

Localization of placenta implantation in patients with breech presentation

Hala R. Jassim*

Department of Obstetrics and Gynaecology, Faculty of Medicine, Kufa University, Kufa, Iraq

SUMMARY

AUTHORS' CONTRIBUTION: (A) Study Design · (B) Data Collection · (C) Statistical Analysis · (D) Data Interpretation · (E) Manuscript Preparation · (F) Literature Search · (G) No Fund Collection

Breech presentation represents a global burden among pregnant women comprising around 4% of pregnancies. Much debated question is whether the incidence of placenta in the cornual-fundal region or placenta praevia can be a causative factor for developing breech presentation. Hence, the current study aims to investigate the incidence of presence of placenta in cornual-fundal region or placenta praevia in patients with breech presentation. The study enrolled 300 women as follows: 100 women with breech presentation and 200 women with cephalic presentation (control). The relationship between site of placental implantation and breech presentation was examined by ultrasonography and by cesarean at or near term. The results of this study showed that placenta was found in cornual-fundal site in a 70% of breech presentation cases as compared with 10% of cephalic presentation cases (control). The findings of this study suggest that site of placental implantation could have an impact on the presentation of fetus.

Keywords: Breech presentation; Pregnant women; Pregnancies

INTRODUCTION

Breech presentation is defined as an appearance of the fetus in longitudinal position where both buttocks and feet enter the pelvis [1]. It is a common concern leading to an increased risk of morbidity and mortality to mother and fetus. Epidemiologically, breech presentation can be found in a 3% to 4% of the pregnancies representing a meaningful percentage worldwide [2]. There are controversial reports highlighted the location of placenta at cornual-fundal part that could be potential causative factor to develop the breech presentation [3,4]. Hence, this study aims to explore the incidence of cornual-fundal placenta in patients with breech presentation.

PATIENTS' SELECTION AND METHODOLOGY

The present study was conducted according to strict recommendations of guidelines. It was commenced from January to November (2023) and included three different centres for gynecology and obstetrics in Baghdad, Iraq. Patients were collected from labour wards, antenatal clinics and ultrasonographic clinics, and allocated into two groups as follows: group I was 100 patients with breech presentation and group II was control (200 patients). Gestational ages for both groups were between 36 weeks and 40 weeks.

Different parameters were examined in the present study and included the following

- i. Maternity age (18-47 years old).
- ii. Gestational age was examined by menstrual history (244 patients) and sonography (168 patients).
- iii. Fetal presentation was determined by abdominal palpation for fetal presentation and position (88 patients) and ultrasonographic investigation (212) to exclude any fetal abnormalities. Patients with breech presentation were classified into three categories (**Tab. 1.**). The position of breech presentation was classified into eight positions (**Tab. 2.**).
- iv. Placental site was investigated either by ultrasonography or direct vision during cesarean, and divided into five groups as follows:

Address for correspondence:

Hala R. Jassim,
Department of Obstetrics and Gynaecology, Faculty of Medicine,
Kufa University, Kufa, Iraq

Word count: 1372 **Tables:** 08 **Figures:** 00 **References:** 14

Received: 02.09.2024, Manuscript No. gpmp-24-148808; **Editor assigned:** 03.09.2024, PreQC No. P-148808; **Reviewed:** 14.09.2024, QC No. Q-148808; **Revised:** 21.09.2024, Manuscript No. R-148808; **Published:** 30.12.2024

1. Fundal
2. Right and left cornual-fundal
3. Anterior
4. Posterior
5. Placenta praevia which was subdivided into four degrees (Tab. 3.)

Statistical analysis

Data were presented as percentage unless otherwise stated. Chi square test was used to compare between parameters of the study groups. P value of 0.05 was assigned to be statistically significant.

RESULTS

The relationship between the site of placental implantation and fetal presentation

The site of placental implantation was examined by ultrasonography or by direct examination during cesarean section. Results showed that about 70% of patients in group I (breech presentation) were placenta located in cornual-fundal site (Tab. 4.). Furthermore, patients with placenta located in fundal region were 20%, and anterior and posterior locations were represented around 2% and 2% respectively (Tab. 4.). Placenta praevia was found in a 5% of patients with breech presentation (Tab. 4.). In patients with cephalic presentations, the placenta was in

fundal site (60% of patients) (Tab. 4.) while the rest of the patients were allocated in comparable percentages including cornual-fundal, anterior, posterior and placenta praevia (Tab. 4.). There has been a significant difference between breech presentation and cephalic presentation in terms of placenta site where 70% of patients in breech group showed that placenta was in cornual -fundal site as compared to cephalic presentation patients (10%) (Tab. 4.).

The relationship between location of placenta and types of breech presentation

Results revealed that 27.60% of patients presented with frank breech presentation had placenta implanted in cornual-fundal site. Furthermore, 8.40% of patients with full breech presentation had placenta located in cornual-fundal region (Tab. 5.). Rest of patients were allocated as indicated in Tab. 5.

Relationship between the degree of placenta praevia and fetal presentation

There have been no marked differences between breech and cephalic presentations in terms of degree of placenta praevia (Tab. 6.). The percentages of patients were similar or closer among the degree of placenta praevia in breech and cephalic presentations (Tab. 6.).

Tab. 1. Patients with breech presentation were classified into three categories.

Category	Cases
Frank breech	60
Full breech	35
Footling breech	5

Tab. 2. The position of breech presentation was classified into eight positions.

Positions	Cases
Direct sacro anterior	5
Direct sacro posterior	2
Right and left sacro anterior	62
Right and left sacro posterior	26
Right sacro transverse	4
Left sacro transverse	1

Tab. 3. Placenta praevia which was subdivided into four degrees.

Placenta Praevia	Definition
1 st degree	Lower margin of placenta is away from internal os for about 3 to 5 cm
2 nd degree	Low margin of placenta is extended down to lower segment and reached the cervix without covering it
3 rd degree	Lower margin of placenta reaches the internal os or covers the undilated cervix
4 th degree	It is centrally positioned and covers the dilated cervix

Tab. 4. Relationship between site of placental implantation and fetal presentation.

Placental Location	Breech Presentation		Cephalic Presentation	
	No	%	No	%
Fundal	20	20%	120	60%
Cornual-Fundal	70 *	70%*	20	10%
Anterior	3	3%	18	9%
Posterior	2	2%	22	11%
Placenta Praevia	5 *	5% *	20	10%
Total	100	100%	200	100%

$\chi^2 = 114.88$; $df = 4$; $P \leq 0.05$

Tab. 5. The relationship between location of placenta and types of breech presentation.

Placental Location	Full Breech		Frank Breech		Footling Breech	
	No	%	No	%	No	%
Fundal	8	22.80%	9	15%	3	60%
Cornual fundal	24	68.57%	46	76.66%	-	-
Anterior	1	2.85%	2	3.33%	-	-
Posterior	1	2.85%	-	-	1	20%
Placenta praevia	1	2.85%	3	5%	1	20%
Total	35	100%	60	100%	5	100%

Tab. 6. Relationship between the degree of placenta praevia and fetal presentation.

Degree of placenta Praevia	Breech Presentation		Cephalic Presentation	
	No	%	No	%
First degree	1	20%	7	35%
Second degree	1	20%	6	30%
Third degree	1	20%	4	20%
Fourth degree	2	40%	3	15%
Total	5	100%	20	100%

Tab. 7. Relationship between the position of fetal sacrum and site of implanted placenta.

Position of the Sacrum	Fundal		Cornual-Fundal		Anterior		Posterior		Placenta Praevia	
	No	%	No	%	No	%	No	%	No	%
Sacro-anterior	1	5%	3	4.28%	1	33.3%	-	-	-	-
Sacro-posterior	-	-	1	1.42%	-	-	-	-	1	20%
Right and left sacro-anterior	15	75%	43	61.42%	1	33.3%	2	100%	1	20%
Right and left sacro-posterior	3	15%	21	30%	-	-	-	-	2	40%
Right sacro-transverse	1	5%	2	2.85%	1	33.3%	-	-	-	-
Left sacro-transverse	-	-	-	-	-	-	-	-	1	20%
Total	20	100%	70	100%	3	100%	2	100%	5	100%

Tab. 8. Frequency of incidence among the types of the breech presentation according to gestational age.

Gestational Age (week)	Full Breech		Frank Breech		Footling Breech		Cephalic Presentation	
	No	%	No	%	No	%	No	%
36	12	34.28%	19	31.66%	3	60%	44	22%
37	8	22.85%	13	21.66%			46	23%
38	5	14.28%	11	18.33%	1	20%	47	23.50%
39	6	17.14%	8	13.33%	1	20%	34	17%
40	4	11.42%	9	15%			29	14.50%
Total	35	100%	60	100%	5	100%	200	100%

Relationship between the site of placental implantation and position of fetal sacrum

The present study explored that patients with cornual-fundal placenta comprised 70% of breech presentation group while the rest were distributed among other sites (fundal, anterior, posterior and placenta praevia). Results showed that incidence of right and left- sacro-anterior and -sacro-posterior positions were 61.42% and 30% of cornual-fundal placenta cases respectively (Tab. 7.). Furthermore, out of 20 of fundal cases, 15 and 3 patients were laid in right and left-sacro-anterior and sacro-posterior respectively (Tab. 7.).

Frequency of incidence among the types of the breech presentation in relation to gestational age

The results of current study demonstrated that about 34%, 31% and 60% of patients with full breech, frank

breech and footling breech respectively were in 36 week of gestation (Tab. 8.). At 37 weeks, incidence of full breech and frank breech was about 22% and 21% respectively (Tab. 8.). Furthermore, incidence of full breech and frank breech were around 18% and 14% respectively at 38 weeks while 17% and 13% respectively at 39 weeks (Tab. 8.). Patients with cephalic presentations showed gestational ages at 36, 37, 38, 39 weeks with similar incidences (Tab. 8.). There has been a significant difference in the incidence of breech presentations at 36 weeks as compared to gestation age at 40 weeks (Tab. 8.).

DISCUSSION

Breech presentation remains clinical issue worldwide and thus researchers in this field have been paying attention to the role played of placental implantation and risk of breech presentation [5]. Little is known about why more than 4% of fetuses at term are diagnosed with breech presentation although advances in the management

guidelines [6]. It has been reported that the shape of the uterine cavity could have a role in fetus position [7]. Preterm delivery, low birth weight, oligohydramnios, primigravidae and congenital malformations are potential risk factors for breech presentation although mechanical factors may be key in the mechanism of development of this condition [8]. The present study demonstrated that placenta was in cornual-fundal site in about 70% of breech presentations whereas only 10% cephalic presentations where the placenta was found in cornual-fundal region. These finding are in agreement with earlier studies which showed that between 50% and 70% of breech presentation patients in which the placenta was located in cornual-fundal site [9,10]. It has been reported that site of fetus could be critical in shaping the uterine cavity that would consequently lead to changes in the location of placenta [4]. Although previous concept pointed to the role of placenta praevia in the development of breech presentation, the current study showed only 5% of breech presentation cases

had placenta praevia which was consistent with previous studies [7,11]. The relationship between age and breech presentation was investigated in the present study and revealed that ~ 34% of cases with breech presentation were at age of 36 weeks as compared with cephalic presentation cases that comprised only 22%. These results are in line with those of previous studies [4,12]. The present study shows that incidence of frank breech (60%) greater than those with full breech (35%) suggesting that splinting influences of extended legs can interfere with cephalic position of frank breech [13,14].

CONCLUSION

This study has identified implantation of placenta at cornual-fundal region has a role played in breech presentation and considered a causative factor for developing breech presentation. Further work is needed to fully understand the clinical consequences of the presence of placenta in cornual-fundal region.

REFERENCES

1. Sekulić S, Ilinčić M, Radeka G, et al. Breech presentation and the cornual-fundal location of the placenta. *Croat Med J*. 2013;54(2):198-202.
2. Gray CJ, Shanahan MM. Breech Presentation. StatPearls. Treasure Island (FL): StatPearls Publishing; 2023.
3. Hirano K. Studies on the clinical significance of the placental implantation site and the change of placental volume by uterine contraction (author's transl). *Nippon Sanka Fujinka Gakkai Zasshi*. 1980;32(7):936-944.
4. Luterkort M, Persson PH, Weldner BM. Maternal and fetal factors in breech presentation. *Obstet Gynecol*. 1984;64(1):55-59.
5. Carbillon L, Benbara A, Tigaizin A, et al. Revisiting the management of term breech presentation: a proposal for overcoming some of the controversies. *BMC Pregnancy Childbirth*. 2020;20:1-8.
6. Robillard PY, Boukerrou M, Bonsante F, et al. Linear association between maternal age and spontaneous breech presentation in singleton pregnancies after 32 weeks gestation. *J Matern Fetal Neonatal Med*. 2018;31(3):376-381.
7. Alakonda N, Patil N, Yaliwal R, et al. A Cross-Sectional Study to Evaluate the Impact of Placental Location on Maternal and Fetal Outcomes. *Cureus*. 2023;15: e40291.
8. Noli SA, Baini I, Parazzini F, et al. Preterm Birth, Low Gestational Age, Low Birth Weight, Parity, and Other Determinants of Breech Presentation: Results from a Large Retrospective Population-Based Study. *Biomed Res Int*. 2019;2019: 9581439.
9. Talas BB, Altinkaya SO, Talas H, et al. Predictive Factors and Short-Term Fetal Outcomes of Breech Presentation: A Case-Control Study. *Taiwan J Obstet Gynecol*. 2008;47:402-407.
10. Filipov E, Borisov I, Kolarov G. Placental location and its influence on the position of the fetus in the uterus. *Akush Ginekol*. 2000;40:11-12.
11. Gunay T, Turgut A, Demircivi Bor E, et al. Comparison of maternal and fetal complications in pregnant women with breech presentation undergoing spontaneous or induced vaginal delivery, or cesarean delivery. *Taiwan J Obstet Gynecol*. 2020;59:392-397.
12. Hill MG, Reed KL. External Cephalic Version in Cases of Imminent Delivery at Preterm Gestational Ages: A Prospective Series. *AJP Rep*. 2019;9:e384-e388.
13. Hassan SM, Jawad MJ, Jawad MJ, et al. Gastrointestinal and metabolic disturbances in post-COVID-19 disease outcomes. *Wiad Lek*. 2021;74(12):3160-3167.
14. Hassan SM, Mohammed MH, Jawad MJ, et al. Use of Infliximab to Attenuate Cerebral Apoptosis Induced by Cerebral Ischemia/reperfusion in Male Rats. *Wiad Lek*. 2023;76(2):326-331.