

Retrospective Study of Malpresentation in Tertiary Care Institute

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Abstract

Objective: Malpresentation is a common complication encountered during pregnancy causing undue stress to the mother, the baby and the obstetrician. We conducted this study to observe the incidence of various malpresentation and their association with fetal and maternal outcomes.

Methods: This is a retrospective study where we analyzed the age, parity, period of gestation, associated high risk, type of malpresentation, mode of delivery, fetal weight, fetal gender and fetal outcome for three years.

Results: In our study 755 cases of malpresentation were included of which 52.1% were primigravida patients, 52.7% were delivered at term with 82.7% having no obstetric risk factor associated with them. Breech (90%) was the most common malpresentation and 63% were delivered by cesarean section with 84.6% babies born alive and healthy. The breech presentation was more commonly seen in primigravida patients, and a statistically significant association was seen between gestational age and type of malpresentation ($p < 0.05$).

Conclusion: Adequate perinatal care can significantly reduce maternal and fetal mortality and morbidity. Malpresentation if managed properly in the hospital can significantly reduce maternal and fetal outcomes.

Keywords: Malpresentation, Maternal and Fetal Outcomes, Breech Presentation Primigravida.

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Introduction

Any abnormality in the position of the head (vertex) of the foetus with the pelvis of the mother is considered as malpresentation. The commonest presentation at term is breech presentation constituting 3-4% of all deliveries, especially in early gestation [1,2]. Malpresentation is associated with an increased incidence of operative deliveries thereby leading to adverse outcomes for both mother and the baby [1-3].

Various studies have been conducted to study the cause and outcome of malpresentation. One of the major complications causing threat to the life of a baby i.e., cord prolapse is seen in 10% of the compound presentation, 5-10% of transfer lie and 3% of breech presentation [2,4]. Dystocia leading to difficult labour and an increase in the incidence of

operative deliveries are also common in malpresentation [1].

This study is conducted to find the commonest type of malpresentation and its association with maternal and fetal outcome

Materials and Methods

We recorded various inputs retrospectively covering the period from January 2017 to December 2019. Various types of malpresentation, age of mother, parity, period of gestation at the time of delivery, fetal weight, gender and fetal outcome were recorded. Malpresentation was divided into the breech, brow, compound, footling, face, oblique, shoulder and transverse lie. Parity was recorded as primigravida and

multigravida, period of gestation as the preterm, term, post-term and post-dated. Associated risk factors included antepartum eclampsia, antepartum hemorrhage, associated congenital anomalies, cord prolapse, hydrocephalus, placenta previa, previous one LSCS, previous 2 LSCS, previous 2 LSCS with placenta previa, severe pre-eclampsia, severe pre-eclampsia with oligohydramnios. Mode of delivery was recorded as full-term vaginal delivery (FTVD), lower segment cesarean section (LSCS) and preterm vaginal delivery (PTVD) The fetal outcome was recorded as alive and healthy (AH), referred to higher centre and stillborn.

Observation Chart

Table 1: Frequency of Variables

S. No.	Variables	Frequency (percentage)	
1	Age	24.43±4.15	
2	Parity	Primigravida	393(52.1%)
		Multigravida	362(47.9%)
3	Period of gestation	Preterm	235 (31.1%)
		Term	398 (52.7%)
		Post-term	15 (2.0%)
		Post-dated	107 (14.2%)
4	Associated high risk	No risk	662 (87.7%)
		Risk present	93 (12.3%)
5	Malpresentation	Breech malpresentation	679 (89.9%)
		Other malpresentations	76 (10.1%)
6	Mode of delivery	FTVD	150 (19.9%)
		LSCS	476 (63%)
		PTVD	129 (17.1%)
7	Fetal weight	2.56±1.60	
8	Fetal gender	Female	385 (51%)
		Male	370 (49%)
9	Fetal outcome	Alive and healthy	639 (84.6%)
		Referred to higher centre	51 (6.8%)
		Stillborn	65 (8.6%)

Table 2: Comparison of Parity and Type of Malpresentation

	Parity		Total
	Multigravida (Frequency and percentage)	Primigravida (Frequency and percentage)	
Breech malpresentation	317 46.7%	362 53.3%	679 100.0%
Other malpresentations	45 59.2%	31 40.8%	76 100.0%
Total	362 47.9%	393 52.1%	755 100.0%

Table 3: Comparison of the Mode of Delivery and type of Malpresentation (P<0.05)

	Mode of delivery			Total
	FTVD	LSCS	PTVD	
Breech malpresentation	146 21.5%	405 59.6%	128 18.9%	679 100.0%
Other malpresentations	4 5.3%	71 93.4%	1 1.3%	76 100.0%
Total	150 19.9%	476 63.0%	129 17.1%	755 100.0%

Table 4: Comparison of the Period of Gestation and type of Malpresentation (P<0.05)

	Period of gestation				Total
	POST-TERM (Frequency and percentage)	POSTDATED (Frequency and percentage)	PRETERM (Frequency and percentage)	TERM (Frequency and percentage)	
Breech malpresentation	10 1.5%	96 14.1%	214 31.5%	359 52.9%	679 100.0%
Other malpresentations	5	11	21	39	76

Results

In our study, 755 were having some or the other type of malpresentation. The mean age of the patients was 24.43±4.115 years. Out of these, 52.1% were primigravida patients and the rest were multigravida. More than 50% of the patients were term pregnancies (52.7%), 31.1% were preterm, 14.2% were post-dated and 2.0% were post-term.

Most of the patients had no risk factor associated with their pregnancy (87.7%). Whereas the rest had one or the other risk factor. Ninety per cent of the malpresentation were breech, followed by a transverse lie (5.2%), face (2.6%), brow

and oblique presentation (0.7% each), shoulder (0.4%), compound (0.3%) and footling (0.1%) presentation.

Mode of delivery in 63% was LSCS, FTVD in 19.9% and PTVD in 17.1%. The mean weight of the babies born was 2.56±1.605 kilograms. Fifty-one per cent of the babies born were females and 49% were males. Babies born alive and healthy constitute 84.6% of total malpresentations delivered, 8.6% were stillborn and 6.8% were referred to higher centres.

Breech Malpresentation was more commonly seen in primigravida patients whereas the rest of them were more commonly seen in multigravidas (p<0.05).

The correlation between periods of gestation (preterm, term, post-term and post-dated) and malpresentation (breech versus rest) was found to be statistically significant ($p < 0.05$). LSCS was done in breech presentation 59.6% times and vaginal deliveries 40.4% times whereas the rest of the malpresentation underwent LSCS 93.4% of the time and this correlation was found to be statistically significant ($p < 0.05\%$).

Statistical Analysis:

The collected data was summarized by using frequency, percentage, mean & S.D. To compare the qualitative outcome measures Chi-square test or Fisher's exact test was used. To compare the quantitative outcome measures independent t test was used. If data was not following normal distribution, Mann Whitney U test was used. SPSS version 22 software was used to analyse the collected data. p value of < 0.05 was considered to be statistically significant.

Discussion

The pregnant mother and her family expect the best outcome for herself and baby and, if possible, a normal vaginal delivery. Malpresentations, malpositions and cephalopelvic disproportion may not be preventable. They need to be carefully managed and may need obstetric interventions. Such obstetric procedures account for 20–40% of deliveries in the UK. With higher expectations, changing demographics and increasing medical litigation, the procedures need to be carefully conducted with the informed knowledge of the couple. Sound clinical knowledge of normal labour, technical expertise of intrapartum procedures, experience and the correct attitude and communication skills are essential for the best clinical outcome. The choice of procedure depends on several prerequisites, including the mother's view, the facilities available and the experience of the clinician.

Gardberg M et al studied malpresentations—and their impact on mode of delivery. Fetal malpresentation, including persistent occipitoposterior position, is a major cause of dystocia resulting in obstetric interventions. Cephalic malpresentations occurred in 5.4% of deliveries (persistent occipitoposterior 5.2%, face 0.1%, brow 0.14%), and 3.1% had breech presentation and 0.12% a transverse lie. The odds ratios (OR) for cesarean section were 14.89 (95%CI 11.91–18.63) in breech presentation and 4.57 (95% CI 3.85–5.42) in persistent occipitoposterior presentation. With persistent occipitoposterior position, the OR for instrumental vaginal delivery was 3.84 (95%CI 3.14–4.70). Primiparous women required more cesarean sections (OR 1.92, 95%CI 1.50–2.47) and instrumental deliveries (OR 2.89, 95%CI 1.50–2.47). Malpresentation frequently leads to cesarean section or instrumental delivery, especially among primiparous women.[1]

In our study, among the various malpresentations, the breech was the most common malpresentation (89.9%) as shown in table 1. Gardberg and Maskey et al found a similar finding of 85% in their study. Primigravida patients had a higher incidence of malpresentation (52.1%) accounting for 53.3% of total breech presentation. Multigravidas had a high rate of other types of malpresentation (59.2%). Maskey et al reported a 61.3% incidence of malpresentation in primigravida. Similarly, 54.6% malpresentation was found in primigravida patients by Gardberg et al. In our study, the most common mode of delivery in malpresentation was cesarean section (66%), whereas vaginal delivery was done in 44% of which 19.9% were full-term and 17.1% were preterm and the correlation between mode of delivery and malpresentation was statistically significant as shown in table 3 ($p < 0.05$). Similar data with one-third (33.4%) vaginal deliveries were reported by Gardberg et al [1].

However, Maskey et al reported 84.2% cesarean deliveries [1,2]

Malpresentation frequently presents with other obstetric complications like pre-eclampsia, eclampsia, antepartum haemorrhage, previous cesarean section, cord prolapse, hydrocephalus etc. World Health Organization has also directed midwives and doctors to look for similar obstetric complications in patients with malpresentation and provide appropriate treatment. However, no definite association was seen between the type of malpresentation and obstetric complications. There was no association between the type of malpresentation and the gender of the baby or its outcome. In our study, more than half of the malpresentations were delivered at term (52.7%), then preterm (31.1%), post-dated (14.2%) and post-term (2%) as shown in table 4. In a study conducted by Hickok et al, 3-4% of all deliveries at term had malpresentation. They also concluded that the incidence of breech presentation decreases with increasing gestational age. Similar findings were also reported by Scheer et al and Hill [4-7].

Simm and Woods A et al studied fetal malpresentation. Breech presentation is the most commonly encountered malpresentation. Management has concentrated on correcting the malpresentation by external cephalic version at term. The trial shows that planned Caesarean section benefits the fetus. Many preterm fetuses and second twins presenting by breech are still delivered vaginally, and the art of vaginal breech delivery must not be lost. Fetal malpresentations other than breech are infrequently encountered and there is little evidence to guide practice. Face presentations pose few problems except where the chin (mentum) remains posterior. Shoulder presentation is encountered with transverse lie, with the attendant risk of cord prolapse and fetal compromise. If Caesarean section is undertaken it is

important to keep the membranes intact when opening the uterus to allow easier manipulation and delivery.[8]

Bellussi F et al elaborated the use of intrapartum ultrasound to diagnose malpositions and cephalic malpresentations. Fetal malpositions and cephalic malpresentations are well-recognized causes of failure to progress in labor. They frequently require operative delivery, and are associated with an increased probability of fetal and maternal complications. Traditional obstetrics emphasizes the role of digital examinations, but recent studies demonstrated that this approach is inaccurate and intrapartum ultrasound is far more precise. The objective of this review is to summarize the current body of literature and provide recommendations to identify malpositions and cephalic malpresentations with ultrasound. We propose a systematic approach consisting of a combination of transabdominal and transperineal scans and describe the findings that allow an accurate diagnosis of normal and abnormal position, flexion, and synclitism of the fetal head. Intrapartum sonography allows a precise diagnosis and therefore offers the best opportunity to design prospective studies with the aim of establishing evidence-based treatment. [9]

Singh G, Sidhu K did a prospective study on bad obstetric history. Dignam WJ et al also enumerated difficulties in delivery, including shoulder dystocia and malpresentations of the fetus. Death of an infant in utero or at birth has always been a devastating experience for the mother and of concern in clinical practice. Perinatal mortality remains a challenge in the care of pregnant women worldwide, particularly for those who had history of adverse outcome in previous pregnancies. There was significantly higher incidence of malpresentations, hypertension, APLA, cervical incompetence, preterm deliveries and caesarean section in test group ($p < 0.05$). APLA, hypertension,

malpresentation, cervical incompetence, preterm deliveries and caesarean section were found significantly more in BOH group. In a large percentage of pregnancies with BOH, the risk factors for adverse outcome were not identified but pregnancy outcome was generally good in subsequent pregnancies with optimal antenatal care and advice.[10,11]

Fetal malpresentation is an important cause of the high cesarean delivery rate in the United States and around the world. This includes breech, face, brow, and compound presentations as well as transverse lie. Risk factors include multiparity, previously affected pregnancy, polyhydramnios, and fetal and uterine anomalies. Sharshiner R et al studied management of fetal malpresentation. Pilliod RA Yulia A et al studied fetal malpresentation and malposition: diagnosis and management. Arulkumaran et al studied malpresentation, malposition, cephalopelvic disproportion and obstetric procedures and provided much-needed knowledge on medical management of normal and abnormal labour. [12-15]

Appropriate management can reduce the need for cesarean delivery in some cases. This review discusses management options and focuses specifically on external cephalic version and vaginal breech delivery.

Conclusion

Pregnant women should be encouraged to get early antenatal visits done and regular follow-ups later in pregnancy. Adequate perinatal care is essential for the well-being of both the mother and the baby. Malpresentation if managed properly in the hospital can significantly reduce maternal and fetal outcomes.

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Mahaveer Institute of Medical Sciences and Research, Bhopal.

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References

1. Gardberg M, Leonova Y, Laakkonen E. Malpresentations--impact on mode of delivery. *Acta Obstet Gynecol Scand.* 2011 May;90(5):540-2.
2. Maskey S, Dwa Y. Predisposing Factors and Outcome of Malpresentations in an Institute. *JNMA J Nepal Med Assoc.* 2018 Mar-Apr;56(211):674-677.
3. Zhang, J., Troendle, J., Mikolajczyk, R., Sundaram, R., Beaver, J. and Fraser, W., 2010. The Natural History of the Normal First Stage of Labor. *Obstetrics & Gynecology*, 115(4), pp.705-710.
4. Managing complications in pregnancy and childbirth: a guide for midwives and doctors 2nd ed. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.
5. Hickok DE, Gordon DC, Milberg JA, Williams MA, Daling JR. The frequency of breech presentation by gestational age at birth: a large population-based study. *Am J Obstet Gynecol.* 1992 Mar;166(3):851-2.
6. Scheer K, Nubar J. Variation of fetal presentation with gestational age. *AM Obstet Gynecol.* 1976;125:269.
7. Hill LM. Prevalence of breech presentation by gestational age. *Am] Perinatol* 1990;7:92.
8. Simm A, Woods A. Fetal malpresentation. *Current Obstetrics & Gynaecology.* 2004 Aug 1;14(4):231-8.
9. Bellussi F, Ghi T, Youssef A, Salsi G, Giorgetta F, Parma D, Simonazzi G, Pilu G. The use of intrapartum ultrasound to diagnose malpositions and cephalic malpresentations. *American journal of obstetrics and*

- gynecology. 2017 Dec 1;217(6):633-41.
10. Singh G, Sidhu K. Bad obstetric history: a prospective study. *Medical Journal Armed Forces India*. 2010 Apr 1;66(2):117-20.
 11. Dignam WJ. Difficulties in delivery, including shoulder dystocia and malpresentations of the fetus. *Clinical Obstetrics and Gynecology*. 1976 Sep 1;19(3):577-85.
 12. Sharshiner R, Silver RM. Management of fetal malpresentation. *Clinical obstetrics and gynecology*. 2015 Jun 1; 58(2):246-55.
 13. Pilliod RA, Caughey AB. Fetal malpresentation and malposition: diagnosis and management. *Obstetrics and Gynecology Clinics*. 2017 Dec 1; 44(4):631-43.
 14. Yulia A, Maksym K, Lack N. Malpresentation. in *Quick Hits in Obstetric Anesthesia 2022* Feb 7 (pp. 221-227). Cham: Springer International Publishing.
 15. Arulkumaran S. Malpresentation, malposition, cephalopelvic disproportion and obstetric procedures. *Dewhurst's Textbook of Obstetrics & Gynaecology*. 2012 Jan 10:311-25.