

# PLACENTAL SITE AS AN ETIOLOGICAL FACTOR FOR BREECH AND SHOULDER PRESENTATIONS

By

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## SUMMARY

The etiology of breech and shoulder presentations is not known in more than half the number of cases. The present study is aimed at the determination of the possible role of the placental location in the etiology of breech and shoulder presentations. The data base for the study comprises 118 cases of full-term single pregnancies with breech and shoulder presentations and a control group of 100 cases with vertex presentation. Placental localization was carried out by Ultrasonography, visualization and palpation during caesarean deliveries and gentle intra-uterine palpation in cases of vaginal deliveries. The placental site was classified, based on the segment of the uterus in which a major portion of placenta is situated.

It is observed that 35.8% of breech presentation cases had the placenta situated at the cornual-fundal region and 8.2% as placenta praevia. Whereas among the vertex presentations, only 7% placentae were at the cornual-fundal region and only 2% were praevia. In this small group of 9 shoulder presentations, the placental site was in the cornual-fundal region and also as placenta praevia. None had the placenta in the upper fundal region. The occurrence of breech and shoulder presentations in single pregnancy appears to have a definite relationship to the placental implantation site.

### Introduction

In over half the number of cases of breech and shoulder presentations, the etiology is not known. Of all the causes enumerated in the past, namely prematurity, placenta praevia, hydrocephalus, multiparity, multiple pregnancy, con-

tracted pelvis, pelvic tumours and the site of implantation of the placenta, the last-mentioned one assumes a major significance. Any condition that distorts the ovoid shape of the amniotic sac may strongly influence the polarity. Apart from congenital anatomical deformities and uterine tumours, the only object within the uterus which determines the shape of the amniotic cavity is the placenta. The fetus orients

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*Accepted for publication on 25-8-88.*

itself to suit the shape of the sac, with the fetal head occupying the smaller pole. Thus the placental implantation-site can be expected to have a determining effect upon the type of presentation of the fetus (Gowan, 1986).

The present study is aimed at the determination of the possible role of the placental location in the etiology of breech and shoulder presentations.

#### Material and Methods

The data-base for the study comprises 218 cases of full term single pregnancies. Of these 109 were breech presentations, 9 with shoulder presentation and 100 vertex presentations. The study period was January to July 1987.

Breech presentation was encountered in 3.33% of all the deliveries during this period. Apart from routine investigations, the placental location was identified in all cases included in this study. Such localization was carried out by three methods, namely through reading of ultrasonograms, by visual inspection and palpation in cases of caesarean sections and by gentle intrauterine palpation in cases of vaginal deliveries. The latter method of palpation was done soon after the birth of the baby and prior to the separation of the placenta from the uterine surface (Table 1).

The placental site was classified, based on the segment of the uterus in which a major portion of the placenta was situated. The following main groups were adopted for this purpose.

1. Anterior fundal
2. Posterior fundal
3. Central fundal
4. Left cornual-fundal
5. Right cornual-fundal and
6. Placenta praevia

The ultrasonographic study also gave the additional data of biparietal diameter of the fetal head in order to estimate the approximate fetal weight. In a few cases, radiological assessment was resorted to, for assisting in the decision for abdominal delivery.

#### Results

The results for the breech presentation based on ultrasonography, as regards the number of cases that indicated the different locations of the placenta are presented. For comparison, the break-up for 100 control cases of vertex presentations are included.

About one-fifth (21%) of breech presentations studied ultrasonographically, revealed the placental implantation site as placenta praevia compared with only 2% incidence in vertex presentations.

TABLE I  
Break-up Figures for the Three Types of Presentation—Method of Locating Placental Implantation Site

Sl. No.	Method of localisation	Type of Presentation		
		Breech	Shoulder	Vertex
1.	Ultrasonography	33	5	72
2.	Inspection and Palpation (Caesarean)	74	4	9
3.	Intrauterine palpation (vaginal delivery)	2	0	10
Total number of cases		109	9	100



Fundal situation of placenta was found in 12 (36%) of breech presentation and 87 (87%) of vertex presentations. The placenta occupying the cornual-fundal region was observed in 43% of breech presentation as against a very small number of 7% in vertex presentations (Table II).

This is in good agreement with the observations of earlier investigators. Fianu's (1976) figures indicate a much higher incidence of cornual-fundal position of the placenta in breech cases.

Of the 76 cases in which placental localization was done by palpation, as many as 33 (43.4%) cases were found to have the placenta situated as fundal (central). Sixteen cases (21.2%) had the anterior or posterior fundal situation. Cornual-fundal site was observed in 25 (31.8%)

cases and placenta praevia only in 2 (2.6%). This low incidence of placenta praevia in breech presentations is noteworthy (Table III).

Both by sonography and palpation, cornual-fundal implantation was found in 35.8% of breech presentations. Placenta praevia was observed in only 8.3% of cases (Table IV).

Out of the 9 cases of shoulder presentations, none had the placenta in the upper fundal region and 5 were placenta praevia. This limited sample indicates that with placenta praevia in 56% and cornual-fundal region in 44%, shoulder presentation is unlikely when the placenta is located in the upper fundal region (Table V).

TABLE II  
Incidence of Placental Locations—Breech and Vertex Presentations—Sonography

Sl. No.	Placental location	Breech presentation		Vertex presentation	
		No. of cases	%	No. of cases	%
1.	Anterior Fundal	2	6	17	17
2.	Posterior Fundal	8	24	12	12
3.	Fundal (Central)	2	6	58	58
4.	Left cornual-fundal	11	34	4	4
5.	Right cornual-fundal	3	9	3	3
6.	Placenta Praevia	7	21	2	2
Total		33	100	100	100

TABLE III  
Placental Localization — Palpation Results for Breech Presentation

S. No.	Location	No. of cases	%
1.	Anterior fundal	10	13.1
2.	Posterior fundal	6	8.1
3.	Fundal (Central)	33	43.4
4.	Left cornual fundal	10	13.1
5.	Right cornual fundal	15	19.7
6.	Placenta Praevia	2	2.6
Total		76	100.0

TABLE IV

Localization of Placenta—Overall Incidence by Sonography and Palpation—Breech Presentation

S. No.	Location	Sono- graphy	Palpa- tion	Total No.	%
1.	Anterior Fundal	2	10	12	10.9
2.	Posterior Fundal	8	6	14	12.8
3.	Fundal (Central)	2	33	35	32.2
4.	Left cornual fundal	11	10	21	19.2
5.	Right cornual-fundal	3	15	18	16.6
6.	Placenta praevia.	7	2	9	8.3
Total		33	76	109	100.0

TABLE V  
Shoulder Presentation—Placental Site

S. No.	Location	No. of cases	%
1.	Anterior Fundal	—	—
2.	Posterior fundal	—	—
3.	Fundal (Central)	—	—
4.	Left cornual fundal	3	33.3
		1	11.1
6.	Placenta praevia	5	55.6
Total		9	100.0

### Discussion

The site of placental implantation was observed by many authors by ultrasonography and manual palpation and they have indicated that cornual-fundal implantation might be a cause for breech and shoulder presentations. During this manual palpation, care is taken that the procedure is done gently with all aseptic precautions. The situation of the main portion of the placenta is determined (Stevenson 1949). Our observation indicated no extra risk of uterine infection in spite of this procedure. Kian (1963) had manually explored 362 uteri (47 breech, 306 cephalic and 9 transverse

presentations). In 66% of breech presentations, the placenta appeared to be implanted in left or right cornual-fundal region compared to 3.9% of cephalic presentation. In our study of palpation method the placenta was at the fundus in 43.3 (central and at the cornual-fundal site in 31.8% which is contrary to the above mentioned author's observation. Recording of fundal implantation might be due to improper orientation of the site at times because the examining hands tend to rotate the uterus, or due to partial detachment of the placenta. Combining the ultrasonography and palpation methods, the cornual-fundal implantation was found in 35.8% of 109 cases of breech presentation.

Haruyama's (1987) placental implantation site study by ultrasonography in breech presentations also revealed that in 28 of 47 cases (i.e. 60%), there was cornual-fundal implantation of placenta. Fianu and Vacavinkova's (1978) series has shown that in 72.6% of patients with breech presentation, the placenta appeared to have been implanted in the right or left cornual fundal region, compared to only 4.8% of vertex presentations.

These are all high incidences when compared to our observation. Ultrasono-



graphic evaluation of the placental site seems to be more accurate.

**Conclusion**

The breech and shoulder presentations in single pregnancy is caused by placental position, when it markedly indents and changes the inverted-pear-shape of the amniotic cavity. Then the spontaneous cephalic version is inhibited. Furthermore, the cornual implantation of the placenta causes the fundal pole of the amniotic sac to have a smaller capacity than the lower segment. Because the fetal head is smaller than its breech and legs, it would be natural for the breech and legs to accommodate them-

selves to a larger space, that is the lower segment, thus causing the breech presentations. A similar situation would explain the shoulder presentation also.

**References**

1. Bryan D. Gowan: Manual of Clinical problems in Obstetrics and Gynaecology, p. 125, 1986.
2. Fianu, S.: Acta Obstet. Gynec. Scand., Supplement, 56, 1976.
3. Fianu, S. and Vacavinkova, V.: Acta Obstet. Gynaec. Scand., 57, p. 371-372, 1978.
4. Haruyama, Y.: Acta Obstet. Gynaec. Japan, Vol. 39, No. 1, p. 92-98, 1987.
5. Kian, L. S.: J. Obstet. Gynaec. Brit. C'with, Vol. LXX, 1963, p. 795.
6. Stevenson, C. S.: Amer. J. Obstet. Gynaec., 58: 432, 1949.