Original Article

Frequency of Vaginal Delivery in Current Pregnancy after Caesarean Section due to Breech Presentation in Antecedent Pregnancy

Madiha Shahid[1], Sobia Nawaz[2],Sadia Khan[3], Tallat Farkhanda[4], Ruqyyah Salim[5], Kanwal Firdos[6], Shahla Manzoor[7], Amina Iftikhar[8]

[1,5-7]Senior Registrar, [2]Assistant Professor, [3,4]Associate Professor, [8]MBBS student

Dept of Obs & Gynae, DHQ Hospital, Rawalpindi, Rawalpindi Medical University

Correspondence: Dr Madiha Shahid
Senior Registrar
Dept of Obs & Gynae, DHQ Hospital, Rawalpindi

Abstract

Objective: To determine the frequency of vaginal delivery in the current pregnancy after caesarean section due to breech presentation in antecedent pregnancy.

Methodology: This Cross-sectional study was conducted at Department of Obstetrics and Gynecology, District Headquarters Hospital, Rawalpindi from 1st February 2020 to 31st July 2020. Informed written consent was obtained from patients who were delivered in the department of Obs/Gynae by vaginal or abdominal route fulfilling specified inclusion criteria of my study. The history of current pregnancy and previous pregnancy, thorough examination, and relevant investigations were reviewed in detail. The frequency of modes of delivery (vaginal or caesarean section) was calculated. The collected data was entered and analyzed using the statistical package of social sciences (version 20). Quantitative data like age, gestational age, BMI, and duration since last delivery was presented as mean and standard deviation. A post-stratification chi-square test was applied. $P < 0.05$ was significant.

Results A total of 125 patients were included according to the inclusion criteria of the study. The mean age (years) in the study was 28.78+4.57 whereas the mean duration of last delivery (years) in the study was 2.41+1.03. There were 75 (60.0) female patients vaginally delivered in current pregnancy after caesarean section due to breech presentation in antecedent pregnancy.

Conclusion: The study concludes that the frequency of vaginal delivery in current pregnancy after caesarean section due to breech presentation in antecedent pregnancy is high which is similar to previous published literature.

Keywords: Breech presentation, Cesarean delivery, Vaginal Birth after Cesarean (VBAC), Trial of Labor After Cesarean (TOLAC)

Cite this article as: Shahid M, Nawaz S, Khan S, Farkhanda T, Salim R, Firdos K, Manzoor S, Iftikhar A. Frequency of Vaginal Delivery in Current Pregnancy after Caesarean Section due to Breech Presentation in Antecedent Pregnancy. J Soc Obstet Gynaecol Pak. 2022; 12(3):220-224.

Introduction

Breech presentation is the term used for any foetus in a longitudinal lie with the buttocks or feet in the lower uterine segment. About 3-4% of all pregnancies have breech presentation at term. The best mode of delivery for breech presentation is a controversial subject. The term "breech trial" refers to a very large study conducted to compare vaginal delivery versus caesarean section (CS) in breech presentation.[1] According to the findings of this study, elective caesarean section is still the best method of delivery for a breech foetus.[1] In 1970, about 14% of breech fetuses were delivered by cesarean delivery. The rate of caesarean section for breech presentation was as high up to 87.2% in 2003.[2] The risks of a caesarean section on subsequent pregnancies should be taken into consideration, such as uterine rupture, placenta previa, abruption, accreta as well as the maternal and perinatal sequelae from these complications. Following studies, vaginal delivery for breech foetus was considered a safe mode of delivery without compromising maternal and neonatal outcomes if strict patient selection criteria were met before and during labor.[2]

In a meta-analysis by Guise et al, the vaginal delivery after caesarian section (VBAC) rates differed according to indication for prior caesarean sections and differed in different clinical settings.[3] The VBAC rates were 54% if

Authorship Contribution: [1,2,5]Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, [3]Final approval of the version to be published, [4,5]Drafting the work or revising it critically for important intellectual content, participated in the acquisition and data analysis, [6-8]Active participation in active methodology

Funding Source: none
Conflict of Interest: none

Received: Jan 07, 2022
Accepted: July 17, 2022

the indication for previous caesarian section was fetal distress; however, for breech presentation it was as high as 75%.

"Once a cesarean, always a cesarean." These words were spoken to the New York Association of Obstetricians & Gynecologists, in 1916, which reflected the management of breech by US obstetricians for all patients with prior caesarean delivery. Guidelines for vaginal delivery after a caesarean birth were released by ACOG in 1988, and they indicated that VBAC was significantly more likely to result in perinatal morbidity than elective CS. The Royal College of Obstetricians and Gynecologists (RCOG) subsequently produced updated guidelines for VBAC, first in 2007 and later in 2015, suggesting that VBAC is a clinically safe option for the majority of women having a single prior caesarean delivery. There are certain factors that can predict the success of vaginal birth.[4]

Although trial of labor after a caesarean birth (TOLAC) has been into practice, the rate of successful vaginal birth after caesarean delivery (VBAC), as well as the rate of attempted VBACs, has reduced during the past few years. In the U.S., 80% of deliveries to low-risk women with a prior caesarean occur via an elective repeat caesarean delivery (ERCD). Low VBAC rates are due to a lack of VBAC attempts rather than a lack of VBAC attempts.[5]

Nevertheless, despite the known risks (0.5-1% rate of uterine rupture), TOLAC remains an acceptable option for many patients with a successful outcome in large number of cases. In comparison, elective repeat caesarean delivery is not without complications. TOLAC should be offered to all pregnant women who fulfil the specific selection criteria in order to cut down on the increase in the caesarean section rate and prevent complications associated with repeat cesarean. [6]

The purpose of this study is to determine the effect of previous elective caesarean for breech presentation on the subsequent mode of delivery. As there is variability in literature, we want to measure its frequency locally so that management can be modified accordingly.

Methodology

This Cross-sectional study was conducted at Department of Obstetrics and Gynecology, District Headquarters Hospital, Rawalpindi from 1st February 2020 to 31st July 2020. Consecutive non-probability sampling was used. The study was initiated after taking approval from Ethical Review Committee of DHQ. Informed written consent was obtained from patients who were delivered in the department of Obs/Gynae by vaginal or abdominal route fulfilling specified inclusion criteria of my study. The sample size was calculated by the WHO sample size calculator bas ed on a 95% confidence level, and the anticipated population proportion was 75%[6] and with an 10% absolute precision level. A total of 125 patients were included in this study.

Women aged between 18 to 35 years with a singleton pregnancy for their second child, women with a previous history of elective caesarean section for breech presentation in first pregnancy, and Gestational age 37 to 41 weeks were included in the study. Women with more than one cesarean, Malpresentation in current pregnancy, Medical disorders in current pregnancy, cephalopelvic disproportion, Cephalopelvic disproportion and Placenta previa were excluded from study.

The study included all patients who had a previous caesarean section due to breech presentation between 37-41 weeks in their current pregnancy. Their demographic details as well as mode of delivery were noted. History of current pregnancy and previous pregnancy, thorough examination, and necessary investigation was reviewed in detail. The frequency of modes of delivery (vaginal or cesarean section) was calculated.

All the collected data was entered and analyzed through statistical package of social sciences (version 20). Quantitative data like age, gestational age, BMI, duration since last delivery was presented as mean and standard deviation. Qualitative data like mode of delivery for current pregnancy was presented as frequency and percentages. Effect modifiers like age, gestational age, duration since last delivery, BMI was measured as stratification. Post stratification chi-square test was applied. P 0.05 was considered significant.

Results

Data was entered and analyzed in SPSS version 20.0. Total 125 patients were included according to the inclusion criteria of the study.

Descriptive statistics of age (years) of patient was also calculated in terms of mean and standard deviation. Mean age (years) in the study was 28.78$\pm$4.57 with ranges from 18 to 35 years.

Descriptive statistics of duration of last delivery (years) of patient was also calculated in terms of mean and standard deviation. Mean duration of last delivery (years) in the study was 2.41±1.03.

Similarly, descriptive statistics of body mass index (BMI) was also calculated in terms of mean and standard deviation. Mean body mass index in the study was 30.39±2.65.

There were 75 (60.0%) female patients vaginally delivered in current pregnancy after caesarean section due to breech presentation in antecedent pregnancy. Effect modifier like age stratification was compared with frequency of vaginal delivery. As shown in Table No I, the chi-square test was used to evaluate age stratification with mode of delivery that was statistically significant (p-value 0.000).

Effect modifier like gestational age stratification was compared with frequency of vaginal delivery. Chi-square test was used to compare gestational age stratification with mode of delivery which was statistically significant (p-value 0.000), as shown in Table No II.

Table I: Effect modifier like Age stratification with Frequency of Vaginal Delivery.

		Mode of Delivery		p-value
		Vaginal	caesarean	
Age groups	18 - 25 years	16	0	0.000
		21.3%	0.0%	
	26 - 35 years	59	50	
		78.7%	100.0%	
Total		75	50	
		100.0%	100.0%	

Table II: Effect modifier like Gestational Age stratification with Frequency of Vaginal Delivery.

		Mode of Delivery		p-value
		Vaginal	Caesarean	
Gestational Age groups	37 - 38 weeks	33	50	0.000
		44.0%	100.0%	
	39 - 40 weeks	42	0	
		56.0%	0.0%	
Total		75	50	
		100.0%	100.0%	

Table III: Effect modifier like duration from last cesarean stratification with Frequency of Vaginal Delivery.

		Mode of Delivery		p-value
		Vaginal	Caesarean	
Duration of last cesarean groups	01-02 years	41	50	0.207
		54.7%	100.0%	
	3-5 years	34	0	
		45.3%	0.0%	
Total		75	50	
		100.0%	100.0%	

Effect modifier like stratification of duration of last caesarean section was compared with frequency of vaginal delivery. Chi- square test was used to compare stratification of duration of last caesarean section with mode of delivery which was statistically not significant (p-value 0.207). (Table III)

Discussion

It has always been a subject of discussion about the mode of breech delivery among obstetricians worldwide. Modern obstetric practice doesn't object to the rising trend of elective caesarean section rate for breech presentation. Standard recommendation for vaginal breech delivery is proper selection criteria like type of breech presentation, fetal growth, estimated fetal weight and attitude of the after-coming head of fetus.[2] Breech delivery conducted by a healthcare provider possessing the requisite skills and experience is identified as a favorable factor for successful vaginal birth. Careful selection of patients for breech presentation claims safe delivery by the vaginal route without any major complications to the mother and newborn.[7] Many obstetricians changed their strategies after the term breech trial in 2000 so there was rise in elective caesarean section rate (39%) and decrease (8%) in emergency caesarean section rate for term breech deliveries. The current concept of safe delivery is by caesarean section, so there is an increased rate of elective caesarean section especially in primigravida women with breech presentation. Though the elective caesarean sections rate is increasing worldwide, short and long-term complications like hemorrhage, uterine rupture, and abnormal placentation should also be kept in consideration. Therefore, elective caesarean sections without proper evaluation and reasonable indications need to be checked.[7] According to WHO ideal caesarean section rate should be between 10-15% and many countries in northern Europe have maintained their cesarean section rated below 20%.[8]

The recurrence risk of breech presentation in subsequent pregnancies is higher in cases of congenital malformation of the uterus[9], the probability of breech presentation with medical entities is same as with cephalic presentation. Literature search shows that women who have elective caesarean section for breech presentation are more likely to deliver vaginally subsequently than women who have a caesarean section for other indication.[3]

According to the American College of Obstetricians Committee opinion on the mode of term singleton breech

delivery 2006 and Royal College of Obstetricians and Gynecology green top guidelines, careful case selection and labor management with breech presentation in a modern obstetric setting may achieve a similar level of safety for vaginal breech delivery as elective caesarean section; same was reported by Fiona Bragg et al.[10] According to one study, primipara women undergoing a cesarean breech delivery at term are at increased risk for maternal and neonatal morbidity in the subsequent delivery.[11]

Women who have undergone caesarean delivery for breech presentation can be delivered vaginally in next pregnancy after fulfilling the selection criteria and looking for certain predictors. Such predictors include evaluation, assurance, and counselling by a senior obstetrician, proper antenatal care, gestational age, BMI of the mother, spontaneous onset of labor, and engagement of the fetal head, estimated fetal weight.[12,13] Vaginal birth after cesarean (VBAC) is a global solution to reduce the number and complications of repeat cesarean section (C-section) with appropriate strategies.[14,15]

A study conducted in 2012 by Bragg F et al.[10] found that the mean age in years was 24.4 ± 5.1. Similarly, in our study mean age (years) in the study was 28.78+4.57. In our study, the mean body mass index in the study was 30.39+2.65. Whereas, in a study conducted by Nkwabong et al[16], mean body mass index in the study was 32.16+1.44. In a study conducted at Quetta, 60% of patients with previous one cesarean was delivered vaginally which is similar to our results.[17] Other studies showed that similar rates of VBAC can be achieved even in low resource setting.[18,19] Encouraging the patients for appropriate contraception is also required because a short interpregnancy interval is a risk factor for scar rupture in TOLAC.[19]

There were 60% of female patients vaginally delivered in current pregnancy after caesarean section due to breech presentation in antecedent pregnancy. In a study conducted by Guise et al[3], there were 75% of female patients who were delivered vaginally.

Conclusion

The study concludes that frequency of vaginal delivery in current pregnancy after caesarean section due to breech presentation in antecedent pregnancy is high which is similar to previous published literature.

References

1. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR, Collaborative TB. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicenter trial. The Lancet. 2000;356(9239):1375-83.
2. Habib S, Riaz S, Abbasi N, Ayaz A, Bibi A, Parveen Z. Vaginal Breech Delivery: Still A Safe Option. J Ayub Med Coll Abbottabad. 2013; 25(3-4):38-40.
3. Guise JM, Eden K, Emeis C, Denman MA, Marshall N, Fu RR, et al. Vaginal birth after cesarean: new insights. Evid Rep Technol Assess. 2010 ;191:1-397.
4. Trojano G, Damiani GR, Olivieri C, Villa M, Malvasi A, Alfonso R, Loverro M, et al. VBAC: antenatal predictors of success. Acta Bio Medica: Atenei Parmensis. 2019;90(3):300.
5. Burke RC. An exploration of the mode of birth decision for pregnant women with a previous cesarean delivery (Doctoral dissertation, Kent State University).
6. Takmaz T, Dural HR, Gorchıyeva I, Kılıç G, Çalı Öztürk H, Bakar RZ, MS. The Obstetrics Outcomes of Vaginal Birth after Cesarean Section in a Cohort with High Induction of Labor Rate. J Clin Obstet Gynecol. 2020;30(4):146-152.
7. Jennewein L, Kielland-Kaisen U, Paul B, Möllmann CJ, Klemt AS, Schulze S, Bock N, Schaarschmidt W, Brüggmann D, Louwen F. Maternal and neonatal outcome after vaginal breech delivery at term of children weighing more or less than 3.8 kg: A FRABAT prospective cohort study. PloS one. 2018;13(8):e0202760.
8. Antoniou E, Orovou E, Iliadou M, Sarella A, Palaska E, Sarantaki A, Iatrakis G, Dagla M. Factors Associated with the Type of Cesarean Section in Greece and Their Correlation with International Guidelines. Acta Informatica Medica. 2021 ;29(1):38.
9. Mansani FE.Taglio . Cesarean section and breech presentation. Ateneo parmense Biomed. 1975 ;46(6):535-43.
10. Bragg F, Cromwell DA, Edozien LC, Gurol-Urganci I, Mahmood TA, Templeton A, et al. Variation in rates of caesarean section among English NHS trust after accounting for maternal and clinical risk: cross sectional study. BMJ. 2012; 341:5065
11. Macharey G, Toijonen A, Hinnenberg P, Gissler M, Heinonen S, Ziller V. Term cesarean breech delivery in the first pregnancy is associated with an increased risk for maternal and neonatal morbidity in the subsequent delivery: a national cohort study. Archives of gynecology and obstetrics. 2020;302(1):85.
12. Anwar S, Ahmad S, Abbasi N, Anwar MW. Effect of birth weight on success of vaginal birth after caesarean delivery. Gomal Journal of Medical Sciences. 2015;13(1): 46-8.
13. Masoom K, Asif R, Aara Y, Javaid N, Luqman S, Naeem S,. Vaginal Birth after Caesarean Section (VBAC) Success Rate and Predictors of Success in a Tertiary Care Hospital. J Soc Obstet Gynaecol Pak. 2021; 11(2):75-81
14. Pakdaman R, Firoozi M. Vaginal Birth after Cesarean Section in Iran: A Narrative Review. Journal of Midwifery and Reproductive Health. 2021 ;9(2): 75-81
15. V B Bangal, P A Giri, K K Shinde, and S P Gavhane. Vaginal Birth after Caesarean Section. N Am J Med Sci. Feb 2013; 5(2): 140–144.

16. Nkwabong E, Fomulu J, Kouam L, Ngassa P. Outcome of Breech Deliveries in Cameroonian Nulliparous Women. J ObstetGynaecol India. 2012; 62(5):531-535.
17. Gul K, Bibi S, Bakhsh FM, Gul P. Trial of Labour after one Caesarean Section-Five year Experience in a Tertiary Care Hospital, Quetta. J Soc Obstet Gynaecol Pak. 2019;9(4):209-12.
18. Seffah JD, Adu-Bonsaffoh K. Current trend in vaginal birth after Caesarean section (VBAC) in Accra. Journal of the West African College of Surgeons. 2014 Apr;4(2):x.
19. Rahman R, Khanam NN, Islam N, Begum KF, Pervin HH, Arifuzzaman M. The outcome of vaginal birth after caesarean section (VBAC): a descriptive study. Medicine Today. 2013;25(1):14-7.