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Original Research Article

Etiological factors and maternal outcome in pregnancies with malpresentation: an observational study

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ABSTRACT

Background: The most common presentation of the fetus is malpresentation. These include breech, face, brow, shoulder and compound presentations. Malpresentations of fetus complicate labor in about 5% of pregnancies. To find out the incidence of malpresentation, to analyze etiological factors of malpresentation, to evaluate the maternal outcome in cases with a malpresentation.

Methods: This prospective observational study was done in, Chengalpattu Government medical college and hospital. Study period from October 2018 to September 2019. Pregnancies with malpresentation presenting to the department of obstetrics and gynecology at CMCH were included in the study.

Results: A total of 680 malpresentation were admitted in this period were included in this study. The incidence of malpresentation during the study period was 7.72%. The incidence of the breech was 4.38%, transverse lie 1.11%, face 0.28%, brow 0.05% and compound presentation 0.13%. The common causes were prematurity, multiple gestations, grand multiparty, IUGR, oligohydramnios, anomalies of uterus, polyhydramnios, contracted pelvis, placenta previa, hydrocephalus, prematurity was reported as the commonest cause of breech presentation and multiparty for transverse lie, face and brow presentations. The most common complication was obstructed labor 6.9% followed by post-partum hemorrhage 3.65%. There was no maternal death due to malpresentation during the period of study.

Conclusions: Early diagnosis and timely management can prevent the complications of labor associated with a malpresentation. Delivery should be planned at centers which have expertise in conducting vaginal delivery in malpresentation with good intrapartum monitoring and with facilities for cesarean section for the better fetomaternal outcome.

Keywords: Breech, Malpresentations, Maternal outcome

INTRODUCTION

Any presentation other than vertex is termed a malpresentation and includes brow, face, breech, shoulder and compound presentations.¹ Malpresentations are estimated to occur in 5% of all term deliveries and are associated with increased maternal, fetal morbidity and mortality. Maternal complications include prelabour rupture of membranes, cord prolapse, increased risk of

instrumental delivery, caesarean section, obstructed labor, and rupture uterus, increased morbidity and mortality.² Fetal complications are low 5-minute Apgar score, meconium aspiration, hypoxic-ischemic encephalopathy, birth trauma. Perinatal mortality associated with vaginal breech delivery is more than thrice that of the vertex. The breech is the commonest malpresentation.³ The incidence of breech presentation at term is 3 to 4%. A transverse lie is seen in 1/300 deliveries at term. Face presentation

occurs in 1/500 deliveries and the incidence of brow presentation is 1 in 1500 deliveries.⁴ Early diagnosis and management can prevent complications of prolonged labor like bleeding, infection and long term issues of pelvic floor damage, especially with prolonged 2nd stage.⁵ Hence this study was done to find out the etiological factors and the impact of malpresentation on maternal, fetal morbidity and mortality.⁶

METHODS

This prospective observational study was done in, Chengalpattu Government medical college and hospital. Study period from October 2018 to September 2019. Malpresentation cases presenting to the department of obstetrics and gynecology, CMCH were included in the study.

Inclusion criteria

The period of gestation >28 weeks.

Exclusion criteria

The period of gestation <28 weeks.

Done with pre-designed proforma. For every case information like age, residence, socioeconomic status, and last menstrual period, booking status, referral information, obstetric history and mode of delivery were gathered. The physical and obstetric examination carried

out at admission and at the time of delivery. Induction, augmentation, caesarean section indication, type of anesthesia, intraoperative and postoperative complications and per operative findings were noted. The mother and neonate followed until discharge from the hospital. Any maternal morbidity like fever, postpartum hemorrhage, blood transfusion, reaction, shock, sepsis, perineal tears, cervical tears, rupture uterus was noted. Fetal outcomes like stillbirth, neonatal death was noted. If referred, the reason for referral and duration of stay in NICU and reason for referral were noted.

RESULTS

In this study Breech presentation was the commonest malpresentation 6.14% followed by transverse lie, face, compound and brow presentations. Brow presentation 0.05% was the rarest malpresentation in the study. The majority of cases of breech, transverse lie, brow and compound presentation occurred in multiparous women in this study.

Table 1: Distribution of cases according to the type of malpresentation.

Type	Number	Incidence
Breech	541	6.14%
Transverse lie	98	1.11%
Face	25	0.28%
Brow	4	0.05%
Compound	12	0.13%

Table 2: Distribution of cases according to parity.

Mal-presentation types	Primi	Multi	Grand multi
Breech	263 (48.61%)	256 (47.32%)	22 (4.06%)
Transverse lie	9 (9.18%)	77 (78.57%)	12 (12.24%)
Face	13 (52%)	44 (11%)	1 (4%)
Brow	1 (25%)	1 (25%)	2 (50%)
Compound	4 (33%)	6 (50%)	2 (16.67%)

Table 3: Distribution according to type of breech.

Type	Number	Percentage
Frank	276	51.01%
Complete breech	149	27.54%
Footling	116	21.44%

Frank breech was the most frequent type of breech presentation in this study with 51.01% incidence. The other types of breech were complete breech with 27.54% and footling breech 21.44%.

Among pregnancies with compound presentation, the most common mode of presentation was head with hand presentation 66.67%, followed by buttock with hand

presentation 25% and least common was head with foot presentation 8.33%.

Table 4: Distribution according to mode of presentation in compound presentation.

Presentation	Number	Percentage
Head with hand	8	66.67%
Buttock with hand	3	25%
Head with foot	1	8.33%

Vaginal breech deliveries were higher due to higher number of preterm births and patients presenting in advanced labor Majority of other malpresentation were delivered by caesarean section. All cases of brow presentation 100% were delivered by caesarean section.

Table 5: Distribution according to mode of delivery.

Mode of delivery	Breech	Transverse	Face	Brow	Compound
LSCS %	188 (34.7%)	87 (89.7%)	13 (52%)	4 (100%)	9 (75%)
Vaginal delivery %	Term assisted breech 204 (37.71%)	IPV followed by breech extraction 3 (3.06%)	12 (48%)	-	3 (25%)
	Preterm assisted breech 149 (27.54%)	Spontaneous version 3 (3.06%)			
		Spontaneous evolution 3 (3.06%)			
		Spontaneous expulsion 1 (1.02%)			

Table 6: Analysis of etiological factors in breech presentation.

Sr. no.	Cause	Number	Percentage
1	Prematurity	155	28.65%
2	Twins	37	6.83%
3	IUGR	26	4.80%
4	Multiparty	22	4.07%
5	Oligohydramnios	21	3.88%
6	Uterine anomalies	19	3.51%
	Bicornuate uterus	7	
	Sub septate uterus	5	
	Uni cornuate uterus	4	
	Septate uterus	3	
7	Contracted pelvis	15	2.77%
8	Polyhydramnios	13	2.40%
9	Placenta previa	9	1.66%
10	Hydrocephalus	8	1.48%
11	Cord around the neck	7	1.29%
12	Fetal ascites	2	0.37%
13	Anencephaly	1	0.18%

Table 7: Analysis of etiological factors in transverse lie.

Sr. no.	Cause	Number	Percentage
1	Multi parity	89	90.81%
2	Preterm	14	14.28%
3	Oligohydramnios	6	6.12%
4	Anomalies of uterus	5	5.10%
	Septate uterus	2	
	Sub septate uterus	2	
	Bicornuate uterus	1	
5	Placenta previa	4	4.08%
6	Second twin	4	4.08%
7	First twin	3	3.06%
8	Polyhydramnios	2	2.04%
9	Contracted pelvis	2	2.04%
10	Fibroid uterus	1	1.02%

Most common cause of breech presentation in this study was prematurity accounting for 28.65% followed by multiple gestation 6.83% and other less frequent causes.

Multiparty 90.81% was the most common predisposing cause of transverse lie followed by prematurity 14.28% and other less frequent causes.

Table 8: Analysis of etiological factors in face and brow presentation.

Cause	Number	Percentage
Multiparty	15	51.72%
Pre maturity	5	17.24%
Anencephaly	4	13.79%
Polyhydramnios	3	10.34%
Cord around the neck	2	16.9%
Contracted pelvis	1	3.45%
Big baby	1	3.45%
Intrauterine death	1	3.45%

Table 9: Analysis of complications in mother.

Maternal complications	Number	Percentage
Obstructed labor	47	6.9%
Atonic post-partum hemorrhage	25	3.67%
Cervical tear	6	0.88%
Rupture uterus	1	0.14%
Perineal tear	5	0.73%
Para urethral tear	4	0.58%
Puerperal sepsis	3	0.44%
Post lacs wound sepsis	5	0.73%
Total	99	14.55%

Table 10: Analysis of perinatal outcome.

Perinatal outcome	Number	Percentage
Total deliveries	680	-
Number of stillbirths	11	1.61%
Number of neonatal deaths	21	2.90%

The most common causative factors of face and brow presentation was multiparty 51.72%. Prematurity 17.24%, anencephaly 13.79% and other causes like big baby, contacted pelvis, IUD were less common.

The most common complication observed in this study was obstructed labor 6.9%, followed by atonic post-

partum haemorrhage 3.67%. For 1 case of rupture uterus rent closure was done. There was no maternal death due to malpresentation during the study period.

The total number of deliveries with malpresentations were 680. The number of babies born were 724 due to 44 twin deliveries. Perinatal death i.e. stillbirth 1.61% and early neonatal death 2.90% occurred during the period of study.

DISCUSSION

During the study period from October 2018 to September 2019 at Chengalpattu medical college, there were 8809 deliveries and 680 were with malpresentation accounting for 7.72% incidence. The incidence of the breech was higher in this study due to the inclusion of preterm births (6.14%). When corrected to term breech, the incidence was 4.38% similar to other studies with 4.17% incidence 1 reported by Budania S et al, and 5.3% incidence in the study by Aseefa FE et al.^{1,2} Frank breech was the most frequent type of breech (51%). About 28.65% of breech presentations were preterm. Prematurity (28.48%) was reported as the commonest cause of breech in the study by Bhati RS, Choudhary SI.³

The other causes were multiple gestation (6.83%), IUGR (4.80%), grand multiparity 4.07%, oligohydramnios (3.88%), anomalies of uterus (3.51%), polyhydramnios (2.40%), contracted pelvis (2.77%), placenta previa (1.66%), hydrocephalus (1.48%). In this study, the maximum number of the breech presentation delivered vaginally. The decision to deliver vaginally or by C-section was individualized for each woman. Vaginal deliveries were higher 65.25% due to higher preterm births and cases presenting in advanced labor. Caesarean section accounted for 34.75% of breech deliveries. The vaginal delivery rate was 52.9% and the cesarean section rate was 47.09% for breech. The incidence of the transverse lie in this study was 1.11% similar to 1.37% incidence reported by Chandra M et al.⁴

The majority (90.81%) of transverse lie cases occurred in multiparous women in this study. The other causes were preterm fetus (14.28%), anomalies of uterus (5.10%), oligohydramnios (6.12%), placenta previa (4.08%), second twin (4.08%), polyhydramnios (2.04%), contracted pelvis (2.04%), fibroid uterus (1.02%). Obstructed labor occurred in 47 cases (47.95%) and rupture uterus in one case (0.14%) who was referred to us as prolonged labor. Rent closure was done for the case of uterine rupture. These complications signify the importance of early referral of malpresentation to the tertiary care center. Most of the transverse lie cases (89.69%) delivered by caesarean section, 3 cases delivered by Internal podalic version and breech extraction (3.06%), 7 cases had preterm vaginal deliveries (7.14%). Caesarean section and IPV rates of the transverse lie with 86.91% and IPV rate 7.48%. Face and brow presentation: The majority of the cases 51.72%

occurred in multiparous women in this study. Zayed et al, showed 65.8% incidence of multiparity in face presentation and 63.2% multiparity incidence in brow presentation. The other causes were prematurity (17.24%), anencephaly (13.8%), polyhydramnios (10.3%), and cord around neck (10.9%), contracted pelvis (3.4%), big baby (3.4%), and Intra uterine death (3.4%).

Mode of delivery

This study had a vaginal delivery rate of 48% and 52% cesarean section for face presentation. The study by Bhal PS had a vaginal delivery rate of 56%.⁶ All cases of brow presentation (100%) were delivered by cesarean section. Majority of compound presentation cases presented as the vertex with hand 66.6%. Caesarean section was done in 66% of the compound presentation.

Maternal complications

Of the 680 deliveries with malpresentation complications were encountered in 14.55% of mothers. Most common complications were obstructed labor (6.9%), postpartum hemorrhage (3.67%), followed by cervical tear (0.88%), perineal tears (0.73%), para urethral tear 0.58%, puerperal sepsis 0.44%, post LSCS wound sepsis 0.73%, rupture uterus 0.14%.⁷ There were no maternal deaths due to deliveries with malpresentation during the study period.

CONCLUSION

Management of abnormal presentation is a continuing challenge to an obstetrician. Identification of malpresentation and its etiological factor is necessary in order to reduce maternal, perinatal morbidity and mortality. Early diagnosis and timely management can prevent the complications of labor associated with a malpresentation. Delivery in malpresentation should be planned at centers that have expertise in conducting vaginal delivery in malpresentation with good intrapartum monitoring and with facilities for caesarean section for the better fetomaternal outcome.

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