Vaginal Birth After Cesarean Section: Is It Safe?

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Abstract

Objective: Our goal was to analyse the effects of trial of labor on fetal and maternal outcomes among women with single previous lower segment cesarean delivery.

Methods: 124 patients following a single prior cesarean delivery were selected prospectively for trial of labor between 1.1.2002-30.4.2004. The inclusion criterias were, single and alive fetuses with vertex presentation, estimated fetal weight lower than 4000 g and greater than 28 weeks pregnancies' and whose cervical effacement was 80% and dilatations over 5 cm at first examination. The patients who had cephalopelvic disproportion or classic uterine incision and whose previous indication was cephalo-pelvic disproportion were excluded from the study. During trial of labor induction was not used and the labor was followed up by continuous external cardiotocography.

Results: The mean age of the cases was 27.4 ± 4.47 years, the mean gestational week was 33 ± 4 weeks, and the mean fetal weight was 2312 ± 410 g. At admission the mean servical dilatation was 4.68 ± 1.3 cm. In one case complete and in two cases partial uterine rupture from previous scar tissues occurred and immediate laparatomy was performed. The overall rate of uterine rupture was in %2.4 of the cases. Perinatal morbidity was established to be 13%, without any perinatal mortality.

Conclusion: In view of the fact that primary cesarean rates can be reduced if their actual indications are considered, vaginal birth after single cesarean may be considered as an amenable and acceptable method in tertiary clinics with adequate facilities for the mother and the newborn in carefully selected cases.

Keywords: Vaginal birth, cesarean section, uterine rupture.

Sezaryen sonrası vajinal doğum: güvenli midir?

Amaç: Alt segment transvers uterin insizyon ile geçirilmiş tek sezaryen operasyonu olan olgularda, vaginal doğumun, fetal ve maternal prognoz üzerine olan etkisinin araştırılması.

Yöntem: 1.1.2002-30.4.2004 tarihleri arasında geçirilmiş tek sezaryen tanısıyla takip edilen olgulardan vaginal yoldan doğum uygulanmak üzere seçilen 124 olgu üzerinde prospektif olarak yürütüldü. Çalışmaya tek canlı baş gelişi fetusu olan, tahmini fetal ağırlığın 4000 g altı olan, kemik pelvis darlığı olmayan, 28. gebelik haftasından büyük ve ilk muayenelerinde servikal silinmesi %80, servikal dilatasyonları 5 cm üzerindeki olgular dahil edildi. Klasik uterin kesi operasyon kayıt notu olan ve ilk sezaryen endikasyonu baş pelvis uygunsuzluğu olan olgular çalışmaya dahil edilmedi. Doğum eylemi eksternal olarak sürekli monitorize şekilde takip edildi ve oksitosin ile doğum indüksiyonu uygulanmadı.

Bulgular: Sezaryen sonrası vajinal doğum (SSVD) yaptırılan hastalarımızın yaş ortalaması 27.4 ± 4.47, ortalama gebelik haftaları 33 ± 4 hafta, ortalama bebek ağırlığı 2312 ± 410 g olarak saptandı. Hastaların kabulü sırasında pelvik muayenelerinde;ortalama servikal açıklıkları 4.68 ±1.3 cm ve silinmeleri ise > %75 olarak gözlendi. Bir olguda alt segment eski uterin skar yerinde komplet rüptür, 2 olguda ise parsiyel rüptür tespit edildi ve acil laparotomiye alındı. Post operatif takip sorunsuzdu. Tüm olgularımızdaki rüptür oranı %2.4 idi. 16 yenidoğan solunum sıkıntısı nedeniyle yenidoğan ünitemizce konsülte edildi. Perinatal morbidite %13 olarak saptandı. Perinatal mortalite gözlenmedi.

Sonuç: Primer sezaryen oranlarının gerçek endikasyonların kullanılması ile azaltılabileceği gerçeğinden hareketle, 'sezaryen sonrası vajinal doğum'; dikkatli seçilmiş olgularda, anne ve yenidoğan için yeterli donanım ve bakım koşullarının olduğu tersiyer referans kliniklerinde uygulanabilir ve kabul edilebilir bir yöntem olarak görülmektedir.

Anahtar Sözcükler: Vajinal doğum, sezaryen uterus rüptürü.

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Introduction

For the first time, Edwin B. Cragin declared that the cases having one time cesarean section should have the cesarean section in their following pregnancy.[1] Although there have been developments in the obstetrical practice until that years, the question that in which way a patient having a cesarean section previously should delivery is not yet answered.

Ratio of cesarean section was 2-5% in 1950's; it increased to 25-30% in 1990's. However, neonatal mobility and mortality ratio did not significantly decrease.[2] In recent decade, many researchers supported the trail of vaginal birth for selected cases in order to decrease the number of unnecessary abdominal births and increase the number of vaginal births after cesarean section.[3,4] Wide multi-centered studies showed that the vaginal birth after cesarean section can reach success ratios of 60-90% by selecting the correct patient. This application, at the same time, decreased the hospitalization duration and ratio of postpartum infections.[2,4] But, there are two fundamental problems for the trial of the method and practice of vaginal birth after cesarean section. These are the unsuccessfulness of the vaginal birth and uterine rupture.[5] Uterine rupture is a serious complication which can cause the rise of fetal mortality and mobility.[6]

The objective of this study is to analyze the effects of trial of labor on fetal and maternal outcomes among women with single previous lower segment cesarean delivery.

Methods

This study is carried on 124 patients following a single prior cesarean delivery previously selected prospectively for trial of labor between 1.1.2002- 30.4.2004. The criteria to be included to the study were, single and alive fetuses with vertex presentation, fetal weight lower than 4000 gram estimated by ultrasonography and Leopold maneuver. The patients who had classic or T uterine incision and whose first cesarean indication was caused by cephalo-pelvic disproportion and abnormal labor progress were excluded from the study.

For the pregnancies older than 28th pregnancy week, cases having cervical effacement of 80%, cervical dilatations above 5 cm are included in the study. Under 28th week, early phases of the pregnancy is included in the study. Patients under 26th pregnancy week are not included in the study. In this type of cases, vaginal birth is tried firstly as it is stated in our hospital protocol. The entire patient and patient's caregivers were informed by the work group and written permission approval was taken. There were obstetrician, neonatolog and anesthesiologist in the team all the time.

Trial of labor was followed continuously for fetal heart trace and spontaneous uterine contractions externally. Amniotomy was not exercised until effacement and partiation was completed in membrane intact cases. Induction with oxytocin or augmentation was not implemented during the vaginal birth monitoring. Intervened birth was practiced for the cased by vacuum and/or forceps if it was needed.

Perineum, vagina, collum and cavum uteri check was done for case having vaginal birth.

Perinatal goodness was evaluated by birth weight, APGAR scores of first and 5th minutes and clinical examinations of the newborns. New born cases showing respiratory distress findings and in neonatal care unit were determined and monitored.

All of the data belonging to the cases were evaluated on computer. Statistical analysis were discussed using SPSS (11.05 version) as descriptive and frequency analysis.

Results

Average age of the patients having trial of labor after cesarean (C/S) was 27.4±4.47, average pregnancy weeks was 33±4 weeks and average newborn weight was 2312±410 gram (Table 1). Presentation of patients according to their pregnancy weeks are presented in Table 2.

Table 1. Demographical and clinical characteristics of the cases.

	Value interval	Mean±standard deviation
Age	21 - 40 years	27.4 ± 4.7 years
Pregnancy week	26 - 40 weeks	33 ± 4 weeks
Newborn weight	960 - 3820 g	2312 ± 410 g
Activity duration	30 min - 20 hours	6.5 ± 2.4 hours
Dilatation	1 cm - 10 cm	4.68 ± 2.25 cm
Gravida	2 - 7	3.59 ± 1.23
Parity	1 - 4	2.27 ± 0.54

Table 2. Distribution of the cases to the weeks.

	Case	
Pregnancy week	**N=124**	**%**
38 - 40 week	30	24.2
34 - 37 week	54	43.5
30 - 33 week	32	25.8
26 - 29 week	8	6.5
Total	**124**	**100**

It is seen that 43.5% of the cases was in the pregnancy weeks of 34-37 weeks. When the cases decided to make vaginal birth after a cesarean is evaluated according to their first C/S inductions; 53.22% of the cases positive construction stress test, 40.32% of the cases primigravid breech presentation, 4.03% of the cases hypertension, preeclampsia, intrauterine growth restriction [IUGR], 5.41% of the cases twin pregnancy (breech-vertex presentation) (Table 3).

In the pelvic examination made when the patients were accepted to the perinatology unit, average cervical Bishop scores was observed as 7±2, average dilatation was 4.68±1.3 cm and average effacement was > 75%.

Three patients gave birth with the vacuum. In the routine uterine cavity investigation after the birth, uterus ruptures were detected in the 2.4% (3/124) of the cases. In one 29 years old case having a 3820 gram baby, complete rupture was detected, in 2 cases 27 and 30 years old having 3150 and 3460 gram baby, partial rupture was detected in the scar place of the bottom segment old utter. These three cases in the 37th and 38th week of pregnancy were urgently taken to laparotomy. C/S inductions of these cases in their first births were fetal distress. Rupture place was primarily remedied. These paints were transfused 2 units of new blood to each because of their low hemogram values (7.5 g/dl, 7 g/dl and 6.9 g/dl). There were no early complications concerning anesthesia and complication in the port operative period. They were discharged from hospital without ant problems.

When the cases are evaluated according to their pregnancy intervals, it is seen that period between the pregnancies were shorter than 20 months in 17.74% of the cases (22/124). 2.4% (3/124) of the cases that we detected uterus rupture was also included in that group. In addition, when new born weights of the first cesarean birth and this vaginal birth is compared, it is seen that the weight of the new born was more in the cases that we detected uterus rupture (2540±426 g to 3466±354 g) $p < 0.05$.

APGAR score of the one hundred eight (87.09%) newborn in the1st minute, 7 of them in the 7th minute were above 9. APGAR scores of the 1st and 5th minutes of 16 newborn were in order 2-6 and 4-8 limit. 16 newborns were consulted

Table 3. Distribution of first cesarean inductions to weeks.

	First cesarean induction							
Pregnancy week	**Fetal distress**		**Breech presentation**		**Hypertension, preeclampsia, IUGR**		**Twin pregnancy**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Weeks 38-40	12	9.73	10	8.06	5	4.1	3	2.4
Weeks 34-37	27	21.7	21	6.9	4	3.2	2	1.6
Weeks 30-33	13	10.4	11	8.8	4	3.2	4	3.2
Weeks 26-29	3	2.4	2	1.6	3	2.4	–	–

under newborn unit because of respiratory problems. All of the cases were discharged from newborn unit postpartum 3rd day in good health. Perinatal morbidity was detected as 13%. There was no perinatal mortality observed.

Discussion

Vaginal birth after cesarean is a practicable process for the available selected cases that the risk evaluation is done. Nevertheless, it is still discusses that which birth type is safe for the newborn and whether the vaginal birth after cesarean (SSVD) is an acceptable risk.

As a result of recently studies, the dramatically increase in the ratio of cesarean sections states that it is not a right strategy to make elective second cesarean for every case. Flamm et al states that the maternal mortality is lower in the cases of vaginal birth after cesarean.[15] In addition, maternal complications resulting from surgery such as infection, hemorrhage, injury to internal organs, transfusion needs will be less frequently met and the period of hospital stay will shorten.[4]

It is noted that in the first cesarean induction; when SSVD is tried in the cases having cephalo-pelvic disproportion and/or abnormal labor progress in the event of induction apply, the chance of success decreases.[7] On the other hand, Zelop et al state that the chance of success for vaginal birth after cesarean increases if the estimated fetal weight is below 4000 g.[8]

The most important catastrophic consequence of the SSVD is uterine rupture and the perinatal and maternal mortality and mortality resulting from that. The ratio of perinatal morality is declared as 3.5% and the ratio of perinatal morbidity is declared as 12% in the literature.[9] In our study, perinatal mobility is not seen, and perinatal morbidity is 13% compatible with the literature.

In some studies of the literature, rupture ratios are stated between 0.8% and 1.5%.[10,11] In our serial, rupture ratio is 2.4% being higher than the literature ratio.[4,7] There are many studies evaluating the factors increasing the rupture risk in the literature, Bujold et al stated that the rupture risks is 2-3 times more for the cases whose interval between the two pregnancies is shorter than 24 months.[12] In this study, both two cases developing ruptures had intervals between two pregnancies less than 20 months. To summarize, risk factors for uterine ruptures are; cesareans practiced by cephalo-pelvic disproportion inductions, lower vertical cesarean scar, macrocosmic fetus, advanced maternal age and probably the most important one the short interval between two pregnancies.[7] Correlation between the increase in the birth weight and rupture frequency is parallel to the literature. In our study complete rupture was in a case practicing 3820 g SSVD. It is stated that mother's age being over 30 is concerned with the increase of uterus rupture risk by 2.7 times.[16] Ages of the patients in our working group were between 21 and 40. But we did not detect this kind of complications for the cases over 30 years old. This consequence is similar to the studies of Çalışkan et al.[17]

Developments in trial of labor should be closely followed and evaluated besides estimated fetal weight by ultrasonography in our birth medicine practice. In addition, uterine scar ultrasonography is a helpful method in order to determine the uterine rupture before the birth. Rozenberg et al stated that the risk of uterine rupture and scar partition is low if the bottom segments are thick. Negative predictive value of the uterine bottom segment thickness determined less than 3.5 mm by ultrasonographically detection is denoted as 99.3%.[13]

If deletion or divergence stops during the dissertation following for 2 hours or more, with the cesarean sections of these cases, cesarean ratios increase by 7.9%, and the development of uterine rupture frequency decreases by 42.1%.[14]

There are two applicable examination tools to estimate the success probability of the vaginal birth after cesarean. There are; the scoring system developed by Flamm et al including the parameters of age, previous vaginal birth history, first cesarean induction, cervical partiality and deletion rates and

scoring system developed by Troyer including similar parameters.[8,15]

As a consequence of this study, starting from the reality that primary cesarean ratios can be decreased by using real inductions, vaginal birth after cesarean is an applicable and acceptable method for carefully selected cases in tertiary reference clinics having adequate supplies and care conditions for the mother and newborn by taking the acceptance of the family.

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