VAGINAL BIRTH AFTER PREVIOUS ONE CAESAREAN SECTION: TERM PREGNANCY OUTCOME

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ABSTRACT

Objective: *To find out the out come of term pregnancy in women with previous one caesarean section.*

Material and Methods: *This descriptive type of study was conducted in the department of Obstetrics and Gynaecology, Gynae "A" unit, Postgraduate Medical Institute, Reading Hospital Peshawar from January 1998 to December 1999. During this time period, 211 patients were selected to be included in the study. It included all patients with previous one caesarean section with 37 completed weeks or above. All patients with gestation less than 37 completed weeks, previous more than one caesarean section or scarred uterus due to some other cause were excluded form the study.*

Results: *Patients were divided with previous caesarean section for recurrent or non-recurrent cause. Total patients with former indication were 90 (42.65%). Out of these 28.9% (n=26) were delivered by elective repeat caesarean section, 47.8% (n=43) had emergency repeat caesarean section and 23.3% (n=21) had vaginal delivery. Total patients with non-recurrent cause for previous caesarean section were 121 (57.35%). Out of these 121 cases, 76 cases (62.8%) were delivered vaginally and 42 cases (34.71%) by emergency repeat caesarean section due to failed-VBAC (Vaginal birth after caesarean section) and 3 cases (2.48%) had elective c-section. The study also revealed perinatal mortality of 14.12% in emergency repeat caesarean section group. These were more pronounced in women having unmonitored trial of labour outside the hospital.*

Conclusion: *It is concluded that well monitored trial of scar leads to increased percentage of vaginal deliveries, which is a contribution towards bringing down the rising caesarean section rate.*

Key words: *Previous Caesarean Section, Scarred Uterus, VBAC.*

INTRODUCTION

In first half of 20th century, a caesarean section implied that all subsequent pregnancies were likely to be delivered the same way. The fear behind the idea was rupture of caesarean scar. The notion "One caesarean section, always caesarean section" was found on original procedure of classical caesarean section. In 1940 lower segment caesarean section replaced the classical one but the fear of catastrophic uterine scar rupture was retained. Later on nature disclosed the fact that a woman with previous caesarean section who was scheduled for elective caesarean went into spontaneous labour and delivered safely.[1]

There is worldwide rise in caesarean section rate, which varies internationally; 10-30% pregnancies are delivered abdominally, 46% of them for previous caesarean section.[1] Current medical evidence indicates that 60-80% of women can achieve a vaginal delivery following a previous lower segment caesarean section. Previous caesarean section rate was rising from 12.6% to 25.4 in 1993. Now it is on decline and is partly because of increase in number of women undergoing trial of vaginal delivery after caesarean section.[2,3]

Observation of uterine rupture exclusively in classical caesarean section,[4] financial and various medical considerations and patients preferences have initiated pressure to decrease the number of caesarean section by promoting vaginal birth after a previous caesarean section.[5]

Vaginal delivery can offer many advantages in terms of reduced complications, both fetal and maternal. Previous caesarean section sometimes limits the scope of vaginal delivery by its recognized associations of placenta previa and placenta accrete, which is reported up to 9.3%, particularly placenta accrete[5-8]. This study was conducted to find out the out come of term

pregnancy in women with previous one caesarean section in our setup.

MATERIAL AND METHODS

This descriptive cross sectional study was conducted at Lady Reading Hospital, Gynae "A" unit from 1st January 1998 to 31st December 1999. The study included 211 patients with previous caesarean section for any cause with 37 completed weeks of gestation and above. Patients having gestation less than 37 weeks, more than one caesarean section and uterine scar due to other causes were excluded from study.

The study included all booked and un-booked patients fulfilling the inclusion criteria. Patients with spontaneous onset of labour and also those who needed induction of labour for obstetrical reasons were given trial of scar. In women undergoing trial of scar, baseline investigations and ultrasonography were performed for fetal viability and placental localization. During labour, continuous maternal and fetal monitoring in the form of maternal blood pressure, pulse record, fetal heart sound record (every 30 minute in early 1st stage of labour and every 15 minutes in late 1st stage of labour and before and after each contraction in 2nd stage) was kept. Oxytocin was administered if required by infusion 12mu/min, but increased according to the strength and frequency of contraction. Partograme was maintained and analgesic given by I/M route. The trial of scar terminated after 06 hours of active labour if delivery was not imminent. During postnatal period an eye was kept on postpartum haemorrhage and also on neonatal well-being. The outcome measures were mode of delivery, need of assistance in case of vaginal delivery and associated maternal and fetal complications with either mode of delivery.

OUTCOME OF PREGNANCY IN PATIENTS WITH PREVIOUS CAESAREAN SECTION FOR RECURRENT CAUSE

	Frequency n:90	%age
Elective caesarean section	26	28.9
Emergency C section / failed VBAC	43	47.8
VBAC	21	23.3

Table 1

RESULTS

Frequency of caesarean section in Gynae "A" unit 1998-1999 was 17.76%. Frequency of repeat caesarean section for previous one or multiple caesarean section was 20.17%. Frequency of repeat caesarean section for previous one caesarean section was 10.40%. Previous one caesarean section constitutes 54.2% of women with scarred uterus due to caesarean section in the studied population. Out of 211 patients, 72.03% (n=152) were admitted in emergency. Most of the patients presented in their 3rd decade with no major difference in age distribution.

Gradiva- 2 (G2) constituted 55% of patients with emergency repeat caesarean section. Increase in parity showing vaginal delivery whether before or after caesarean section improved the rate of VBAC. It also revealed that G2 had previous caesarean section for recurrent cause, which resulted in failed VBAC.

Outcome was good in the form of VBAC in patients with 37-39.6 weeks of gestation. P.O.G. more than this had out come in the form of failed VBAC.

Out of 211 patients, 146 (69.2%) patients belonged to rural class in all groups, except for elective repeat caesarean section.

PRESENT PREGNANCY OUTCOME IN PATIENTS WITH RECURRENT CAUSES FOR PREVIOUS CAESAREAN SECTION N:90

Indications	Elective caesarean section n=26	Emergency C section/failed VBAC n=43	VBAC n=21	Total n = 90	P Values
Borderline Pelvis	7 (26.92%) (20%)	16 (37.21%) (45.7%)	12 (57.14%) (34.3%)	35 (38.89%) (100%)	P >0.05
Cephalopelvic disproportion	19 (73.08%) (34.5%)	27 (62.79%) (49.1%)	9 (42.86%) (16.4%)	55 (61.11%) (100%)	P <0.05

There is statistically significant increase (P <0.05) out come of pregnancy in the form of emergency caesarean section in women with previous caesarean section for cephalopelvic disproportion.

Table 2

Out come of pregnancy in women with previous caesarean section is divided into recurrent and non-recurrent causes. Recurrent causes included cepahalopelvic disproportion (C.P.D.) and borderline pelvis. Out come was elective repeat caesarean section in 26 cases (28.9%), emergency repeat caesarean section in 43 cases (47.8%) and VBAC in 21 cases (23.3%) (Table-1).

Outcome in 121 patients with previous caesarean section for non-recurrent causes, 76 cases (62.81%) delivered vaginally, 42 cases (34.71%) had repeat emergency caesarean section and 3 cases (2.48%) had elective emergency caesarean (Table-3).

Scar tenderness did not turn out to be an important predictor of pregnancy out come in women with previous caesarean section.

Symphysio-fundal height of 35-37cm was associated with more successful VBAC, 31.75%(67/211) In emergency caesarean section group fundal height in excess of 37cm was present in 42.65% (90/211) of patients.

Outcome of labour in women with previous caesarean section was more in the form of caesarean section when augmentation was done.

OUTCOME OF PREGNANCY IN PATIENTS WITH NON-RECURRENT CAUSES OF PREVIOUS CAESAREAN SECTION

	Frequency n:121	%age
Elective caesarean section	3	2.48
Emergency C section / failed VBAC	42	34.71
VBAC	76	62.81

Table 3

PRESENT PREGNANCY OUTCOME IN PATIENTS WITH NON-RECURRENT CAUSES FOR PREVIOUS CAESAREAN SECTION N: 121

Indications	Elective caesarean section n = 3		Emergency C section/ failed VBAC n = 42		VBAC n = 76		Total n = 121	P Values
	Frequency	% age	Frequency	% age	Frequency	% age		
Fetal distress	.	.	3	7.14% 23.10%	10	13.15% 76.9%	13 10.74% 100%	P<0.05
Transverse Lie			8	19.05% 36.36%	14	18.42% 63.64%	22 18.18% 100%	P>0.05
Breech			7	16.67% 17.5%	33	43.42% 82.5%	40 33.06% 100%	P<0.05
Placenta praevia	*1	33.33% 5%	7	16.67% 35%	12	15.79% 60%	20 16.53% 100%	P>0.05
Pregnancy induced HTN	**1	33.33% 10%	6	14.28% 60%	3	3.95% 30%	10 8.26% 100%	P>0.05
Unknown cause			7	16.67% 87.5%	1	1.32% 12.5%	8 6.61% 100%	P>0.05
Others***	1	33.33% 12.5%	4	9.52% 50%	3	3.95% 37.5%	8 6.61% 100%	P>0.05

* One patient with previous caesarean section for placenta praevia had repeat caesarean section because of bad obstetrical history, being G4P3 with no alive issue, at this time 40 weeks with poor Bishop score and free floating head.

** Previous caesarean section for PIH but now elective caesarean section because of being post dates and PIH this time again.

Table 4

MODE OF DELIVERY IN PREVIOUS CAESAREAN SECTION (VBAC GROUP)
n : 101

Mode of delivery	VBAC n = 101		General Obstetrical population		P values
	Frequency	% age	Frequency	% age	
Without assistance	63	62.38%	7100/7945	89.4%	P>0.05*
Vacume delivery	25	24.75%		10.6%	P<0.05**
Forceps delivery	13	12.87%	800/7945		

* P>0.05 when delivery without assistance in studied group is compared with general obstetrical population of Gyane "A" unit LRH (not statistically significant).

** P<0.05 when rate of instrumental delivery in studied group is compared with instrumental delivery in general obstetrical population (statistically significant).

Table 5

Difference was statistically significant (p<0.05) while difference in out come between more or less units of oxytocin used for augmentation purposes, was not statistically significant. Statistically significant (p<0.05) increased out come in the form of VBAC was observed when augmentation was not done. However when groups, emergency repeat caesarean section and VBAC were compared in respect of augmentation of labour with oxytocin, there was no statistically significant difference in term of out come of labour.

Sixty-three (62.38%) patients had VBAC without assistance while 38 (37.62%) cases required assistance for delivery (Table-5). When two obstetric populations (general obstetric patients in Gynae "A" Unit and previous caesarean section patients) were compared, there was no statistically significant difference when mode of delivery was without an assistance (p>0.05), but when frequency of instrumental delivery was compared in two obstetric population, there was statistically significant increased frequency of instrumental delivery in previous caesarean section group than the other one (p<0.05).

Sixty four percent (n=48/75) of the complications observed in whole series were in emergency repeat caesarean section group (Table-6).

Frequency of rupture uterus in women with previous one caesarean section was 1.4%. In emergency repeat caesarean group it was 2.78%

COMPLICATIONS OBSERVED
n : 75

Complications	Elective C Section	Emergency C Section/Fa VBAC	VBAC	Total	%Age
Partial wound dehiscence		4.2-4 cm 2-2 cm	3* 1-4 cm 2-2cm	7	9.33%
Uterine rupture		3**		3	4%
Massive adhesions	8	24	6	38	50.67%
Trauma to surrounding structure + bladder	1	4***		5	6.67%
Abruption		1	2	3	4%
Placneta praevia	2	6	2	10	13.33%
Morbidity adherent placenta		1	1	2	2.67%
3rd degree perineal tear			1	1	1.33%
PPH		5	1	6	8%
Total	11	48	16	75	100%

* One case of VBAC had 4cm wound dehiscence diagnosed on post natal evaluation managed by laparotomy and repair.

** All rupture uteruses received as such from periphery.

*** Blood stained urine was taken equivalent to trauma to bladder

Table 6

and in VBAC 0.99%. The frequency of rupture uterus, when compared in emergency repeat caesarean section group and VBAC, risk of rupture uterus was about 03 times more in former group, but the difference was not statistically significant ($p>0.05$).

Outcome of pregnancy was more in the form of VBAC when the foetal weight was 2000-3500 GMS. But it did not reveal foetal macrosomia as a contraindication to VBAC, because women who had trial of labour with macrosomia had also made it. Poor Apgar score at birth was mostly observed in women with emergency repeat caesarean section, where perinatal mortality was 13.38% and after correction for congenital abnormality was 12.96%. Perinatal mortality in VBAC group was 4.9% and PNM difference was statistically significant ($p<0.05$) in two groups.

Maternal morbidity was pronounced in emergency repeat caesarean group (Table-7).

Onset of labour was spontaneous in 84% in VBAC group and 89% in emergency repeat caesarean group. Rest required induction of labour. Out of patients selected for induction, 85% induced with ARM and Oxytocin were delivered vaginally and 60% induced with prostaglandin E2 delivered vaginally. There was no statistically significant difference in terms of outcome of pregnancy in the form of VBAC/Caesarean section when induction was done with Oxytocin and prostaglandin E2 ($p>0.05$). So in properly selected patients induction can be offered with appropriate monitoring. No case of wound dehiscence was found in these patients when the trial was observed.

DISCUSSION

The rising rate of caesarean section has made annoying problem to the obstetrician and this can be attacked on two fronts. Firstly by reducing the primary caesarean rate and secondly by attacking the repeat caesarean section incidence.

The risks which are more threatening to the obstetrician when permitting trial of labour in a patient is, fear of uterine rupture with threat of damage to mother and fetus and possible subsequent litigation. Secondly many obstetricians

MATERNAL MORBIDITY IN WOMEN WITH PREVIOUS CAESAREAN SECTION

Maternal Morbidity	Elective Caesarean Section (n = 29)		Emergency C Section/ Fa VBAC (n = 85)		VBAC (n = 97)		Total n = 211
	Frequency of morbidities	%age	Frequency of morbidities	%age	Frequency of morbidities	%age	
Prolonged* stay at hospital	2	7.4%	24	88.9%	1	3.7%	27 12.05 %
Febrile illness	3	8.1%	27	73%	7	18.9%	37 16.52%
PPH			10	58.80	**7	41.20	17 7.56%
Blood transfusion	11	14.9%	57	77%	6	8.1%	74 33.04%
Anaemia	7	12%	45	77.7%	6	10.3%	58 25.89%
Wound infection	1	11.1%	7	77.8%	1	11.10	9 4.02%
Shock			***2	100%			2 0.89%
total	24	10.71	172	76.79	28	12.5	224

* By prolonged stay at hospital is meant stay more than 7 days after delivery (by any mode of delivery)

** PPH in Cases of VBAC, two were due to cervical tear. One was due to wound dehiscence and four were due to transient mild uterine atony.

*** Two cases of shock observed. One due to rupture uterus and other due to intraoperative uterine atony, patient managed by bilateral internal iliac ligation and uterine conservation because she was only G2P1, both patients survived.

Table 7

consider caesarean section safe as compared to vaginal delivery. A number of studies have been conducted with highly successful outcome of vaginal delivery but still reports are there about uterine rupture and scar dehiscence,[7,8] and several review articles have been published for assessment of risks of trial of scar following a prior lower segment caesarean section. Enkin analyzed 06 eligible studies, these data revealed a uterine dehiscence/rupture rate 1.5% for elective repeat caesarean and 1.7% for overall women undergoing a trial of labour.[9,10]

In our series 45.97% of total women with previous caesarean section delivered vaginally. However women with non-recurrent cause for previous caesarean, 62% achieved vaginal delivery.

In our study out come of trial of labour was poor when previous caesarean section was for recurrent cause while statistically significant ($p<0.05$) successful trial of labour was observed in women who had previous caesarean due to mal-presentation, foetal distress but not due to placenta praevia. Spontaneous onset of labour, cervical dilatation 3-5cm and foetal weighty less than 4 kg favoured vaginal delivery. While foetal weight more than 04 kg, gestation 40 weeks and above, mal-position and incoordinate uterine action were linked with unfavourable outcome, similar to farkhandas study.[9] The frequency of ruptured uterus was 1.25% which shows poor antenatal provision and interference outside the hospital. The incidence of rupture uterus in developing countries is reported as 0.23% i.e. 1:245 deliveries.[11]

Scar tenderness was previously meant for an idea of condition of scar but studies have now revealed that it has no positive correlation with scar's condition.[12]

The study revealed 69% of the total maternal morbidity especially febrile illness and wound infection observed in patients delivered by emergency repeat caesarean section. In Mc Mahan's Observational study,[13] 92.5% of major complications were found in this group. In retrospective studies several specific obstetrics parameters available were considered with successful vaginal delivery i.e. previous vaginal delivery, duration of labour <24 hours and fetal birth weight less than 4000gm.[14,15] These observations were further emphasized by Jongen.[16] Trials have revealed that among women with one previous caesarean section and one vaginal delivery whose most recent delivery was vaginal had a lower rate of caesarean delivery, shorter duration of labour and less morbidity than those whose most recent delivery was caesarean.[17]

The use of prostaglandins for cervical ripening in women with previous caesarean is also a controversial issue. There are reports of uterine rupture and complete wound dehiscence with prostaglandin E2 use. This is not confirmed by our study, where this mode of induction was offered to highly selected patients and 60% achieved vaginal delivery, although sample size was small. Machenzie et al achieved 76% vaginal delivery rate with no uterine rupture or dehiscence.[18]

However larger trials would be required to show definite safety of prostaglandins.[19,20] There is no evidence of support of an increased risk of uterine rupture associated with epidural analgesia as well, provided standard protocols are maintained.[21]

All these measures if undertaken vigilantly can increase the vaginal delivery rate after caesarean section without major complications. This issue is emphasized in different series so that 62-84% vaginal delivery after caesarean section can be achieved in appropriately selected cases making 50% of total population with previous caesarean section.[22]

As far as the issue of augmentation with Oxytocin is concerned, many authorities have still reservations regarding this practice. Our study revealed that Oxytocin use was associated with significantly lower rate of vaginal delivery compared with unstimulated labour (42.6% Vs 69.8%) and it is also similar to Flamm et al results (66% Vs 79%).[23]

The frequency of placenta pravia in these patients was 4.18% compared with 2.7% in general population and showed almost 1.55 times risk of it with previous caesarean section.

CONCLUSION

We achieved 45.97% vaginal delivery rate in this study. So properly selected women with previous caesarean section can be delivered vaginally.

In properly selected cases augmentation with Oxytocin and induction either with Oxytocin or prostaglandin E2 can be offered provided the maternal and fetal monitoring is done vigilantly.

Regarding perinatal mortality there were other contributory factors as well like hypertension and placental abruption which resulted into intrauterine death. As most of the causes were unavoidable so PMR is unaffected even in high risk group that is emergency repeat caesarean section.

There was no increase in frequency of wound dehiscence or rupture uterus observed during the trial conducted in hospital. The overall

increase frequency observed was due to mismanagement out side the hospital.

So women fit for trial of scar according to eligibility criteria should undergo strictly monitored tertiary care hospital antenatal care and they should be allowed to have vaginal birth under vigilant monitoring.

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