

Uterine Rupture During Syntocinon Induced Labour Versus Non Syntocinon Induced Labour Among Patients with Previous One Caesarean Section

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Abstract

Background: The occurrence of uterine rupture following spontaneous vaginal birth after caesarean is reported very low subsequently a single caesarean section. Risk of uterine rupture however may be increased by using prostaglandins and oxytocin for induction of labor.

Objective: To determine the uterine rupture among cases with previously one scar caesarean section during labor induced with syntocinon versus not induced with syntocinon.

Methodology: This randomized control trial was conducted at the department of Gynaecology and Obstetrics Bahawal Victoria Hospital Bahawalpur, during 1-year period from November 2016 to October 2017. A total of 120 women with age range of 16-45 years, singleton pregnancy, cephalic presentation, gestational age equal to or >38 weeks and having previously one caesarean section were selected and placed randomly into two groups i.e. Group A (induction of labour with syntocinon) and Group B (without syntocinon induction), by using lottery method. Uterine rupture was noted by the researcher. All the data was recorded in the proforma.

Results: The mean age of women of group A was 23.46±5.97 years and 22.99±5.63 years of group B. No significant difference was observed among both groups according to mean gestational age as; 38.68±1.05 weeks was observed among group A and 38.61±1.12 weeks among group B. Uterine rupture was seen in 29(48.33%) patients of group A (induction labour with syntocinon) and 13 (21.67%) patients of group B (not induced with syntocinon) with p-value of 0.002.

Conclusion: Uterine rupture was higher among women those underwent labour induction with syntocinon as compare to those without induced labour, among cases presented with previously one caesarean section.

Keywords: Cesarean, induction, syntocinon, uterus, rupture.

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Introduction

Caesarean section was known during the first half of the 20th century and it was assumed that all pregnancies will be delivered in the same way due to the threat of uterine rupture in following pregnancies. The concept of "one caesarean always caesarean" was originated and adopted as a classical caesarean section.¹ Afterwards nature revealed the datum that a

female having the previous caesarean when planned optional caesarean and brought in emergency labour delivered safely.²

Vaginal birth after caesarean (VBAC) remained a popular research area with a greater interest in the previous decade or so. The main focus remained on to recognize risk factors, benefits and prognostic factors.

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More recent studies have revealed the success of VBAC as 75.5%³, with the symptomatic risk of uterine rupture as 0.9%.⁴ Success of VBAC is linked with multiple benefits, comprising short hospital stay of the mother, decreased blood loss, the lesser frequency of infections and minimal thromboembolic events as compared to repeated caesarean sections. On the other hand VBAC has been considered safer therefore both patients and clinicians are concerned about disastrous obstetrical results commonly associated to VBAC in case of failure. New evidence is emerging that vaginal birth after caesarean may lead to uterine rupture, hysterectomy, blood transfusion and endometritis⁵ but improved general health status, better attention to asepsis, antibiotic prophylaxis and blood transfusions have contributed to the safety of caesarean section.⁵ A well-known complication associated with VBAC is a uterine rupture with severe maternal and fetal consequences. Compromise of the uterine scar is conventionally attributed to its structure which is termed as "trail of scar". However, the decision to undertake trail of the scar by an individual needs care and thorough counseling⁹. A rough estimate to undergo a successful trail may be calculated by maternal characteristics and previous history of obstetrics, which may ultimately be used to guess a risk of patient's uterine rupture. The rate of uterine rupture following VBAC is the lowest when unplanned, progressive labor not demanding augmentation. Risk of uterine rupture however may be increased by using prostaglandins and oxytocin for induction of labour.⁶ The use of prostaglandin and syntocinon for inducing labour in women with the previous caesarean section is also a controversial issue. There are reports of uterine rupture and complete wound dehiscence with their use even in the absence of previous surgery so vigilance is important.⁷ Fitzpatrick KE et al⁸ have shown a significant difference in the incidence of uterine rupture between syntocinon induced or not induced labour in previously one caesarean section (54% vs 29%).

This study would help to compare the frequency of uterine rupture in patients with previously one scar caesarean during labour induced with syntocinon compared to not induced with syntocinon, in local population because syntocinon is routinely used for labor induction in our population. So, on the basis of these results, a management protocol could be designed for vaginal birth in patients with previously one C-section and routine use of syntocinon could be discouraging for labour induction in order to reduce adverse maternal and perinatal outcomes. The present

study has been conducted to compare the frequency of uterine rupture in patients with previously one caesarean section during labour induction with syntocinon versus without."

Methodology

This randomized control trail was conducted at the department of Gynaecology and Obstetrics Bahawal Victoria Hospital Bahawalpur during 1 year period from November 2016 to October 2017. All the women with age range of 16-45 years, singleton pregnancy with a cephalic presentation on ultrasonography and having previously one caesarean section and all the women with gestational age equal to or >38 weeks (assessed on LMP) were selected for the study. All the women with vaginal delivery after cesarean section, uterine scar due to any other cause, coagulation disorders and with placenta praevia were excluded from the study. After taking the permission from the ethical review board, a total of 120 pregnant women were recruited. After taking informed consent, lottery method was adopted and all participants were asked to pick a slip consisting of group allocation as "A" or "B", hence placed in respective group accordingly. Group A included the patients in which labour was induced by syntocinon. Syntocinon infusion was given at rate of 2 mu/min but was increased arithmetically every 20 minutes till delivery according to strength and frequency of contractions while Group B included those patients in which spontaneous labour started without syntocinon induction. Outcome variable like uterine rupture was noted. Clinical observation of patients was done by careful observation of signs of uterine rupture with indications including insistent beyond contractions, acute abdominal discomfort, fetal parts palpation outside the uterus upon exercise, feeling of popping, decreased fetal heart rate for long time and presentation of high vaginal part and vaginal bleeding. Any of the findings must be treated promptly while immediate delivery is necessary in case of rupture. Data was entered and analyzed using SPSS version 16.0.

Results

Total 120 women were selected their mean age was 23.39 ± 5.71 years was calculated with range of 16 to 35 years. Particularly Mean age of patients remained 23.46 ± 5.97 years and 22.99 ± 5.63 years in groups "A" and "B" respectively. Most of the study subjects 76 (63.33%) fall in age range of 16-25 years as depicted in Table I.

Mean gestational age of the cases was 38.62 ± 1.09 weeks and almost all cases were presented with

High frequency requirement of augmentation using oxytocin during vigorous period of labor is consistently

Table-I: Age distribution for both groups (n=120)

Age (years)	Group A (n=60)		Group B (n=60)		Total (n=120)	
	No. of patients	%age	No. of patients	%age	No. of patients	%age
16-25	37	61.67	39	65.0	76	63.33
26-35	23	38.33	21	35.0	44	36.67
Mean \pm SD	23.46 \pm 5.97		22.99 \pm 5.63		23.39 \pm 5.71	

gestational age >38 weeks. No significant difference was observed among both groups according to mean gestational age as; mean gestational age of group A was 38.68 ± 1.05 weeks and 38.61 ± 1.12 weeks in group B. Majority of the patients 89(74.17%) were between 38 to 40 weeks of gestation as shown in Table II.

Uterine rupture rate was higher as 29(48.33%) among patients of group A (induction of labour with syntocinon) as compare to group B (induction without syntocinon) as 13(21.67%) uterine rupture, p-value 0.002 as shown in Table III.

Discussion

Women having a history of the single caesarean section are usually stimulated to endeavor a trial of labor in upcoming pregnancies.¹⁰ Recent reports however reported the higher threat of morbidity, especially due to caesarean scar rupture are considered to contribute in a major decrease in few countries where many women were attempting vaginal birth after C- section.¹¹ Certainly, an increasing trend in rate of delivery through repeated caesarean section has been observed in Pakistan due to a communal primary indication of the previous caesarean section.

Table III: Comparison of Uterine rupture between both Groups (n=120).

		Group A (n=60)		Group B (n=60)	
		No. of Patients	%age	No. of Patients	%age
Uterine rupture	Yes	29	48.33	13	21.67
	No	31	51.67	47	78.33

documented and most common reason of uterine rupture among cases attempting VBAC.¹² In this randomized controlled trail has compared the frequency of uterine rupture among patients with previously one caesarean section during labour induction with syntocinon versus without induction of syntocinon.

In our study, uterine rupture rate was significantly higher as 48.33% in group A (induction of labour with syntocinon) in the comparison of group B as 21.67% p-value of 0.002. A complex and conflicting data exists about safe and appropriate route of delivery for women to choose either VBAC or elective delivery through repeated caesarean section.¹³ Though no risk-free route is guaranteed to ensure safer maternal and better perinatal outcomes. Uterine rupture is the most common outcome in VBAC trial. The decision to attempt VBAC needs special care in the selection of choice after detailed systematic discussion, calculation of maternal risk regarding uterine rupture and great devotion to follow recent guidelines for handling labor in only places where there instant access to the surgical facilities are available in case of complication.¹⁴

Fitzpatrick KE et al⁸ has shown a significant difference in the incidence of uterine rupture between syntocinon induced or not induced labour in previously one caesarean section (54% vs 29%) respectively. In another study used oxytocin to augment labor in ten percent cases, reported no significant association between risk of uterine rupture and exposure to oxytocin.¹⁵ However it has been revealed that dose-dependent relationship among oxytocin and uterine

Table- II: Patients according to Gestational age in both groups.

Gestational Age (weeks)	Group A (n=60)		Group B (n=60)		Total (n=120)	
	No. of patients	%	No. of patients	%	No. of patients	%
38-40 weeks	44	73.33	45	75.0	89	74.17
>40 weeks	16	26.67	15	25.0	31	25.83
Mean \pm SD	38.68 \pm 1.05		38.61 \pm 1.12		38.62 \pm 1.09	

P value is 0.002 which is statistically significant.

rupture exists where American College of Obstetricians and Gynecologists has cautioned its extreme utilization.¹⁶

A prospective observational and analytical study was under taken to determine the influence of induced labor on success and safety among women undergoing VBAC trial at the Medical University of South Carolina, and this study reported a markedly high rate of vaginal delivery as 77.1% in spontaneous labor compared to 57.9% in induced labor. Rate of uterine scar separation remained 7% among induced labor group which was higher than 1.5% in the elective caesarean group. Hence study showed a reduced success rate of vaginal delivery among women attempting VBAC with the induced labor hence greater risk of severe maternal morbidity is involved.¹⁷ The management of labor in women attempting VBAC remains controversial especially if there is need to hasten the timing of delivery or augment the labor. Utilization of contractile agents for induced labor may complicate the evaluation of care and effectiveness of VBAC. Few clinicians have faith in contra-indication of prostaglandins among women attempting VBAC¹⁸, therefore, oxytocin remained to be the most communal agent to induce and augment labor in US¹⁹, and so in Pakistan.

Older studies suggested that patients undergone labor induction were no more likely than their spontaneously laboring counterparts to have a cesarean delivery or a uterine rupture.²⁰ Current literature differs both conclusion, revealing elevated rates of both caesarean delivery and uterine rupture in candidates going for induced labour having a history of caesarean delivery.^{21,22} Subsequently, a study was undertaken in Netherland reported around double risk among subjects undergoing induced labor after spontaneous onset with oxytocin or prostaglandin alone compared to spontaneous labor, however they remained unable to correct confounding factor.²³ So, on the whole it is concluded that the frequency of uterine rupture is higher in patients with previously one caesarean section during labour induction with syntocinon versus without.

Conclusion

It is concluded that the uterine rupture was higher in labour induction with syntocinon as compare to without syntocinon induced labour, among cases presented with previously one caesarean section. So, we recommend that routine use of syntocinon for labor induction should be discouraged in patients with

previously one C-section in order to reduce hostile maternal and fetal consequences.

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