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Short report

Subjective assessment of LSCS scar site for vaginal birth after caesarean trial and outcome in mgims, sevagram, wardha, india

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ABSTRACT

Abstract: The objective of this study was to determine the final outcome of a trial of scar by subjective assessment of LSCS scar site and vaginal birth after caesarean section (VBAC), and develop guidelines to reduce the unnecessary repeat caesarean rate. **Method:** This study was carried out in Obstetrics and Gynaecology Department of MGIMS, Sevagram, Wardha, India from 01/11/2008 to 31/10/2011. A total of 13, 175 parturient were delivered during this period, out of which 1485 cases had history of one previous caesarean section. A total of 249 patients had an elective repeat caesarean section and rest of 1236 were subjected to a trial of scar. **Result:** 1236 patients selected for trial of scar, 846 (68.4%) had a successful uncomplicated vaginal delivery, 65(5.2%) were delivered by vacuum extractor, 38(3.2%) required a repeat emergency caesarean section, 73.9% of the babies were born with Apgar score 7 and 24.8% had an Apgar score between 6-8. There were none cases of scar dehiscence and rupture uterus and one baby was lost due to congenital malformation. **Conclusion:** More than 76% of the parturient with one previous caesarean section for non-recurrent cause can be successfully delivered. Antenatal booking and follow up, careful case selection for trial of scar and close observations during labour will achieve successful maternal and perinatal outcome.

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1. 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, and advances in operative technology and development of broad spectrum antibiotics. The relative safety of the operative procedure had 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 a health care resources, is costly and associated with serious risks to the mother and baby, all the recent advances notwithstanding. This rising caesarean section rate has created and 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 West and East and most obstetricians now favour a trial of scar policy in well equipped hospital for women who have undergone a caesarean section for non-recurrent cause [7, 8].

The safety of vaginal birth after caesarean section (VBAC) has been shown but there are no reliable methods to predict the risk of uterine rupture in these patients. Studies have shown that ultrasonography (USG) may predict uterine rupture in women with previous caesarean delivery. The risk of uterine rupture in the presence of an LSCS scar is related directly to the degree of thinning of the lower uterine segment (LUS). Although LUS thickness as measured by sonography at or near term is being used by 16% of obstetricians in Canada to determine which women are good candidates for VBAC, the value of applying sonographic LUS thickness measurement in the management of VBAC remains unclear and there are no clear guidelines in this regard [9, 10].

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Here, we had done a subjective LSCS scar assessment during clinical pelvic assessment for trial of VBAC in subsequent pregnancy at or near term. In past, none of studies had been published regarding this method of scar assessment and their outcome.

2. Material and Methods

This study was carried out in Obstetrics and Gynaecology department of Mahatma Gandhi Institute of Medical Science (MGIMS), Sevagram, Wardha, India from 01/11/2008 to 31/10/2011. 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 (CPD) and placenta previa. 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 of 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 foetus 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 [11-15].

Patients who had contracted pelvis, fetal macrosomia, placenta previa, 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 favourable factors for 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 & digital scar assessment by sweeping or stripping the membrane anteriorly and all-round the cervix without resorting to x-rays and ultrasonography and in the absence of any obvious pelvic deformities allowed a trial of labour.

During trial of labour a senior house officers or registrar who was fully aware of the antenatal record of the patient was ensured to take care of the parturient. At least 1 unit of blood was typed and cross matched. Intravenous line with a 16-18 gauge cannula was established and maintained. The anaesthetist, theatre staff and

neonatologist were 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. The progress of labour and relevant clinical observations were recorded on a partogram. Analgesia was given during trial in the form of intramuscular injection of tramadol hydrochloride and pethidine. However, epidural analgesia was not given due to non-availability & aside hampers the identification of uterine rupture. 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. Sweeping or stripping of membranes was 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 [16, 17]. Sweeping of membranes also helped in cervical ripening and subjective assessment of scar thickness by bimanual pelvic examination for clinical pelvimetry.

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 in abdominal examination). Parturient were kept under observation in the labour room for 2 hours after delivery to observe signs of post partum haemorrhage. Uterine atony and maternal vital signs were recorded every half an hour for two hours. If stable they were transferred to postnatal ward.

3. Results

There were 13,175 parturient admissions during the 3 years study period. All of these were delivered by abdominal or vaginal route. Out of these 13,175 cases, 3,954 cases were delivered by caesarean section, giving rise to a caesarean section rate of 30.01%. Only 1485 cases were with previous one caesarean scar constituting 11.27% of total deliveries. Out of 1485 women with one previous scar, 1236 (83.23%) fulfilled the criteria for going through a trial of scar, and 249 (16.77%) had repeated 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 section was performed in 287 parturient (23.22%).

Table – 1. Outcome of trial of scar (n=1236)

Mode of delivery	No. of Parturient	%
Spontaneous vaginal deliveries	846	68.4
Vacuum delivery	65	5.2
Forceps delivery	38	3.2
Repeat caesarean for failed trial of scar	287	23.2

Table-2. Indications for emergency caesarean section after failed trial of scar (n=287)

Indications	Numbers	%
Failure to progress during Iststage of labour	151	52.6
Fetal distress	111	38.6
Other	23	8.1

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

Indication for primary CS	Total No.=1236		Vag. delivery		Caesarean section	
	No	%	No	%	No	%
Breech and abnormal lie	358	28.9	315	87.9	43	12.1
Fetal distress	334	27.2	251	75.1	83	24.9
Failure to progress	272	22	193	70.9	79	29.1
a) In first stage of labour	164					
b) In second stage of labour	108					
Placenta praevia	99	8	73	73.7	26	26.3
Precious pregnancy	74	5.9	48	64.8	26	35.2
Fetal compromise	63	5.1	42	66.6	21	33.4
(Decreased fetal movement & poor BPP)	36	2.9	24	66.6	12	33.4
PIH						

Table-4. APGAR score of babies in trial of Scar at 1-minute

APGAR Score	No.=949	Percentage
APGAR Score >8	702	73.9
APGAR Score 6-8	235	24.8
APGAR Score <6	12	1.3

Table-5. Maternal complications

Table of complications	Complications		
	Vaginal delivery= 949	Emergency CS= 287	Elective CS=249
Purperal Pyrexia (Endometritis)	-	12(4.1%)	3(1.2%)
Wound sepsis	-	7(2.4%)	3(1.2%)
Gaped episiotomy	37(4%)	-	-
Rupture Uterus	-	-	3(1.2%)
Thrombophlebitis	-	20(7%)	
Transfusion	61(6.4%)	86(30%)	37(14.8%)
Other infection	18(1.8%)	14(4.8%)	6(2.4%)
Mean hospital stay	1-2 days (0.62-1.51%)	8-12 days (13-19.6%)	6-8 days (9%)

The indication for previous caesarean section has a considerable impact on outcome of trial of scar. Table – 3 shows highest vaginal delivery rate (87.9%) was achieved in cases of prior caesarean section for malpresentations. It was followed by fetal distress (75.1%), placenta previa (73.7%) and failure to progress (70.9%). Minimal vaginal delivery rate (66.6%) was achieved in cases of fetal compromise.

Women, who had previous experience of vaginal deliveries in addition to caesarean section were 531 and 468 (88.13%) of them achieved a successful vaginal delivery compared to 705 women without previous vaginal delivery in whom 507 (71.91%) could achieve a vaginal delivery.

4. Discussion

The overall caesarean section rate in our hospital (institute) was 30.01%. This is apparently very high and unacceptable rate as compared to current caesarean rate of 12% in UK (18-19). 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.

MGIMS, Sevagram, Wardha is the biggest tertiary care level hospital of Wardha district. All the complicated mismanaged cases by untrained birth attendants & trained 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 stucked head of breech and neglected transverse lie with hand prolapse, cord prolapse, obstructed labour and infection. Other patients present with fetal distress coupled with failure to progress, prolonged rupture of membranes and prolonged labour. 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 counselling with emphasis on early booking in subsequent pregnancy and regular antenatal check up. In 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, 75% of our population is educated. They live in villages and small towns where efficient prenatal care is 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. Proper counselling and education of women who had caesarean section enabled us to give a trial of scar to 83.23% of women with previous one caesarean section for non-recurrent causes. Successful vaginal delivery was achieved in 76.8% 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 (4-6,20). Repeat emergency caesarean section was performed in 287 cases (23.2%), 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 previa 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 2.4% incidence of febrile or infectious morbidity in women undergoing elective repeat caesarean section compared to 6.5% in women who had a trial of labour. In fairness, further analysis of trial of labour group shows the great or risk for febrile illness in the sub group who failed a trial of labour (6.5%) as shown in results of Table-5. However, there was no 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 [20, 21].

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 malposition (occipito-posterior and occipito-transverse) or malpresentations like brow or face presentation which may not necessarily occur in subsequent pregnancies. 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 mothers and fetus [3].

Although in cases of previous caesarean sections, X-ray pelvimetry gives information about the pelvic diameters at various levels; its drawback 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 [22]. 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 [22-23].

There were none of cases of scar dehiscence and uterine rupture in spontaneous labour group, possibly due to assessment of physiological strength of scar tissue by digital clinical pelvimetry. There are no references available till now regarding subjective assessment of LSCS scar thickness during digital clinical pelvimetry. 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 (88.13 % v/s 71.91%) indicating that a history of previous vaginal

delivery should be noted as a favourable factor for trial of scar (24). Perinatal outcome in cases delivered vaginally was encouraging as 73.9% of babies were born with Apgar score of 8. Only 12 babies (1.3%) had an Apgar score less than 6 and all were successfully resuscitated. This finding confirms that VBAC is completely safe for the babies by subjective assessment of LSCS scar thickness by digital bimanual clinical pelvimetry [4].

5. Conclusions

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. No of cases of scar rupture or dehiscence had been found due to subjective assessment of LSCS scar site during digital clinical pelvimetry. 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. Benefit of vaginal over abdominal delivery include less postpartum morbidity, shorter hospital stay, fewer operative and anaesthetic risks, financial savings and of immeasurable value is the earlier and easier neonatal –maternal interaction and bonding.

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