

TRIAL OF SCAR AND VAGINAL BIRTH AFTER CAESAREAN SECTION

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Background: The caesarean section rate has increased to an alarming extent in the last three decades the world over and fear of rupture of uterus in subsequent pregnancy and labour has led to a high rate of repeat caesarean sections. The objective of this study was to determine the final outcome of a trial of scar and Vaginal Birth After Caesarean Section (VBAC) and develop guidelines to reduce the rate of unnecessary repeat caesarean section. **Methods:** This study was carried out in Obstetric and Gynecology Unit 'A' of Ayub Teaching Hospital Abbottabad from 01.11.2002 to 31.10.2004. A total of 2652 patients were delivered during this period, out of which 297 patients had history of one previous caesarean section. A total of 53 patients had an elective repeat caesarean section and rest of 244 was subjected to a trial of scar. **Result:** Out of 244 patients selected for trial of scar, 165 (67.2%) had a successful uncomplicated vaginal delivery, 7 (3.2%) were delivered by forceps, 11 (5.2%) with vacuum extractor and 61 (24.4%) required a repeat emergency caesarean section. 83% of the patients had a spontaneous onset of labour and 17% needed induction of labour with prostaglandin E2 pesseries and augmentation of the labour with oxytocin. However repeat caesarean section rate was high in the later group. 71.2% of the babies were born with Apgar score > 8 and 24.6% had an Apgar score between 6-8. There were 3 cases of scar dehiscence and one case of ruptured uterus and one baby was lost due to this complication. No serious maternal complication occurred. **Conclusions:** More than 75% of the patients with previous one caesarean section for non-recurrent cause can be successfully delivered vaginally. Antenatal booking and follow up, careful case selection for trial of scar and close observations during labour will achieve successful maternal and perinatal outcome. VBAC also saves any future caesarean sections, as currently previous two caesarean sections is an indication for elective caesarean section.

Key words: Trial of Scar, Caesarean Section Rate, VBAC,

INTRODUCTION

The caesarean section rate has increased, both in the developed and developing countries alike. It is partly due to availability of safe anaesthesia, excellent blood transfusion services, advance in operative technology and development of broad spectrum antibiotics. The relative safety of the operative procedure has led to relaxation of indications, resorting to the procedure for relative indications and even 'caesarean on demand' by some women. This tendency needs to be controlled as it puts a great drain on health care resources, is costly and associated with serious risks to the mother and the baby, all the recent advances notwithstanding. This rising caesarean section rate has created an expanding high risk obstetric sub-population "Women with scarred uterus".¹⁻⁶

Risk of rupture of uterus in subsequent pregnancy led Craigin to introduce the concept "Once a caesarean, always a caesarean" in 1916. This concept met a lot of criticism both in the East and West and most obstetricians now favour a Trial of Scar policy in a well equipped hospital for women who have undergone a caesarean section for non-recurrent cause.^{7,8}

Caesarean section is not always a safe option, especially in a developing country like ours where the patient profile is different, and there are less than adequate medical facilities in many places. Ignorance and lack of education, poor understanding of the operation and its subsequent management, both on the part of the patient

and her family leads to poor acceptance of both first and repeat caesarean section. Failure to seek antenatal care in subsequent pregnancy, attempts of delivery at home or report late in advanced labour, after unskilled vaginal examination and injudicious use of oxytocin at home leads to high maternal and perinatal morbidity/ mortality. The risk of repeat caesarean section increases in such cases with its own morbidity and mortality.

We carried out this study at Ayub Teaching Hospital to assess safety of 'Trial of Scar' in ladies with history of previous lower segment caesarean section.

MATERIAL AND METHODS

This study was carried out in Obstetric and Gynecology Unit 'A' of Ayub Teaching Hospital Abbottabad from 01.11.2002 to 31.10.2004. We included the women who had lower segment caesarean section for a non recurrent reason and offered them a Trial of Scar after ruling out cephalo-pelvic disproportion. Obstetrical data was collected from maternity notes and labour room record registers. Data obtained included maternal age, parity, indication for previous caesarean section, previous vaginal deliveries, gestational age, Bishop score, details of labour (whether spontaneous, augmented or induced), timing and onset of regular uterine contractions, rupture of membranes, mode of delivery or indication for repeat caesarean section. In addition birth weight, Apgar score of the baby, maternal febrile morbidity and mortality and length of hospital stay were noted.

Patients who were declared eligible for trial of Scar were figured out by having only one previous caesarean section for a non recurrent cause, a low transverse uterine Scar, adequate pelvis, a single fetus with vertex presentation, estimated weight of the baby less than 3.8 kg and no absolute indication for caesarean section or medical or obstetric complications.⁹⁻¹³

Patients who had contracted pelvis, fetal macrosomia, placenta praevia, bad obstetrical history or associated medical disorders were excluded from the study. In our study all the patients with previous one scar were examined by the senior Obstetricians. Circumstances surrounding previous deliveries were noted. An elective caesarean section without cephalo-pelvic disproportion, clean and regular uterine wound, smooth wound healing and absence of post-operative sepsis were noted as favorable factors for a trial of scar. On the other hand, an emergency procedure on patient with obstructed labour, with attenuated devitalized lower segment and irregular wound were noted as poor prognostic markers.

Good prognostic factor at term included engaged head, average size of the baby, soft, central and dilated cervix and adequate pelvis. The bad prognostic features include high and mobile un-engaged head, good sized baby and unripe cervix. We preferred a digital pelvimetry alone without resorting to X-rays and in the absence of any obvious pelvic deformities allowed a trial of labour.

During trial of labour a Senior House Officer or registrar who was fully aware of the antenatal record of the patient was ensured to take care of the patient. At least 1 pint of blood was typed and cross matched. Intravenous line with a 16-18 gauge cannula was established and maintained. The anesthetist, theatre staff and neonatologist was informed for the possibility of a caesarean section. Fetal cardiac activity and maternal vital signs were vigilantly monitored throughout the trial.

Patient's informed consent was taken for trial of scar. She was kept nil by mouth and an intravenous infusion of 5% dextrose in water was started. The progress of labour and relevant clinical observations was recorded on a partogram. Analgesia was given during trial in the form of intra muscular injection of Tramadol HCl. However, epidural analgesia was not given due to non availability. Throughout the trial patient was watched for lower

abdominal tenderness (scar tenderness), acute onset of severe abdominal pain, acute fetal distress, maternal tachycardia, vaginal bleeding, loss of presenting part etc. Prostaglandin E2 (3 mg) pessaries were used for induction of labour in cases of poor Bishop Score. Oxytocin was used both for induction (when Bishop Score was favourable) and augmentation of labour to achieve optimal uterine contractions.^{14,15}

Vaginal delivery was assisted with outlet forceps or vacuum extraction, in cases of poor maternal efforts, when the fetal head was engaged (less than 1/5 palpable on abdominal examination). Patients were kept under observation in the labour room for 2 hours after delivery to observe signs of post partum hemorrhage. Uterine atony and maternal vital signs were recorded every half an hour for two hours. If stable they were transferred to postnatal ward.

RESULTS

There were 5549 obstetric admissions during the 24 months study period. Total deliveries were 2652 including 297 cases with previous one caesarean scar. Out of these 2652 cases, 1065 cases were delivered by caesarean section, giving rise to a caesarean section rate of 40.15%. Out of 297 women with one previous scar, 244 (82.15%) fulfilled the criteria for going through a trial of scar, and 53 (17.84%) had a repeat elective caesarean section. Trial of scar was discontinued when adequate progress was lacking after 6 hours of trial in active phase of labour in spite of good uterine action and a repeat emergency caesarean was performed in 61 patients (24.4%).

Table-1: Out come of trial of scar (n= 244)

Mode of Delivery	No. of patients	%
Spontaneous Vaginal Deliveries	165	67.2
Vacuum delivery	11	5.2
Forceps delivery	7	3.2
Repeat caesarean for failed trial of scar	61	24.4

Table-2: Indications for emergency caesarean section after failed trial of scar (n=61)

Indications	Number	%
Failure to progress during 1st stage of labour	34	52 %
Fetal distress	18	31 %
Scar Dehiscence	4	6.5%
Others	5	8.1%

Table-3: Indications for previous caesarean section (non recurrent cause) versus outcome in present pregnancy

Indication For Primary Caesarean Section	Total No= 244	%	Vaginal Delivery		Caesarean Section	
			No.	%	No.	%
Breech and abnormal lie	70	29	61	87.1	09	12.9

Fetal distress	63	26.2	47	74.6	16	25.4
Failure to progress:	52	21.2	37	71	15	29
a. In first stage of labour	31					
b. In second stage of labour	21					
Placenta Praevia	22	8.8	16	72.7	06	27.3
Precious Pregnancy	14	5.6	09	64.2	05	35.8
Fetal compromise (reduced fetal movements, poor biophysical profile)	14	5.6	9	64.2	07	35.8
Pregnancy induced hypertension	9	3.6	06	66.6	03	33.4

Table-4: APGAR Score in trial of scar babies at 1-minute

Apgar Score	Number 182	Percentage
Apgar Score > 8	128	71.2 %
Apgar Score 6 – 8	45	24.6%
Apgar Score < 6	9	4.2%

Table-5: Maternal complication

Types of Complications	Complications		
	Vaginal Delivery	Emergency Caesarean section	Elective Caesarean Section
Puerperal Pyrexia (endometritis)	6 (3.27%)	23 (37.7%)	12 (22.6%)
Wound sepsis	-	11 (18%)	7 (13.2%)
Gaped Episiotomy	5 (4%)	0	-
Thrombophlebitis	-	5 (8.19%)	1 (1.8%)
Rupture uterus	-	4 (6.55%)	-
Transfusion	7 (5.73%)	32 (52.45%)	15 (28.3%)
Other infection	2 (1.63%)	18 (29.5%)	7 (13.2%)
Mean Hospital stay	1 – 2 days (0.82 – 1.63%)	8 – 12 day (13-19.6%)	6-8 Days (17%)

The indication for previous caesarean section has a considerable impact on outcome of trial of scar. Table-3 shows that highest vaginal delivery rate (87%) was achieved in cases of prior caesarean section for mal-presentations. It was followed by failure to progress (74.6%), placenta praevia (72.7%) and fetal distress (71.6%). Minimum vaginal delivery rate (64%) was achieved in cases of fetal compromise.

Women, who had previous experience of vaginal deliveries in addition to caesarean section were 104 and 90 (88.3%) of them achieved a successful vaginal delivery compared to 140 women without previous vaginal delivery in whom 93 (71.1%) could achieve a vaginal delivery

Various parameters of maternal morbidity that occurred during study are compared in Table 5. There were three cases of scar dehiscence, detected and managed well in time, with uneventful maternal and perinatal outcome. Only one patient had complete uterine rupture, whose cesarean section was decided due to acute abdominal pain and tenderness and fetal distress. Uterine rupture occurred because of non-availability of theatre table in emergency for more than six hours due to work overload.

Neonatal morbidity was also increased in cases requiring emergency caesarean section after failed trial of scar. There was stillbirth of only 1 baby out of 244, this one baby died due to uterine rupture. One had congenital malformation and died after few minutes. This gives the perinatal mortality of 7.3/1000 total births.

DISCUSSION

The overall Caesarean section rate in our hospital during study period was 40.15%. This is apparently very high and unacceptable rate as compared to current caesarean section rate of 12 % in UK.^{16,17} However, if we split our caesarean section rate into two groups: booked and non booked, it is seen that the increased rate is actually due to an increased primary caesarean sections carried out in the non booked cases.

Ayub Teaching Hospital is the biggest tertiary care level hospital of Hazara Division. All the complicated mismanaged cases by untrained traditional birth attendants ultimately make their way to this hospital. Majority of the women had suffered from mismanagement of breech presentation and abnormal lie. They present with after coming struck head of breech and neglected transverse lie with hand prolapse, obstructed labour and infection. Other patients present with fetal distress coupled with failure to progress, prolong rupture of membranes, prolonged labour of even up to 5-6 days of duration. This situation is aggravated by the injudicious use of oxytocin and multiple, unskilled vaginal examinations without aseptic precautions. In these cases primary caesarean section is performed as an emergency procedure and it is this group of patients by whom caesarean section is poorly accepted because of increased morbidity of the procedure, need for blood transfusion, high cost and its impact on fertility. These patients need careful counseling with emphasis on early booking in subsequent pregnancy and regular antenatal check up. In a subsequent pregnancy these patients must be seen by a senior obstetrician and after proper assessment and case selection should be offered a trial of scar. Attempting vaginal birth after caesarean section is important as it offers one potential area where alarmingly high rate of caesarean section can be reduced. Moreover, 80% of our population is not educated. They live in villages and small towns where efficient pre-natal care is not available. Various unhealthy customs regarding confinement, contraception and preference of women to deliver at home even when hospital facilities are available further aggravate the situation. Due to fear of repeat caesarean section, many women have an unsupervised trial of scar at home by untrained traditional birth attendants. Proper counseling and education of women who have had caesarean section enabled us to give a trial of scar to 82 % of women with previous one caesarean section for non-recurrent cause. Successful vaginal delivery was achieved in 75% of the total cases of trial of scar. Out of them, a minority of 8.4% of the patients needed instrumental vaginal delivery without any adverse fetal or maternal effects^(4-6, 18). Repeat emergency caesarean section was performed in 61 cases (24.4%), mainly due to failure to progress and fetal distress. Risks of repeat caesarean section include longer operating time, higher incidence of caesarean hysterectomies, higher incidence of placenta praevia and its morbid adherence to the scar giving rise to placenta accreta, increta and percreta. The incidence of later complication increases in a linear fashion with increasing number of caesarean sections. Repeat caesarean section has an adverse impact on fertility and psychological status of the women. Assessment of other morbidity parameters in our study shows a 19.7% incidence of febrile/ infectious morbidity in women undergoing elective repeat caesarean section compared to 41.7% in women having a trial of labour. In fairness, further analysis of trial of labour group shows the greatest risk for febrile morbidity to be in the sub group who failed a trial of labour (37.7%) as shown in results of Table-5. This figure is off set, however, by the 3.27% incidence of febrile morbidity in women who successfully achieved a vaginal delivery, and who formed the majority of those attempting a trial of labour. Results of Table - 5 indicate that indeed, all measured parameters of maternal morbidity were lower in the trial of labour group compared with elective caesarean section group.^{18,19}

From the result of Table-3 it can be postulated that even when the indication for previous caesarean section was failure to progress in first or second stage of labour or cephalo- pelvic disproportion, a trial of scar should be considered, because in most such cases an element of relative cephalo- pelvic disproportion exist due to good size

baby or fetal mal positions (occipito-posterior and occipito-transverse) or mal presentations like brow or face presentation which may not necessarily occur in subsequent pregnancy. Moreover, with the help of partogram and drawing alert and action lines and labour curves, one can identify the abnormal labour patterns earlier and timely and accurate action can result in safety of both mother and fetus.³

Although in cases of previous caesarean sections, X-ray pelvimetry gives information about the pelvic diameters at various levels, its draw back is that it provides static radiographs; whereas labour is a dynamic process, in which laxity of pelvic ligaments offers relaxation of pelvic diameters. In addition uterine contractions, flexion of fetal head to more favourable diameters and moulding are important determinants of the outcome of labour. Therefore too much reliance cannot be placed on pelvimetry. In a retrospective review of women who had post caesarean section X-ray pelvimetry, Murthy et al found that 66% of women with radiological inadequate pelvis delivered normally in subsequent pregnancy.²⁰ Computerized axial tomography and Magnetic Resonance Imaging have the advantage of much better resolution and being less or totally free of hazards of Ionizing radiations, but both are expensive and not widely available with inherent drawback of poor reflection of possible outcome of labour, which is dependent mainly on intra-partum events.^{20,21}

There were three cases of scar dehiscence and one case of uterine rupture in spontaneous labour group, possibly due to lack of physiological strength of scar tissue. Similarly, it was interesting to note in this study that women who had experienced previous vaginal delivery in addition to caesarean section, had a better chance of achieving VBAC (90% vs 71%), indicating that a history of previous vaginal delivery should be noted as a favourable factor for trial of scar.²² Perinatal outcome in cases delivered vaginally was encouraging as 71% of babies were born with Apgar score of 8. Only 6 babies (4.2%) had an Apgar score less than 6 and all were successfully resuscitated. This finding confirms that VBAC is completely safe for the babies as is reported in international studies.⁴

CONCLUSIONS & RECOMMENDATIONS

It was concluded from this study that not permitting a trial of labour in an eligible candidate is simply not justified on the basis of fear of uterine rupture. The likelihood of a successful trial of scar in carefully selected patients was similar to that reported in developed countries (62-84%), thus resulting in decreased incidence of repeat caesarean section. Benefits of vaginal over abdominal delivery include less post partum morbidity, shorter hospital stay, fewer operative and anesthetic risks, financial savings and of immeasurable value is the earlier and easier neonatal - maternal interaction and bonding.

It was also concluded from this study that risk of repeat caesarean section arises from an injudicious primary caesarean section in non booked obstetric patients. It is recommended that nation wide measures should be taken to improve antenatal care at primary and tertiary level hospitals. Traditional birth attendants and other paramedical staff involved in taking care of these patients during labour and delivery should be properly trained and issued certificates allowing them obstetric clinical practice so that they are able to make timely referrals in appropriate cases.

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