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Fetal and Maternal Complications in Vaginal Birth after C-Section: A Cross-Sectional Study

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Abstract

Aim: To assess the outcome of vaginal birth after cesarean section (VBAC) in cases where there had been prior cesarean surgery to decrease the need for a subsequent cesarean procedure and associated complications**.**

Study design: A cross-sectional study

Place and Duration: This study was conducted at Armed Forces Hospital Alhada Taif Saudi Arabia from January 2020 to December 2020.

Methodology: Following a consecutive and purposive sampling method, the study comprised 50 pregnant women between 37 and 42 weeks of gestational age who had previously undergone one cesarean section. A woman's vital signs, such as temperature, pulse, respiration, and blood pressure, were recorded hourly during spontaneous or induced labor, along with continuous electronic fetal monitoring via cardiotocography, petrography, and uterine monitoring contractions to identify scar dehiscence sooner by identifying maternal tachycardia in the absence of fever, vaginal bleeding, scar tenderness, and changes in the fetal heart rate

Results: Out of the 50 pregnant women 16 had vaginal deliveries (32%), and 34 had emergency cesarean sections (68 percent). Both vaginal and cesarean sections were most common in the 20-

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30 year age range. In terms of prenatal care, 13 instances (81.25%) of vaginal deliveries were regular. Fetal survival rates were 14 (87.5 percent) and 33 (97.05 percent) in vaginal & cesarean births, respectively. When comparing the number of maternal problems, the vaginal delivery group had no complications.

Conclusion: In this study, it was observed that effective prenatal care is crucial and that it is linked to a higher rate of vaginal birth in pregnancies with a previous cesarean section. Postpartum bleeding was more common in the vaginal birth group, whereas wound infection was more common in the cesarean delivery group. In previous cesarean deliveries, the trial of labor results is acceptable, effective, and safe for both mother and fetus. Advanced surgical techniques, safe anesthetic, blood transfusion facilities, and modern electronic devices for monitoring the fetus throughout the intrapartum period made this possible.

Keywords: vaginal delivery, C-section, complications, maternal, fetal

Introduction:

One strategy tried to limit the rising frequency of cesarean sections is vaginal delivery following cesarean section. (1)Caesarean section has been an aspect of human society since ancient times, and both Western and Eastern civilizations have a history of this procedure. The ancient Hindus, Egyptians, Greecians, Romans, and various European legends all mention cesarean sections. (2) In pregnancy following a previous lower segment transverse cut CS, women without any other reason for CS may choose to deliver vaginally. (3, 4) "Once a cesarean, always a cesarean," as Craigin put it, is no longer true today. (5) In Kahura, Uganda, traditional healers performed a successful cesarean section. However, the use of uterine sutures quickly prevented his disfiguring amplification at the cesarean section. J. Marion Sims, America's greatest nineteenth-century gynecologist had devised the silver wire stitches. Sims developed sutures to mend vaginal tears (fistulas) caused by traumatic delivery. Because of this modification, the risk of infection &subsequent uterine rupture was reduced. Women could give birth and undergo obstetrical procedures in a huge number of new hospitals that were built. By 1938, about half of all births in the United States were taking place in hospitals. (6) The cesarean section rate was at 5% in 1970, but by 1988, it had risen to 24.7 percent. It had declined somewhat to 23.5 percent in 1990, owing to more women trying vaginal births following cesarean procedures. In the United States, about a quarter of all newborns are currently delivered via cesarean section, compared to around 982,000 in 1990. One of the most crucial aspects is the shift in public perception towards the phrase "once a cesarean, always a cesarean." This term encapsulated the idea that after a cesarean, a woman would need surgery for all subsequent births. In 1982, in response to internal and external requests,a trial of labor was recommended by the American College of Obstetricians and Gynecologists for women who have previously had a cesarean section. The rules were updated in 1988 to accommodate more women who had previously caesarean deliveries.Since the late 1980s, vaginal births have steadily increased after cesarean section. In 1990, approximately 90,000 women gave birth vaginally after a cesarean section.

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(7)No sutures were applied to the uterus during early cesarean sections. As a result, the death was caused by bleeding and infection. During the 1980s and 1990s, several healthcare communities and managed care organizations embraced the policy of attempting trial labor in women who had previously had a caesarean section, despite the danger to the mother and fetus. This practice is recognized as Vaginal Birth after Caesarean Section as a result of their endeavors. Most patients who had their first cesarean operation because of non-recurring causes such as fetal distress, cephalopelvic disproportion (CPD), and non-progressive labor prefer to attempt a vaginal delivery. (8)

In research conducted in the United Kingdom, 7065 of the women who had VBAC had previously delivered their babies vaginally.86.6% of these women had successfully delivered a baby via vaginal birth, compared to only 60.9% of those who had never previously given birth during vaginal delivery. (9)Attempting a vaginal birth after a cesarean reduces the chances of surgical delivery. When VBAC efforts fail, both the mother and the baby are at a higher risk of infection. (10) Intrapartum uterine rupture was seen in women having a lower uterine segment thickness of less than 2mm. (11) In VBAC, there is a distinct risk of uterine rupture, which can often result in tragedies that can be prevented with quick diagnosis and care.For more than ten years, there has been evidence proving the safety of VBAC when done correctly. (12) However, there are still significant differences in VBAC rates between hospitals and doctors.The purpose of this research was to re-establish these facts in the hopes of persuading more women to choose vaginal delivery versus an unnecessary repeat cesarean.VBAC has lots of benefits to a repeat cesarean section, including the elimination of operational morbidity and mortality, a much shorter hospital stay, and lower costs. (13)(14) The rate of the cesarean section should be lowered, which may be done in part by avoiding initial caesarean operations performed without specific indications and, more critically, by attempting a Vaginal birth following a previous caesarean section, which is safe for the fetus.(15, 16) The goal of this study was to assess the effectiveness of VBAC. As a result, effective VBAC decreased the risk of postpartum morbidity, infection, blood transfusion, and hospitalization.

Methodology

This study was conducted at Armed Forces Hospital Alhada Taif Saudi Arabia from January 2020 to December 2020.Permission was taken from the ethical review committee of the institute. A total of 380 individuals were hospitalized with a history of one caesarean section as term pregnancies. Out of 380 hospitalized pregnant women, a sample group of 50 women was chosen at random from those who met the exclusion & inclusion criteria.

From the time of admission, a protocol was created that included a detailed history of the patients.A woman's vital signs, such as temperature, pulse, respiration, and blood pressure, were recorded hourly during spontaneous or induced labor, along with continuous electronic fetal monitoring via cardiotocography, petrography, and uterine monitoring contractions to identify scar dehiscence sooner by identifying maternal tachycardia in the absence of fever, vaginal

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bleeding, scar tenderness, and changes in the fetal heart rate. The second stage was shortened using vacuum extraction. Repeat CS rates, maternal variables (race, gravidity, etc.), frequency, CS indications, and feto-maternal outcome were all provided as percentages. SPSS version 20.0 was used for the statistical analysis.

Results

A total of 50 females met the study's requirements. Vaginal birth was performed on 16 pregnant females while caesarean section was performed on 34 pregnant women.

Table 1 shows that the age group 20- 30 years was the most common in vaginal & caesarean section patients. In terms of parity, 1 was the most common (50%) for vaginal deliveries, whereas 1& 2 were the most common (15%) for caesarean deliveries. The second issue in gravida was more in vaginal delivery instances, and the third concern was in caesarean section cases.

Table 2 shows that a live fetal outcome was much greater (97.05%) in C/section than vaginal delivery cases (87.5%) in terms of fetal outcome. In the event of neonatal death, one infant died during vaginal birth, while none died during caesarean section. Table 4 shows that maternal complications of vaginal birth PPH (post-partum hemorrhage) were high at 18.75 percent, and wound infection was high at 11.76 percent in cesarean section.

Table 1: Demographic characteristics of the study participants

Parameters	**Vaginal delivery n= 16**	**C-section N= 34**	**P-values**
Age in years			0.730
20-30	8	17	
31-40	6	14	
>40	2	3	
Parity			
1	8	15	0.01
2	6	15	
3	2	4	
Gravida			
2^{nd}	8	14	0.05
3^{rd}	5	18	
4^{th}	3	2	

Table 2: Fetal outcomes

Parameters	**Vaginal delivery n= 16**	**C-section N= 34**	**P=values**

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Still birth	1	1	0.05
Neonatal death	1	0	0.05
Resuscitation required	5	5	0.35
Alive Neonate	14	33	0.83

Table 3: Neonatal Apgar score and weight

Parameters	**Vaginal delivery n= 16**	**C-section N= 34**	**P=values**
APGAR score- 1 min	5.5	5.1	0.052
APGAR score- 5 min	7.4	6.98	0.065
Neonatal weight (gm)	2850	2840	0.90

Table 4: Maternal complications associated the mode of delivery

Parameters	**Vaginal delivery n= 16**	**C-section N= 34**	**P=values**
Rupture uterus	1	1	0.18
Perineal tear	1	0	
PPH	3	4	
Hysterectomy	1	1	
Wound infection	0	5	
Wound dehiscence	0	2	
Spinal headache	0	2	

Discussion

The Caesarean section has become the most common major obstetric procedure. Early diagnosis of fetal and maternal complications has resulted in an increase in primary caesarean section rates. One of the key significant causes for increased rate VBAC is repeat caesarean section. One-third of all caesarean births are performed this way. During recent decades, there has been a lot of concern regarding the increased significant morbidity with labor induction following a previous cesarean, especially the risk of rupture of the uterus. (17) Despite recognized factors that influence VBAC ratios, like the time interval between the prior cesarean and the current pregnancy, indication of previous surgery, past successful vaginal births, postoperative wound infections, and so on, VBAC rates continue to rise. As a result, decreasing the rate of repeated cesarean sections reduces the rate of cesarean sections. As a result, the significance of enabling more patients to try vaginal birth after cesarean section. (18)

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Patients who had a previous cesarean birth require extra attention both throughout pregnancy and during labor and delivery. We know that most females can give a vaginal birth following a cesarean delivery safely and effectively. According to current medical research, 60-80% of women who had a previous lower uterine region caesarean birth can deliver vaginally. (19) The risk of scar dehiscence and uterine rupture is the most critical concern that keeps obstetricians from permitting women to have a vaginal birth after a caesarean surgery. There were 15 women of vaginal delivery (93.75%) and 30 women of caesarean section (88.24%) who had intact uterine scars. After vaginal birth, 6.25 percent of women had a rupture, whereas 2.94 percent had a caesarean section. However, the test did not show a statistically significant difference between the two delivery methods. The risk of rupture was there in every attempt at VBAC, regardless of the eventual delivery method. It revealed the state of the uterine scar when attempting a VBAC. The majority of the women in this study had an intact uterine scar n=45, followed by scar rupture n=1 and imminent rupture n=3. In terms of maternal and fetal outcomes, all 16 (100%) women who had a successful vaginal birth survived, with no maternal mortality. Chowdhury's research revealed similar results.(6) . According to the study, alive fetuses accounted for 14 of the 16 cases, neonatal mortality was just one, and stillbirth was one (6.25 percent).

Caesarean section (failed VBAC), on the other hand, resulted in 33 out of 34 alive neonates, one stillbirth (6.25%), and no newborn mortality. In successful VBAC attempts, about an equal percentage of infants survived. The result was significant. In terms of maternal complications, hysterectomy was required in 2 (4.5%) of the 50 patients, compared to Sultana's study (10%). Perinatal loss was reported in three cases (6%), which is similar to the Roosmalen study (7%). When looking at total maternal difficulties, those who were successful in attempting VBAC (14.5 percent) had far less than those who needed CS (85.4 percent). Wound infection (14.21%) and wound dehiscence (5.78%) were both strongly linked to those who failed in their attempt at VBAC. Perinatal tear 1 (6.25%) was, on the other hand, fully linked to vaginal birth, particularly aided vaginal delivery. In this study, the risks of developing postpartum hemorrhage after an attempted VBAC were essentially same in vaginal delivery 3 (18.75 percent) vs CS 4 (11.76 percent). The exception was uterine rupture, which occurred 2.5 times more frequently in unsuccessful attempted VBAC or repeat CS (34) than in successful VBAC (16). Research found that prenatal care, gravidity (3.031.31 years), parity (1.751.6) and the inter-delivery interval (4.111.92) had a significant impact on VBAC. Successful vaginal birth after caesarean (VBAC) resulted with a substantially shorter hospital stay, with a mean of (2.282.26 days).

Conclusion

Vaginal birth is now accepted for pregnant women who had one prior caesarean section for nonrecurring reasons. In previous caesarean deliveries, trail of labor results are acceptable, effective, and safe for both mother and fetus. Advanced surgical techniques, safe anesthetic, blood transfusion facilities, and modern electronic devices for monitoring the fetus throughout the intrapartum period made this possible. Appropriate counselling for trial labor and examination of instances of women who have had a previous caesarean section has been

identified as a crucial technique of lowering the cesarean section rate. It is preferable to do a trial of labor in individuals who do not have total contraindications to a vaginal birth in poor countries. For individuals who had a prior cesarean section, there are no set protocols for attempting VBAC. There is inadequate data to support this technique of delivery in pregnancies that have already had a cesarean section, and the topic is still up for dispute.

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Conflict of interest

None

Permission

Permission was taken from the ethical review committee of the institute

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