid uterus and to value the maternal and fetal prognosis of this complication. **Material and methods.** – This was a retrospective study of 16 cases of uterine rupture on unscarred gravid uterus, recorded between January 2015 and December 2019, at the department of obstetrics and gynecology, SMGS jammu **Results:** Our analysis comprised of 16 cases with unscarred uterine rupture. The predisposing factors were: Multiparity (>4) 37.5%, Prolong Labour 37.5%, Use of oxytocin 56.25%, Instrumental delivery 12.5%, Misoprostol use 25%, Birth weight (>4kg) 25%, Obstructed labour 12.5%. Uterine rupture most common occurred in second stage of labour. Fetal mortality was 54.25% and maternal mortality was 12.5%. **Conclusion** Uterine rupture in the unscarred uterus remains an exceptional serious uterine complication which causes high maternal and fetal morbidity and mortality

KEYWORDS

INTRODUCTION:

Uterine rupture in pregnancy is one of the life-threatening situation for both mother and fetus.[1]. Uterine rupture is a serious event in a woman's life. It is not only dangerous for her life but may even affect her future fertility status as well.[2]. It is well-known that uterine rupture is an obstetric catastrophe associated with previous scarring, with an incidence of 1 in 200 in those undergoing vaginal birth after caesarian delivery (VBAC) [3]. Little is known though about its occurrence in an unscarred uterus. Uterine rupture in the unscarred uterus is rare and its incidence is higher in developing than in developed countries.[4] The major risk factors in unscarred uterine rupture are obstructed labor, high parity, injudicious use of uterotonic drugs, fetal macrosomia, abnormal placentation, previous invasive mole, previous mid-trimester instrumental abortion, version, and uterine anomalies. [5].

The present study is aimed at identifying the possible etiological factors and also the ways to improve the feto-maternal outcome in unscarred uterine rupture.

MATERIAL AND METHODS. –

This was a retrospective study of 16 cases of uterine rupture on unscarred gravid uterus, recorded between January 2015 and December 2019, at the department of obstetrics and gynecology, SMGS jammu

RESULTS-

In our study, a total number of 16 unscarred uterine rupture occurred in 4 year period. The mean maternal age (range) was 32 years (21-39). The highest number of rupture were seen among parity greater than or equal to 4 in 6 patients (37.5%) followed by P2(31.25%),P3(25%),P1 (6.25%). 7 out of 16(43.8%) had a history of curettage. The socio-economic level was unfavorable in most of our patients (75%). Twelve patients were illiterate. Nine (56.25 %) received no consultation during pregnancy. Only two patient were booked case of our hospital, rest all are referred cases.

Average birth weight in our study was 3260 g. We found four cases of fetal macrosomy (weight from birth varies from 4151 to 4800 g) and one cases of hydrocephalus. Abnormal fetal presentation was found in 4 cases with transverse lie in 3 and breech in one. Uterine rupture most common occurred in second stage of labour as depicted in table 1. Women presented with signs and symptoms which are shown in Table 2.

Table 1 Time of discovery of uterine ruptures (n=16)

Time of discovery	number of cases	Percentage
On admission	1	6.25

Latent Phase	2	12.5
Active Phase	4	25
full Dilatation	6	37.5
Postpartum	3	18.75

Table 2 Signs and symptoms presented (n = 16)

Signs	Number of cases	Percentage
Maternal tachycardia	9	56.25
Fetal heart deceleration	6	37.5
Fetal heart deceleration	7	43.75
Loss of uterine contractility	6	37.5
Abdominal pain	5	31.25
Vaginal bleeding	4	25
Shock	5	31.25

Table 3: Site of uterine rupture

Site	Number	Percentage
Lateral lower	5	31.25
Lateral upper	4	25
Posterior	3	18.75
Fundal	2	12.5
Complex	2	12.5

Table 4: Predisposing factors of unscarred uterine rupture (n=16).

Predisposing factors	Number	Percentage
Use of oxytocin	9	56.25
Multiparity(>4)	6	37.5
Prolong Labour	6	37.5
Misoprostol use	4	25
Birth weight(>4kg)	4	25
Obstructed labour	2	12.5
Instrumental delivery	2	12.5

There were two maternal deaths. Hemorrhage was the primary source of maternal morbidity and mortality. The estimated blood loss exceeded 2 L in six cases. In seven cases, repair of the rupture was possible. In the remaining case, hysterectomy was required for control of hemorrhage In our study, five cases required Intensive Care Unit (ICU) admission with maximum stay of 10 days. Blood transfusions were required in all patients. Fetal demise was noted in 9(56.25%) and neonatal transferal to NICU in 6 (37.5%) because of low Apgar scores

DISCUSSION

Majority of our patients (87.5%) were referred, compared to a study done by Rashmi et al figured as 72% [6]. The high parity is recognized as major risk factor of spontaneous uterine rupture in unscarred uterus [2]. Most of rupture occurs in multiparous patients ($p > 4$) which is similar to finding with s ahmadi, Thisted DL et al and Suner SL et al [7,8,9] and contrary to findings of Rizwan et al [10]. Miller et al described a series of women with primary uterine rupture. Half of the ruptures were identified during or after second stage, similar to our findings. Prolonged labor, injudicious use of oxytocin, obstructed labor, instrumental delivery, prostaglandin induction and malpresentations were found to be the common risk factors which were similar to the findings of Miller et al [11].

In contrast to the historical practices that have been abandoned, one common modern obstetric procedure may increase the risk of rupture. Medication for labor induction and augmentation, including oxytocin and prostaglandins, are well-accepted risk factors that have been extensively evaluated in pregnancies following cesarean deliveries. Even low-dose oxytocin augmentation may increase the risk of rupture in the absence of a prior cesarean. Doses of 2 to 4 mIU per minute over a very short time period were associated with 9 cases of unscarred uterine rupture at one institution. A large Swedish review found that labor induction after previous vaginal delivery doubled the risk of uterine rupture, even in presumably unscarred uteri [12]. In our study maternal mortality was 2 (12.5%) which was higher comparable with the study by Ahmadi et al in which it was 7.1%. In our study perinatal mortality was 9 (54.25%) comparable to the study done by Schrinsky and Benson in which it was 64.6% [13].

CONCLUSION

Uterine rupture in the unscarred uterus remains an exceptional serious uterine complication which causes high maternal and fetal morbidity and mortality. The main risk factors found in the literature and our study are use of oxytocin and prostaglandin, multiparity, prolong labour.

REFERENCES

1. Nahum GG and Pham KQ. Uterine rupture in pregnancy (Online). 2011. Available at: <http://emedicine.medscape.co>.
2. Akhtar Y. Ruptured uterus; an on-going tragedy of motherhood. *Professional Med J*. 2010; 17(2): 314-7.
3. Gupta JK, Smith GCS, Chodankar RR (2015) Birth After Previous Caesarean Birth. *Green-top Guideline* 45.
4. Zwart JJ, Richters JM, Öry F, De Vries JI, Bloemenkamp KW, Van Roosmalen J. Uterine rupture in the Netherlands: a nationwide population-based cohort study. *BJOG: Int J Obstet Gynaecol*. 2009; 116: 1069-80.
5. Justus Hofmeyr G, Say L, Metin Gu'Imezoglu A. WHO systematic review of maternal mortality and morbidity: the prevalence of uterine rupture. *BJOG*. 2005; 112: 1221-8.
6. Rashmi, Radhakrishnan G, Vaid NB, Agarwal N. Rupture uterus- changing Indian scenario. *J Indian Med Assoc*. 2001; 99(11): 634-7.
7. S. Suner, L. Jagminas, J. F. Peipert, and J. Linakis, "Fatal spontaneous rupture of a gravid uterus: case report and literature review of uterine rupture," *Journal of Emergency Medicine*, vol. 14, no. 2, pp. 181-185, 1996.
8. Thisted DL, Mortensen LH, Krebs L. Uterine rupture without previous caesarean delivery: a population-based cohort study. *Eur J Obstet Gynecol Reprod Biol*. 2015; 195: 151-5.
9. Ahmadi S, Nouria M, Bibi M. Uterine rupture of the unscarred uterus. About 28 cases. *Gynecol Obstet Fertil*. 2003; 31(9): 713-7.
10. Rizwan N, Abbasi RM and Farhanuddin S. Uterine rupture, frequency of cases and fetomaternal outcome. *J Pak Med Assoc* 2011; 61: 322-324.
11. Miller DA, Goodwin TM, Gherman RB, et al. Intrapartum rupture of the unscarred uterus. *J Obstet Gynecol*. 1997; 89(5): 671-3.
12. Kaczmarczyk M, Sparen P, Teryy P, Cnattingius S. Risk factors for uterine rupture and neonatal consequences of uterine rupture: a population-based study of successive pregnancies in Sweden. *BJOG* 2007; 114: 1208-1214.
13. Schrinsky DC, Benson RC. Rupture of the pregnant uterus: A review. *Obstet Gynecol Surv* 1978; 33: 217-32.