

## Breech Presentation: Prevalence, Outcome and Review of 512 Cases of Breech

<sup>1\*</sup>Hassan S.O. Abduljabbar, <sup>2</sup>Dina M. Fetyani, <sup>3</sup>Hesham K. Sait, <sup>4</sup>Fai J. Almagrabi, <sup>5</sup>Abdulrahman E. Alsaggaf

<sup>1\*</sup>Professor and Consultant, Department of Obstetrics & Gynecology, Medical College, King Abdulaziz University, Jeddah 21452, Kingdom of Saudi Arabia.

<sup>2</sup>Obstetrics and Gynecology Resident, King Abdulaziz University Hospital, Jeddah 21412, Saudi Arabia

<sup>3,4,5</sup>Sixth Year Medical Student, King Abdulaziz University, Jeddah 81259, Saudi Arabia.

<sup>1\*</sup>[profaj17@yahoo.com](mailto:profaj17@yahoo.com), <sup>2</sup>[dinafetyani@hotmail.com](mailto:dinafetyani@hotmail.com), <sup>3</sup>[heshamsait@yahoo.com](mailto:heshamsait@yahoo.com),  
<sup>4</sup>[fai.almagrabi@gmail.com](mailto:fai.almagrabi@gmail.com), <sup>5</sup>[abdulrahman.saggaf@gmail.com](mailto:abdulrahman.saggaf@gmail.com)

---

### Abstract:

**Objective:** *The aim of the study is to determine the prevalence and the mode of delivery of breech presentation and outcome in each method.*

**Methods and Material:** *A retrospective study performed at King Abdulaziz University Hospital from January 2002 to August 2014, for all cases of breech. Data collated from the chart Age, gravidity, gestational age, and method of delivery, vaginal versus cesarean section. Duration of labor, baby weight, gender, Apgar score, and admission to NICU, fetal and maternal complication recorded.*

**Results:** *A total number of delivery (55853) in 13 years, admitted to the obstetrical service at KAUH from January 2002 to August 2014, 604 patients diagnosed as breech give a rate of 1.108%. Age of patients ranges from 17 to 42 years The gravidity range from 1 to 15). Gestational age in weeks ranges from 28 to 42.*

*132 patients were primigravida, and 380 were multigravida ( 25.9%). 124 delivered vaginally (24.2%). When we compare the mean of maternal age, gravidity and gestational age and fetal weight between the group delivery by C/S and those delivered vaginally gestational age, and fetal weight was statistically significant with p-value < 0.001. When comparing the booking status, the gender, and the neonatal outcome whether the baby stillbirth, admitted to nursery or NUIC, it was found that vaginal delivery with poor outcome( SB and admission to NICU ) statically significant with p-value <0.001. The fetal complication contributes to (16.8%). The maternal complication occurred in (14.8%).*

**Conclusion:** *The rate of breech presentation in our institution is lower than what is reported word wide. Not all obstetrician chose cesarean as a mode of delivery and about a quarter of breech presentation delivered vaginally a proper protocol for vaginal delivery should be available in every hospital Limitation this study is a retrospective study and further randomized controlled studies are needed.*

**Keywords:** *Breech presentation. Prevalence, Incidence and Outcome Preterm Delivery.*

---

### 1. INTRODUCTION

The incidence of Breech presentation constitutes 4% of worldwide deliveries. (1) The management of breech, the presentation is controversial. Routine caesarean delivery is commonly used and has led to a lack of experience of vaginal breech delivery and a significant increase in maternal morbidity in future pregnancies. (2)

Vaginal breech deliveries were previously the method of delivery, till Hannah et al. proposed that to reduce perinatal morbidity and mortality, all breech should be delivered abdominally. (3,4)

With careful patient selection, a suitable protocol for management of labor, fetal monitoring, and attendance of an experienced obstetrician and a neonatologist, vaginal breech births can be as safe as cesarean delivery.(5)

In term breech, There is no difference in maternal morbidity or mortality between the two methods of delivery. However, elective caesarean section improves the immediate outcome. (6). Caesarean section has no apparent effect on enhancing the fetomaternal outcome. (7,8,9).

Although the consensus that all breech presentation should be delivered by cesarean section, every institution has a different protocol, for safe breech delivery depending on guideline adopted. In our institution like other, obstetricians choose the mode of delivery based on their experience.

The aim of the study is to determine the prevalence and the mode of delivery of breech presentation and outcome in each method.

## 2. METHODS AND PATIENTS

A retrospective, descriptive study, medical charts review, performed from January 2002 to August 2014. All cases of breech admitted, diagnosed, and managed at King Abdulaziz University Hospital (KAUH), Department of obstetrics and gynecology.

Including in the study 512 out of 604 patients admitted to our hospital with a diagnosis of the breech, 92 excluded due to either transfer to another facility or has an incomplete file (recall bias).

Data collated from the chart Age in years, gravidity, and gestational age in weeks at delivery, and method of delivery, vaginal assisted breech versus cesarean section. Duration of first, second and third stages of labor in min, baby weight in gram, gender, Apgar score at 1 and 5 min, and admission to NICU, fetal complication, and maternal complication recorded, and estimated blood loss at delivery.

Patients consent is not applicable, as this study is retrospective chart review with Ethical approval was obtained from King Abdulaziz University IRB and the methods were carried out in "accordance" with the approved guidelines.

Inclusion criteria: patients admitted with a diagnosis of breech and managed at KAUH. Exclusion criteria cases transferred to another facilities or their chart was incomplete. (recall bias).

## 3. STATISTICAL ANALYSIS

The Statistical Package for the Social Sciences (SPSS version 20) used to analyze data using a t-test for different in means and (chi-square test) for the frequency of occurrence of different variables calculated as odd ratio and 5% Confidence Interval statistically significant when P-Value less than 0.05.

## 4. RESULTS

A total number of delivery was 55853 in 13 years, admitted to the obstetrical service at KAUH from January 2002 to August 2014, 604 patients were diagnosed as breech give a rate of 1.108%. **Table 1**

A total number of cases of breech was 604 cases. 92 was excluded from the analysis due to either transfer to another facility or (recall bias) has an incomplete file. Age of patients ranges from 17 to 42 years with a mean of  $(28.96 \pm 6.491)$ . The gravidity range from 1 to 15 with a mean  $(3.58 \pm 2.771)$ . Gestational age in weeks ranges from 28 to 42 with a mean of  $(37.24 \pm 3.009)$ . Also, show the minimum, maximum and mean with stander deviation of the first, second and third stage of labor in min, Apgar score at 1 and 5 min and fetal weight in gram and estimated blood loss in MLS. **Table 2.**

132 patients were primigravida, and 380 were multigravida (25.9%). In our institution, 512 breech presentation, 124 delivered vaginally (24.2%). **Table 3.** when we compare the mean of maternal age, gravidity and gestational age and fetal weight between the group delivery by C/S and those delivered vaginally gestational age, and fetal weight was statistically significant with p-value  $< 0.001$ .

When comparing the booking status, the gender, and the neonatal outcome whether the baby stillbirth, admitted to nursery or NUIC, it was found that vaginal delivery with poor outcome(SB and /or admission to NICU) statically significant with p-value  $< 0.001$  **Table 4.**

The fetal complication contributes to (16.8%). The comments fetal complication in vaginal breech were prematurity, fetal hypoxia that needed a resuscitation, and finally stillbirth.

The maternal complication contributes to (14.8%). The commonest maternal complication in the vaginal breech was an antepartum hemorrhage. High blood pressure, diabetes, and prematurity and premature rupture of membrane.

## Breech Presentation: Prevalence, Outcome and Review of 512 Cases of Breech

**Table1.** Total number of deliveries and total number of breech Percentage of breech per year from (2002 – 2014)

Year	Number of delivery	Number of breech	Percentage %
2002	4165	48	1.15
2003	4927	55	1.12
2004	4717	55	1.17
2005	3899	34	0.87
2006	3834	37	0.97
2007	3919	43	1.10
2008	4389	46	1.05
2009	4243	52	1.23
2010	4238	45	1.06
2011	4760	44	0.92
2012	4599	35	0.76
2013	4373	51	1.17
2014	3790	59	1.56
Total	55853	604	1.08

**Table2.** Important variables (Minimum, Maximum, and Mean with Stander Deviation)

	Minimum	Maximum	Mean	Std. deviation
Age in years	17	42	28.96	6.491
Gravida	1	15	3.58	2.771
GA in weeks	28	42	37.24	3.009
1 <sup>st</sup> stage min	40	660	308.07	146.5
2 <sup>nd</sup> stage min	1	478	28.1	52.6
3 <sup>rd</sup> stage min	1	46	5.8	4.4
Apgar score 1	0	10	7.0	2.3
Apgar score 5	0	10	8.8	2.1
Fetal weight	0.656	4.710	6.99	0.70
EBL in mls	497	3000	545.5	300.2

Std. = Stander ; GA. = Gestational age ; Apgar score 1 = Apgar score At 1 min ; EBL = estimated blood loss in mls

**Table3.** (Vaginal / cesarean section)

	Vaginal delivery	Cesarean section	
Frequency	124	388	512
Percentage	24.2	75.8	100

**Table4.**

	Age in years	Gravidity	Gestational age	Fetal weight (kg)
c/s				
Max.	42	15	42.0	4.71
Min	17	1	28.0	0.65
Mean	29.15	3.44	37.6	2.92
Std. deviation	6.48	2.63	2.49	0.634
Number	388	388	388	388
Breech vaginal				
Max.	42	15	42.0	4.04
Min	17	1	28.0	.930
Mean	28.38	4.02	36.01	2.50
Std. deviation	6.533	2.926	4.01	124
Number	124	124	124	0.797
Total				
Max.	42	15	42.0	4.71
Min	17	1	28.0	.656
Mean	28.96	3.58	37.25	2.82
Std. deviation	6.491	2.713	4.01	512
Number	512	512	512	0.701
P Value	P = << 0.252	P = < 0.035	P = < 0.001*	P = < 0.001*

\*. Statistically Significant

**Table5.**

	c/s	vaginal	total	95% Confidence Interval OR (Lower Upper)	p
Booked					
Yes	290	82	372	1.516( 0.979-2.346)	0.041
No	98	42	140		
Gender					
Male	189	59	248	1.046 (0.698-1.568)	0.454
Female	199	65	264		
Outcome					
Nursery					< 0.001*
Nicu	348	90	438		
Stillbirth	38	18	56		
	2	16	18		

\*.Statistically Significant

## 5. DISCUSSION

In this retrospective study, the prevalence rate was 1.108%. This rate is similar to some study from the different teaching hospital in Nigeria (1.7%, 1.4%, and 1.9%) all of which lower than previous studies, which ranged from 3-5%. (10).

When comparing the age of our patients, it was between 17 to 42 years, with a mean of  $28.96 \pm 6.491$  with a Cameroonian study the age was between 14 to 37 with a mean of  $24.4 \pm 5.1$  years.(11)

The study showed that primigravida were 25.8 %, and multigravida were 74.2% in other study showed the percentage were 13% and 87% consecutively.(11)

The neonatal mortality and morbidity rates were significantly higher in term, singletons breech presentation, after vaginal delivery or cesarean section in labor compared with cesarean delivery without labor.(12)

In the other hand when vaginal delivery for women at term planned and met the strict criteria before and during labor, remains a safe option for mother and her fetus. The incidence of neonatal morbidity is not increased when compared with the elective caesarean section. (13)

In a multicenter, randomized controlled trial, to determine the optimum mode of delivery for in preterm breech at a gestational age of 26 to 32 weeks. The trial was closed after 17 months because the small number (difficulty in recruiting). (14).

In our study, a premature baby with low gestational age was associated with the poor fetal outcome if delivered vaginally, but there are no enough evidence to show that a planned immediate caesarean birth is safer for the birth of premature babies.

The mode of delivery had a significant effect on the rate of NICU admission. In another study, there was an increased rate of NICU transfers in vaginally delivered term breech infants. (14)

Furthermore, the majority of women who delivered through the cesarean section in this study did not suffer from maternal complications (83.3%). This was also the case in Cameroonian nulliparous women who delivered by cesarean section.(8) A study in Rhode Island states that maternal outcomes for cesarean sections have steadily improved with time. (15)

Finally, it is important to emphasize the importance of preserving the skills of vaginal breech deliveries because there will always be undiagnosed breech cases or deliveries at a stage of labor too advanced for cesarean section. (16) Moreover, although cesarean section may potentially seem a lot safer for breech deliveries many mothers still prefer vaginal deliveries because of the possible negative impact a cesarean section can have. (16)

## 6. CONCLUSION

In conclusion, the rate of breech presentation in our institution is lower than what is reported world wide. Not all obstetrician chose cesarean as a mode of delivery and about quarter of breech presentation delivered vaginally a proper protocol for vaginal delivery should be available in every hospital

### AUTHOR CONTRIBUTION

Data collection and entry: D.F, H.S, F.A, and A.A, Data analysis, and interpretation: AJ D.F.H.S, F.A, and A.A Drafting the article: AJ, D.F, H.S, F.A and A.A, Supervisor and scientific revision of the article: A.J

**Abbreviations:**

D.F. = Dina M. Fetyani.  
H.S.= Hesham K. Sait.  
F.A. = Fai J. Almagrabi.  
A.A.= Abdulrahman E. Alsaggaf.  
A.J. = Hassan S. Abduljabbar  
KAUH = King Abdulaziz University Hospital  
NICU = Neonatal Intensive Care Unit

**REFERENCES**

- [1] Vistad, I. et al., 2013. Vaginal breech delivery: results of a prospective registration study. *BMC Pregnancy Childbirth BMC Pregnancy and Childbirth*, 13(1), 153.
- [2] Cheng, M. & Hannah, M., 1993. Breech delivery at term: A critical review of the literature. *Obstetrics & Gynecology*, 82(4), 605–618.
- [3] Hannah, M.E. et al., 2004. Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial. *American Journal of Obstetrics and Gynecology*, 191(3), 917–927.
- [4] Wang, B.-S. et al., 2010. Effects of caesarean section on maternal health in low-risk nulliparous women: a prospective matched cohort study in Shanghai, China. *BMC Pregnancy Childbirth BMC Pregnancy and Childbirth*, 10(1), 78.
- [5] Singh, A., Mishra, N. & Dewangan, R., 2012. Delivery in Breech Presentation: The Decision Making. *J Obstet Gynecol India The Journal of Obstetrics and Gynecology of India*, 62(4), 401–405.
- [6] Bergenhenegouwen, L. et al., 2014. Vaginal delivery versus caesarean section in preterm breech delivery: a systematic review. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 172, 1–6.
- [7] Cammu, H. et al., 2014. Common determinants of breech presentation at birth in singletons: a population-based study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 177, 106–109.
- [8] Toivonen, E. et al., 2014. Maternal Experiences of Vaginal Breech Delivery. *Birth*, 41(4), 316–322.
- [9] Tunau, K. & Ahmed, Y., 2013. Breech deliveries in Usmanu Danfodiyo University Teaching Hospital Sokoto, Northwestern Nigeria: A 10-year review. *Sahel Med J Sahel Medical Journal*, 16(2), 52.
- [10] Nkwabong, E. et al., 2012. Outcome of Breech Deliveries in Cameroonian Nulliparous Women. *J Obstet Gynecol India The Journal of Obstetrics and Gynecology of India*, 62(5), 531–535.
- [11] Lyons, J. et al., 2015. Delivery of Breech Presentation at Term Gestation in Canada, 2003–2011. *Obstetrics & Gynecology*, 125(5), 1153–1161.
- [12] Hruban L, Janků P, Ventruba P, Oškrdalová L, Skorkovská K, Hodická Z, Tápalová V, Vaginal breech delivery after 36 weeks of pregnancy in a selected group of pregnancy - analysis of perinatal results in years 2008-2011]. *Ceska Gynekol. 2014 Fall;79(5):343-9. Czech.*
- [13] Penn, Z.J., Steer, P.J. & Grant, A., 2014. A multicentre randomized controlled trial comparing elective and selective caesarean section for the delivery of the preterm breech infant. *BJOG: An International Journal of Obstetrics & Gynaecology BJOG: Int J Obstet Gy*, 121, 48–53.
- [14] Cammu, H. et al., 2014. Common determinants of breech presentation at birth in singletons: a population-based study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 177, 106–109..
- [15] Barber, E.L. et al., 2011. Indications Contributing to the Increasing Cesarean Delivery Rate. *Obstetrics & Gynecology*, 118(1), 29–38.
- [16] Vidovics, M. et al., 2014. Comparison of fetal outcome in premature vaginal or cesarean breech delivery at 24–37 gestational weeks. *Arch Gynecol Obstet Archives of Gynecology and Obstetrics*, 290(2), 271–281.