PROSPECTIVE STUDY OF DELIVERY AFTER PREVIOUS ONE CAESAREAN SECTION AT KING HUSSEIN MEDICAL CENTER

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ABSTRACT

Objective: To evaluate the mode of delivery and safety of vaginal delivery in women with previous caesarean section at King Hussein Medical Centre.

Methods: Three hundred thirty women with previous caesarean sections were enrolled into the study. Age, parity and indication for the previous caesarean sections were recorded. All events of labour were also recorded (mode of delivery, apgar scores, birth weight, and duration of oxytocin and prostaglandin use). Intrapartum and postpartum complications were recorded. Analysis of the rate of vaginal delivery was made in relation to parity and the indication for the previous caesarean section.

Results: The mean age of women was 29.2 years (19-45). One hundred and twenty six (38%) were Para 1. Overall, the vaginal delivery rate was 71%. Among women who had one previous caesarean section 62% achieved vaginal delivery. Overall 11.8% of women had an elective caesarean section. The highest vaginal delivery rate was in patients who had caesarean section for breech presentation (74%), followed by fetal distress (68%). Even in women, where the previous caesarean section was due to failed progress, 55% achieved vaginal delivery. There was one case of ruptured uterus in the vaginal delivery group, which resulted in a perinatal mortality. The mean birth weight was 3.168 for the vaginal delivery group and 3.4 kg for the caesarean section group.

Conclusion: Trial of labour after previous caesarean section can be very successful with vaginal delivery rate reaching 62%. Even when the previous caesarean section was due to failed progress, vaginal delivery was achieved in 55% of cases. Although the risks of vaginal delivery were small in our series, these should not be overlooked when making decisions regarding mode of delivery after previous caesarean section.

Key words: Placenta accrete, Vaginal birth after caesarean section, Trial of labour, Uterine rupture

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Introduction

Management of delivery after previous one Caesarean section (C/S) deserves a great deal of attention, because of the worry about scar integrity, and the implications for future delivery since previous two C/S's will almost certainly necessitate a repeat section. A potential late risk of recurrent C/S is an increased incidence of placenta praevia and placenta accreta which may cause significant morbidity or even death.[1] This is the first such study at King Hussein Medical Centre (KHMC). Vaginal birth after C/S (VBAC) has undergone big changes in the past 30 years. The Dictum "Once a Caesarean, always a Caesarean" has been challenged in

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Table III. Mode of delivery after previous C/S according to parity

	P1	P2	P3	>P4	Total
Spontaneous vaginal delivery (%)	74(58.7)	59(73.8)	46(92)	52(70.3)	231(70)
Instrumental delivery (%)	4(3.3)	2(2.5)	0(0)	0(0)	6(1.8)
Caesarean section (%)	48(38.1)	19(23.8)	4(8)	22(29.7)	93(28.2)
Total	126	80	50	74	330

the past 20 years with the permission for trial of vaginal delivery, which proved to be successful, and with minimal risk to both mother and fetus.[2] Changes in maternal attitude towards childbirth have also played a large part in decision-making regarding delivery after previous C/S.

Counselling women regarding the risks and benefits of VBAC is of paramount importance so that the woman can make an informed choice.

Methods

Three hundred thirty women were admitted to the labour ward with previous one C/S over a one-year period. This included women admitted for elective C/S or induction of labour. A data collection form was inserted in the patient's notes on admission and was collected on discharge. A two weeks follow up visit was arranged and postpartum complications were recorded.

The protocol included age, parity and indication of previous C/S. All events of labour were also recorded (mode of delivery, apgar score, birth weight, duration of oxytocin). Postpartum complications such as wound dehiscence, rupture, blood transfusion, infectious morbidity were recorded. A comparison between the C/S group and the vaginal delivery group was done.

Results

The mean age of women was 29.2 years (19-47). 126(38%) were Para 1 and the rest (62%) were Para 2 or greater. Indication for previous C/S is shown in Table I.

Table I. Indications for the previous C/S

	Number (%)
Fetal distress	44(35)
Failure to progress	27(21.4)
Breech presentation	23(19.3)
Pre-eclampsia	13(10.3)
Others	19(15)

Vaginal delivery rate is shown in Table II. The highest vaginal delivery rate was Para 3 women (see Table III).

Table II. Indication for previous C/S versus vaginal delivery

	Vaginal delivery rate
Fetal distress	30(68)
Failure to progress	15(55.6)
Breech presentation	17(74)
Pre-eclampsia	7(54)
Others	10(52.6)

Overall the vaginal delivery rate was 71%. Among women who had one previous C/S but no other deliveries, 62% achieved vaginal delivery. Oxytocin was used in 26.6% of women, with a mean duration of 2.8 hours (0.5-8). Six women received prostaglandin vaginal tablets with a maximum dose of 6 mg and twenty two women (6.6%) had an intracervical Foley's catheter inserted for induction of labour.

There was one case of uterine rupture, which was successfully repaired, but resulted in a perinatal mortality. Six cases of the C/S group had blood transfusions compared to four women in the vaginal delivery group. The mean birth weight for the vaginal delivery group was 3.168 and for the C/S group it was 3.4 kg.

Discussion

VBAC has gained a lot of interest over the past 20 years. Trial of labour has been increasingly attempted in women with previous C/S. A number of published cohort studies supported its success.[3] Phelan *et al* found 79% vaginal delivery after trial of labour in women with previous C/S. The overall vaginal delivery rate was 55%. Uterine dehiscence/rupture rate was 1.5% for elective repeat C/S and 1.7% for all women undergoing trial of labour. It is notable that the majority of scar separations are minor and no maternal mortality was noted. Therefore, not permitting a trial of labour in an eligible candidate is simply not justified on the basis of fear of uterine rupture.[4] Morbidity due to infection and

thromboembolic episodes are more common after C/S compared to vaginal delivery.[5]

In an audit of 197 patients with one previous C/S, trial of labour was attempted in 51.3% of women, of whom 65.3% had a successful vaginal delivery. However, the overall vaginal delivery rate was only 33.5%.[6] In another study the rupture rate was 1.88 times more likely with VBAC was reported. In this series 61.4% attempted trail of scar and 34.8% were successful with a uterine rupture rate of 0.07%.[7] The low vaginal delivery rate in these studies is explained by the higher elective repeat C/S's, which was mainly due to maternal request. In our study the elective repeat C/S group was only 11.8%. This probably reflects the lack of maternal request of repeat C/S in our unit and favourably reflects on the vaginal delivery rate. In another study, 12% of women had elective C/S and among those attempting labour 72% achieved vaginal delivery.[8]

Our results are comparable to those reported in most studies, with vaginal delivery rates following previous one C/S of 55-72%. However, one study reported a rate of 33.5%. The latter can be explained by the fact that only 51% of patients in this study attempted labour after a previous C/S (see Table IV).

Table IV. Vaginal delivery rates after previous C/S in different studies

Study	Vaginal delivery (%)
Phelan *et al* 1987	79
Sing *et al* 2004	33.5
Akasheh *et al* 2001	63
Jongen *et al* 1998	55
Lehman *et al* 1999	72
Rageth *et al* 1999	71
Parveen *et al* 1997	60
Our study	62

Elective repeat C/S will increase the risks of adhesions and future surgical complications as well as placenta praevia/accreta. Mankuta *et al* designed a model to aid the decision of delivery in women with previous C/S. This model was based on the reported risks of the two approaches, chance of uterine rupture or neonatal death, and chance of rescue C/S and desire for additional pregnancy.[9] In our society the wish to have additional pregnancy is very high, and therefore a trial of labour should be encouraged in order to avoid future risks of repeat C/S.

Despite the enthusiasm for VBAC, management should be individualized. Constant attention in the antenatal period and continuous monitoring in labour is of paramount importance.

The indication for the previous C/S is also important. Around 70-80% chances of success have been reported if the previous C/S was due to breech presentation/placenta praevia. Despite a history of failure to progress in the previous C/S, there still remains a 50% chance of vaginal delivery. In one study 55% of women who had C/S for failed second stage achieved vaginal delivery in the subsequent pregnancy.[10] Our study supports these figures and 60-70% vaginal delivery rate seems to be quite consistent with other studies.

Concern about the use of prostaglandins to induce labour in patients with previous C/S has been substantiated. Oxytocin is less likely to cause uterine scar rupture, but should be used with caution with cardiotocographic monitoring and for a limited period of time. The length of trial can be agreed with the patient so that labour can be an acceptable, yet a safe experience.

In our study, there was one case of scar rupture. In this case there was a prolonged second stage and vacuum delivery was attempted but failed. No syntocinon was used in this patient. It is difficult to evaluate silent rupture in women achieving vaginal delivery. In an attempt to discern scar integreity following a vaginal delivery after C/S, the practice of post partum scar palpation has been advocated.[4] Apart from the inherent difficulties in this procedure, no study has ever demonstrated any benefit from routine manual exploration of the scarred uterus and this practice has now been abandoned.

Risk of uterine rupture is higher after elective C/S if prostaglandins (PG) are used to induce labour, which confers the highest risk. Lydon *et al* found 1.6 per 1000 risk of uterine rupture in women who had repeat C/S; 5.2 per 1000 among women who laboured spontaneously after previous one C/S; 7.7 per 1000 among syntocinon users and 24.5 per 1000 where both PG and syntocinon were used.[11] PG should therefore be avoided if possible, or used with extreme caution. In our study prostaglandins were used in only six cases.

Another point of concern is perinatal mortality and morbidity associated with VBAC. Delivery related perinatal death was 11 times greater than the risk associated with planned repeat C/S.[12] McMahon found similar minor complications, but twice major complications in the VBAC group. No difference in apgar scores was noted.[13] In a meta-analysis of 11 studies, there was a significant increase in risk of fetal death (odds ratio 1.7) and apgar scores of less than 7 at 5 minutes (odds ratio 2.2).[14] In our study there was no significant difference in apgar scores between the trial of scar group and the elective repeat section group. However, the latter group is small (11.8%). The total number is small, and it is

therefore, difficult to draw conclusion on the effect of mode of delivery on perinatal outcome.

Conclusion

Vaginal birth after previous one C/S is recommended and can be very successful with vaginal delivery rate of up to 62%. Even in women with previous C/S due to failure to progress, vaginal delivery rate exceeds 50%. In our series, the risks were small, but in higher numbers, risks of uterine rupture, fetal and maternal morbidity has been documented and should be taken into account in decision making regarding mode of delivery in women with previous C/S.

References

1. **Gilliam M, Rosenberg D, Davis F**. The likelihood of placenta praevia with greater number of caesarean delivery and higher parity. *Obstet Gynecol* 2002, 99(6): 976-980.
2. **Harer WB.** Vaginal birth after cesarean delivery: current status. *JAMA* 2002; 287(20): 2627-2630.
3. **Flamm BL, Goings JR, Liu Y, *et al.*** Elective repeat C/S vs. trial of labor: A prospective multicentre study. *Obstet Gynecol* 1994; 83(6): 927-932.
4. **Phelan JP, Clark SL, Diaz F, *et al.*** Vaginal birth after Caesarean. *Am J Obs Gyn* 1987; 157(6): 1510-1515.
5. **Rageth JC, Juzi C, Grossenbacher H.** Delivery after previous cesarean: A risk evaluation. *Obstet Gynecol* 1999(3); 93:332-337.
6. **Singh T, Justin C W, Haloob RK.** An audit of trends of vaginal delivery after one previous caesarean section. *Obstet Gynecol* 2004; 24(2): 135-138.
7. **Gregory KD, Korst L M, Cane P, *et al.*** Vaginal birth after caesarean and uterine rupture rates in California. *Obstet Gynecol* 1999; 94(6): 985-989.
8. **Akasheh H, Amarin V.** Vaginal delivery after one previous cesarean section: A six-year study at Queen Alia military hospital. *Journal of the Royal Medical Services* 2001; 8(1): 19-22.
9. **Mankuta D, Leshno M, Menasche MM, *et al.*** Vaginal birth after cesarean section: Trial of labor or repeat cesarean section? A decision analysis. *Am J Obstet Gynecol* 2003; 189(3): 714-719.
10. **Jongen VH, Halfwerk MG, Brouwer WK.** Vaginal delivery after previous caesarean section for failure of second stage of labour. *Br J Obstet Gynaecol* 1998; 105:1079-1081.
11. **Lydon-Rochelle M, Holt VL, Easterling TR, Martin DP.** Risk of uterine rupture during labor among women with a prior cesarean delivery. *N Engl J Med* 2001; 345:3-8.
12. **Smith GCS, Pell JP, Cameron AD, Dobbie R.** Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies. *JAMA* 2002; 287:2684-2690.
13. **McMahon MJ, Luther ER, Bowes WA, Olshan AF.** Comparison of a trial of labor with an elective second cesarean section. *N Engl J Med* 1996; 335(10): 689-695.
14. **Mozurkewich EL, Hutton EK.** Elective repeat cesarean delivery versus trial of labor: A meta-analysis of the literature from 1989-1999. *Am J Obstet Gynecol* 2000; 183:1187-1197.