

Frequency of Uterine Rupture after one Successful Vaginal Birth after Caesarean Section

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ABSTRACT

Aim: To determine the frequency of uterine rupture after one successful vaginal birth after caesarean section.

Methods: This cross-sectional study was conducted from June-2018 to Jan-2019. A total of 120 patients with singleton pregnancies of age 16-45 Years admitted for 2nd Vagina Birth after C-Section (VBAC) having gestational age \geq 28 weeks were included in this analysis. Patients were evaluated by detailed history and clinical examination. Data in shape of parity, gestational age and BMI was taken and information was recorded on specially designed proforma.

Results: Mean age of study patients was 29.88 ± 5.34 years. Mean body mass index (BMI) of study patients was 25.17 ± 4.88 kg/m². Mean gestational age at the time of delivery was 39.01 ± 2.54 weeks. There were 63 (52.5%) pregnant females having parity status 2, 41 (34.17%) were having parity status 3 and only 16 (13.3%) females were having parity status 4. Uterine rupture after vaginal birth occurred in 1 (0.83%) patients.

Conclusion: The frequency of uterine rupture in patients after one successful vaginal birth after caesarean section is 0.83%.

Keywords: Cesarean Section, Vaginal Delivery, Uterine Rupture.

INTRODUCTION

Cesarean section is the operation to deliver the baby by giving an incision in uterus and is the commonest gynecological operation worldwide¹. While vaginal birth is a simple and natural way delivery of the baby through the vagina. Edwin Craigin about 100 years back made an assumption that "once C-section is always a C-section", meaning that after doing C-section a woman always have to go through C-section of birth of baby^{2,3} but this concept is no more followed and concept has arisen to deliver vaginal in these patients.

Vaginal birth after C-section means that to deliver vaginally in a woman who has previously undergone C-section during child birth. With advancements in surgical methods the indications of C-section have become widened, even C-section is now performed in cases where vaginal birth is possible⁴. A large number of woman even after first C-section can conceive vaginally safely in nearly 70% to 80% cases⁵. Rupture of uterus is most devastating complication in these cases. Ruptured uterus is a tear or disruption in the inner lining of uterus. Attempt of vaginal birth is considered safe in these patients in modern world however the effect of previous C-section scar on vaginal birth complications still remain unclear^{5,6}. It is still not known whether repeated vaginal birth has detrimental effects on strength of the scar or it further weakens scar⁷.

Mercer BM and his associates has reported the frequency of uterine rupture after one successful vaginal birth after caesarean section by 0.45. Gyamfi C and his associates has reported 0.5%⁸ of uterine rupture after on successful vaginal birth after caesarean section⁹. The relationship between the number of prior vaginal birth after caesarean section and the risk of uterine rupture

clearly elucidated. It is also unknown if successive labors will place an additive strain on the uterine scar, increasing the risk of uterine rupture when another vaginal birth after one successful vaginal birth after caesarean section is attempted. By taking group of patients with Uterine rupture after caesarean section we may find subset of patients in whom further interventions and follow up will be planned. This gives strong rational to see frequency of uterine rupture after one successful vaginal birth after caesarean section in our population. This study may also provide background data for curative services to prevent Uterine rupture after caesarean section after one successful vaginal birth.

METHODS

This cross-sectional study was conducted from June-2018 to Jan-2019. A total of 120 patients with singleton pregnancies of age 16-45 Years admitted for 2nd Vagina Birth after C-Section (VBAC) having gestational age \geq 28 weeks were included in this analysis. Women with diabetes mellitus, hypertension and twin pregnancy were excluded. An informed consent was taken from patients for using their data in research. The demographic information of these patients like name, age, address, hospital registration number was taken. Patients were evaluated by detailed history and clinical examination. Data in shape of parity, gestational age and BMI was taken and information was recorded on specially designed proforma. These patients were assessed for frequency of uterine rupture after one successful vaginal birth after caesarean section was diagnosed intra-operatively.

RESULTS

Mean age of study patients was 29.88 ± 5.34 years. Mean body mass index (BMI) of study patients was 25.17 ± 4.88 kg/m². Mean gestational age at the time of delivery was

Received on 15-09-2018

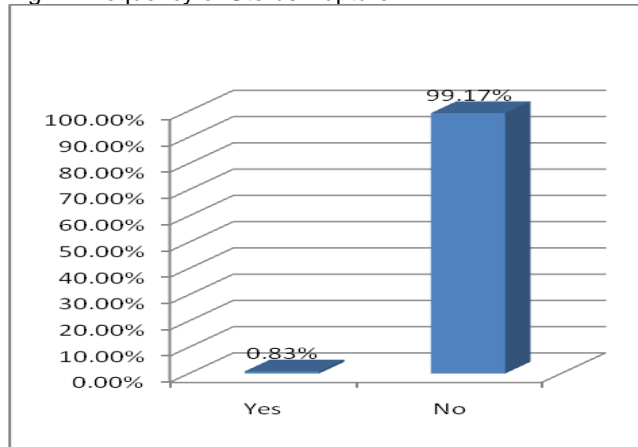
Accepted on 10-12-2018

39.01±2.54 weeks. There were 63(52.5%) pregnant females having parity status 2, 41(34.17%) were having parity status 3 and only 16(13.3%) females were having parity status 4 (Table 1). Uterine rupture after vaginal birth occurred in 1 (0.83%) patients (Fig. 1).

Table 1: Baseline and Outcome Variables.

Variable	Value
Mean Age	29.88±5.34
BMI	25.17±4.88
Gestational Age	39.01±2.54
Parity Status	
2	63
3	41
4	16

Fig. 1: Frequency of Uterus Rupture.



DISCUSSION

Uterus rupture is very rare, unexpected and life-threatening complication in pregnant women. Even in modern set-ups it is responsible for adverse foeto-maternal outcomes¹⁰.

According to WHO review, uterus rupture is associated with more adverse outcomes in developing countries as compared to the developed ones. Major causes of rupture in developing world are; multiparity, injudicious manipulations, obstructed labor, lack of antenatal visits, and little access to modern gyne hospitals and poverty.¹¹ Due to increasing number of C-sections performed, the risk of uterus rupture is also increasing. About 64% of woman of uterine rupture have history of previous C-section.^{12,13} Jastrow et al. in a review concluded that wall thickness at the site of scar predict the risk of uterus rupture, so before vaginal birth use of trans-vaginal USG can predict the risk of rupture during vaginal delivery.

In present study, the frequency of uterine rupture in patients of vaginal birth after C-section was 0.83%. A study by Al-zirki et al. reported ruptured uterus in 0.22% cases¹⁴.

The risk of rupture is least in high income and maximum in low income nations reaching up-to 1%. WHO conducted a study in 29 countries involving 359 hospitals found uterine rupture frequency 0.1% to 2.5%. After adjusting effect modifiers they found that pre-term delivery, low educational level, spontaneous labor onset, and low income countries are risk factors of uterine rupture.¹⁵ However, this result should be interpreted carefully because of possible reverse causality; delivery before 37 weeks is likely to be the result of uterine rupture. Higher

gestational age is usually reported to be a risk factor for uterine rupture¹⁶.

Harper et al. in a trial compared the risk factors of uterine rupture in woman at gestational age before and after 34 weeks, and did not found any difference in risk factors of rupture. The same authors found uterine rupture in 1.8% cases before 28 week of gestation and in 0.9% cases after 28 weeks of gestation.¹⁷ In present study, we did not found any significant difference in frequency of uterine rupture in patients with gestational age ≤37 weeks versus >37 weeks.

CONCLUSION

The frequency of uterine rupture in patients after one successful vaginal birth after caesarean section is 0.83%.

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