

Study and Outcome of Various Malpresentations

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Abstract

This study aimed to evaluate outcome of various malpresentations at the tertiary care centre. There are various causes of maternal and perinatal morbidity and mortality with neglected and mismanaged malpresentation being one. This prospective study was carried out at tertiary care center and teaching institute in the Department of Obstetrics and Gynecology over a period of 18 months. During this period 384 cases of malpresentations were delivered. Out of which 134 delivered vaginally and 246 by caesarean section. Majority of cases i.e. 86% were breech presentation, 8.2% were transverse lie, 4.2% face presentation. Of the 328 cases of breech 49% were complete breech. 89.4% cases were in full term group which had good fetal outcome. 97% of cases out of 65.6% cases that were delivered by caesarean section had good fetal outcome. Our study states that breech presentation is the commonest type of malpresentation and though caesarean section yields better perinatal outcome, we can conclude that vaginal breech delivery is also safe with good maternal and fetal outcomes. Transverse lie and brow presentation are conditions that poses significant clinical challenge, both in terms of perinatal and maternal survival. Thus early diagnosis followed by caesarean delivery are likely to give better clinical outcome. The corner

stone of proper management of malpresentations lies in provision of good antenatal care and maternal and fetal outcome can be improved by early diagnosis. Delivery in cases of breech and face presentation should be conducted in hospital with well equipped caesarean facilities and skilled obstetrician because once it becomes neglected then the maternal and fetal outcome is poor.

Keywords:

AJOG - American Journal Obstetrics and Gynaecology; CTG - Cardiotocography; IUFD - Intrauterine fetal demise; NCBI - National Centre for Biotechnology Information; PROM - Premature rupture of membrane; Z-A - Zatuchni Andros score.

Introduction

Maternal health remains a staggering challenge, particularly in the developing world. Globally, a woman dies from complications in childbirth every minute. There are various causes of maternal and perinatal morbidity and mortality with neglected and mismanaged malpresentation being one.

Malpresentation is abnormal positioning of the fetus at the time of delivery like breech, face, brow, compound and cord presentation causing increased risk to maternal and fetal life

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due to abnormal course of labor and in some cases mandatory caesarean section is required [1]. The fetus enters the pelvis in a cephalic presentation in approximately 95-96% of the time. In these cephalic presentation the occiput may be in the persistent transverse or posterior position. In about 3-4% of pregnancy there is breech presentation and in remaining 1% the fetus may be either transverse or oblique lie or the head may be extended with the face or brow presenting [1].

Breech-seen in 30% of pregnancy at 30 weeks of gestation and 3% at term [1].

Face deliver-1:500 [2].

Brow delivery-1:1000 [2].

Oblique lie -1:200 to 1:300 in singleton pregnancy & 1:10 in twin pregnancy [2].

Cord presentation-1:250 [2].

Compound presentation is very rare.

This prospective study was carried out at tertiary care center and teaching institute in the Department of Obstetrics and Gynecology. All the patients enrolled in the labor room of the institute from 1/1/17 to 31/12/17 were included in the study. Women fulfilling the inclusion criteria were included in the study. All these were the patients that came to our labor room with labor pains and were further evaluated for mode of delivery and fetal outcome.

The aim of this study is to evaluate maternal and fetal outcome in various types of malpresentations delivered by different mode.

Objectives

To study:

1. Incidence of various malpresentations
2. Various modes of delivery for various malpresentations
3. Complications of labor in malpresentations
4. Maternal and fetal outcome

Material and Methods

This prospective study was carried out at tertiary care center and teaching institute in the Department of Obstetrics and Gynecology.

All the patients enrolled in the labor room of the institute from 1/1/17 to 31/12/17 were included in the study.

Women fulfilling the inclusion criteria were included in the study.

Study setting and design

It was a hospital based prospective study carried out from January 2017 to December 2017.

Inclusion criteria

All the patients with malpresentations are included in the study.

Exclusion criteria

Nil

Sample size

As all the cases of malpresentations that were admitted in the labor room during the study period are taken into account therefore its an universal sample.

Study factors

The parameters that are considered in the study are Parity, Membrane status, Station, Cervical effacement and dilatation, Gestational age, Mode of delivery, Fetal weight, and early and late fetal outcome.

Method of study

All the patients that were admitted in the labor room were thoroughly evaluated. All the study parameters were evaluated on basis of per abdomen examination of the patient to know the lie of the baby which was followed by per vaginal examination to know the presentation, membrane status, station, cervical effacement and dilatation. Mode of delivery is decided depending on the progress of labor. Immediate fetal outcome is evaluated depending on post delivery APGAR score. Late neonatal outcome is evaluated for which the baby is followed up to 5 days post delivery. Those babies that are immediately admitted in NICU post delivery are followed till the time the patient is admitted.

Statistical analysis

All the parameters are presented in the form of tables, graphs and pie diagrams.

The incidence of various malpresentations is calculated using the formula.

$$\text{Incidence} = \frac{\text{Total no of cases of different malpresentation (n)}}{\text{Total no of deliveries conducted during study Period (N)}} \times 100$$

N-13,000

Observations and Results

During our study period 384 cases of malpresentations delivered in our institute. Among the 380 cases 134 cases were delivered vaginally and 246 cases underwent caesarean section (Table 1).

Table 1: Types of malpresentation

Types of malpresentation	Total no of cases n=384	Percentage (%)
Breech presentation	328	85.40%
Face presentation	16	4.2%
Brow presentation	5	1.30%
Transverse lie (shoulder, back, hand prolapse, cord prolapse)	33	8.60%
Compound presentation	2	0.5%
Total	384	100%

Out of the 384 cases, 328 cases were of breech presentation which accounts to 86% of total no of

cases which is followed by transverse lie which accounts to 8.2%. Face and brow presentation accounts to 4.2% and 0.7% respectively whereas compound presentation accounts to only 0.5% [1] (Chart 1).

All these cases were further evaluated on the basis of the gestation age, mode of delivery, fetal weight and finally the fetal outcome is assessed.

Table 2: Types of breech

Types of breech	Total no of case (328)	Percentage (%)
Complete	161	49%
Frank	133	40.5%
Footling	34	10.3%
Total	328	100%

According to the distribution of the cases of malpresentation, maximum percentages of cases are of breech presentation. Therefore the no of cases of breech are further divided in to the type of breech at the time of labor.

The above table 2 shows the distribution of breech presentation according to its type into complete breech, frank breech, and footling presentation.

Out the 328 cases of breech 49% are complete breech, 40.5% are frank breech and 10.3% are footling presentation (2) (Chart 2).

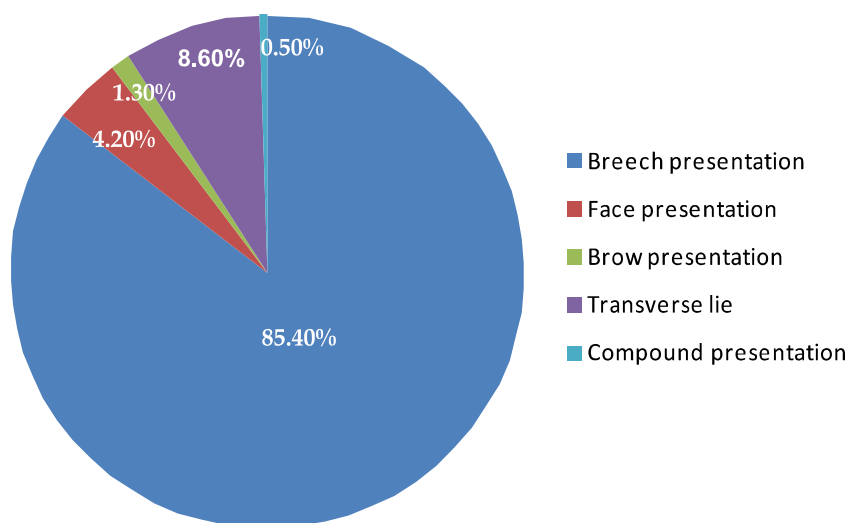


Chart 1: Types of malpresentation [1]

Table 3: Distribution of malpresentation according to gestation age (in labor)

Gestation Age	Full term (>=37 weeks)	Preterm (<36 weeks)	Total
Breech	298	30	328
Face	16	0	16
Brow	5	0	5
Transverse lie	30	3	33
Compound	2	0	2
Total	351	33	384

The above table 3 shows the distribution of the total cases based on the gestational age of the patient in labor. Maximum proportion of the patients are more than 37 weeks of gestation. Of which 298 cases are full term breech (78%), 28 cases are transverse lie, 16 cases are of face presentation and 3 and 2 cases of brow and compound presentation respectively [3] (Graph 1).

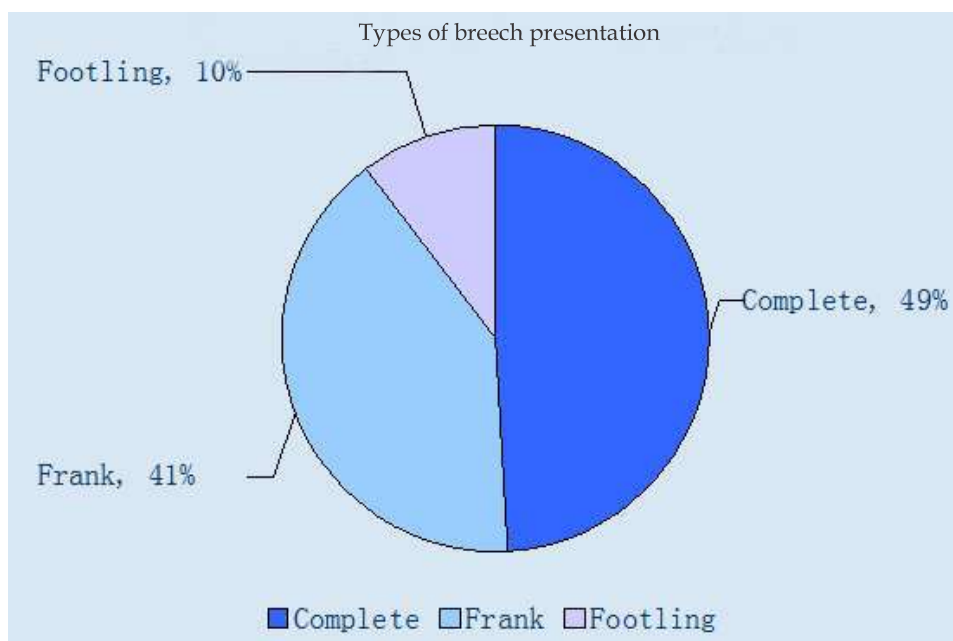
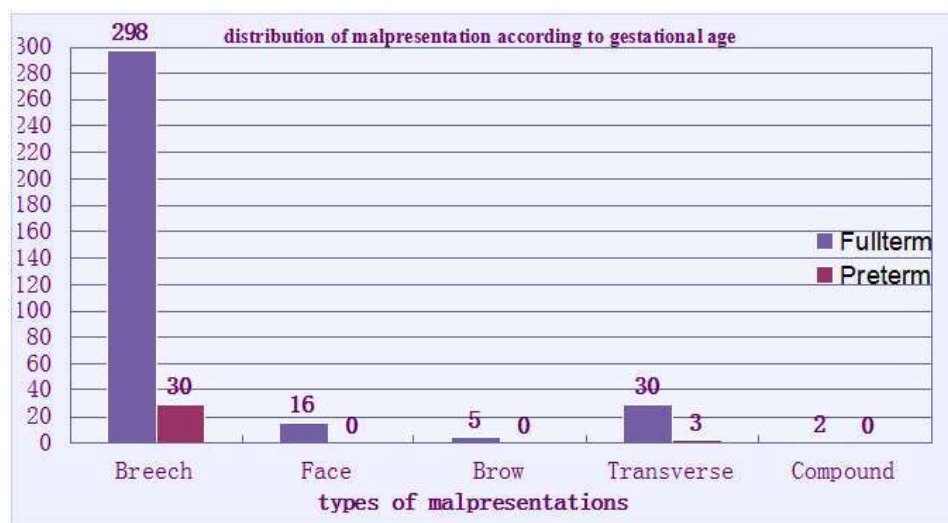


Chart 2: Types of breech [2].



Graph 1: Distribution of malpresentation according to gestation age(in labor) [3].

Table 4: Distribution of cases according to parity

Parity	Primigravida	Multigravida	Total
Breech	181	147	328
Face	9	7	16
Brow	2	3	5
Transverse lie	6	27	33
Compound	1	1	2
Total	199	185	384

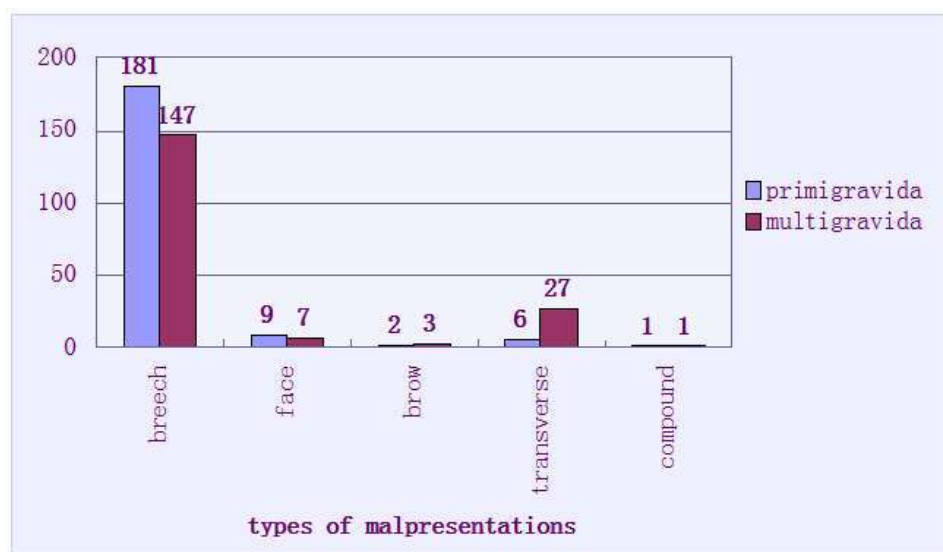
Table 4 shows that 328 cases of breech 181 cases were primigravida whereas out of 16 cases of face presentation almost 50% were primigravida and 50% were multigravida. Out of 31 cases of transverse, 25 cases were multigravida.

In cases of face, brow and compound presentation there were 50% primigravida and 50% multigravida [4] (Graph 2).

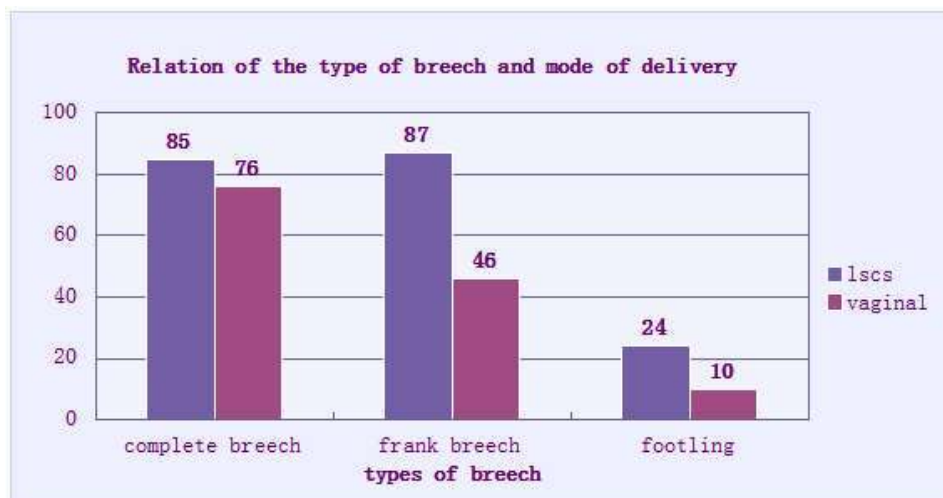
Table 5: Relation between mode of delivery and type of breech

Type of breech	LSCS	Vaginal	Total
complete	85	76	161
frank	87	46	133
footling	24	10	34
Total	193	132	328

According to the above tables 5, out of the 328 cases, 161 cases were of complete breech of which 52% delivered by LSCS and 47% delivered vaginally. Of the 133 cases of frank breech 65% delivered by LSCS and 34% vaginally. 70% of footling presentation delivered by LSCS [5] (Graph 3 and Chart 3).



Graph 2: Distribution of cases according to parity [4]



Graph 3: Relation between mode of delivery and type of breech [5].

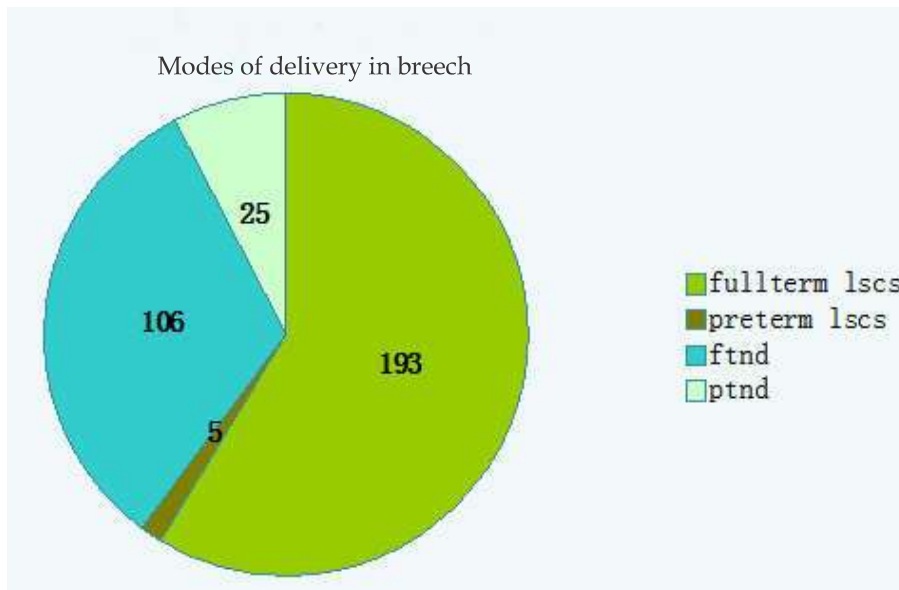
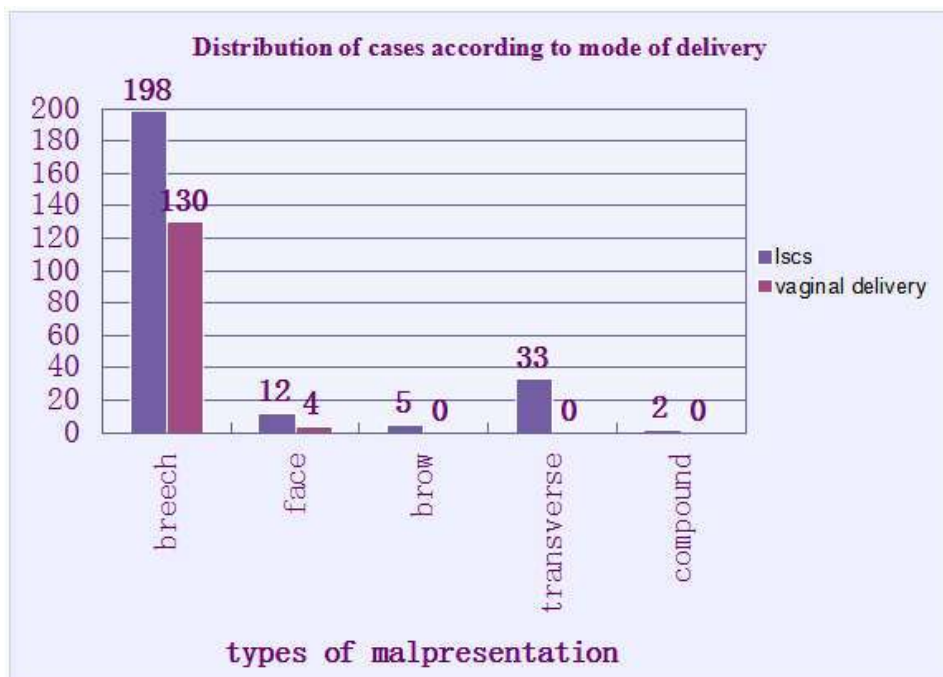


Chart 3: Relation between mode of delivery and type of breech [5]



Graph 4: Distribution of cases according to mode of delivery [6]

Table 6: Distribution of cases according to mode of delivery

Mode of delivery	LSCS	Normal vaginal delivery	Total
Breech	198	130	328
Face	12	4	16
Brow	5	0	5
Transverse lie	33	0	33
Compound	2	0	2
Total	250	134	384

According to the above table 6, out of the 328 cases

of breech, 198 cases i.e 60.3% of cases underwent caesarean delivery and 39.6% delivered vaginally.

Whereas all the 31 cases of transverse lie were delivered by caesarean section. Of the 16 cases of face presentation, 12 cases underwent caesarean section and only 4 cases were delivered vaginally.

All the 3 cases of brow and 2 cases of compound presentation were delivered by caesarean section [6] (Graph 4).

Table 7: Relation of mode of delivery with Z score (breech presentation).

Z score	0-4	5-10	Total
LSCS	138	22	160
Vaginal delivery	1	129	130
Total	139	151	290

Z-A score is used for determining the mode of delivery in breech presentation. Of the 198 cases of breech that underwent LSCS 69.6% had score between 0-4 and 30.4% had score between 5-10 which was favorable for vaginal delivery but underwent LSCS (Table 7).

Of the 130 cases of Breech that delivered vaginally 1 case had Z-A score between 0-4 which is ideally recommended for caesarean section and remaining 129 cases were delivered vaginally [7] (Graph 5).

Table 8: Distribution of breech according to mode of delivery and fetal wt (Z A score)

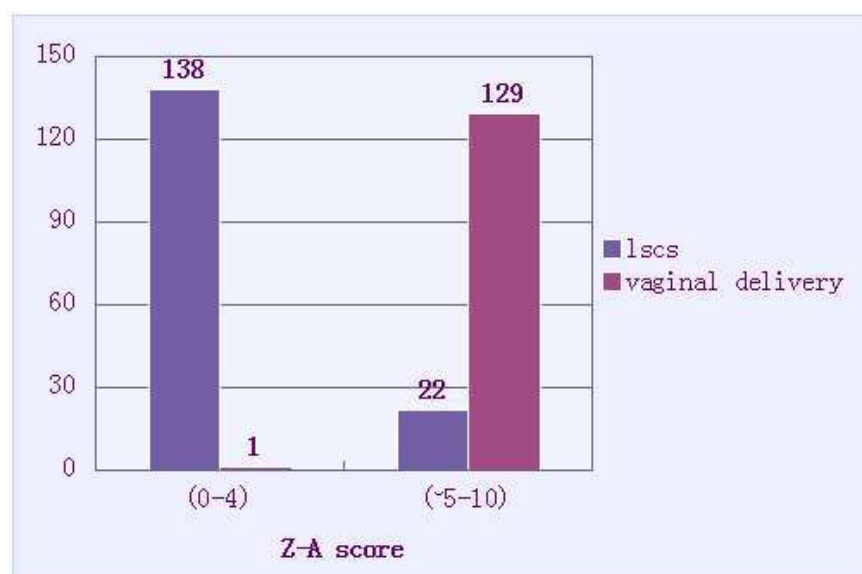
Fetal wt (in kg)	<3.2 kg	3.2-3.6 kg	>3.6 kg	Total
lscs	166	28	4	198
Vaginal delivery	125	5	0	130
Total	291	33	4	328

The above table 8 shows the distribution of total no of cases of breech according to mode of delivery and fetal weight.

Out of the 328 cases of breech 291 cases had baby weight <3.2 kg of which 57% underwent caesarean section and 43% had normal vaginal delivery.

35 cases had baby wt between 3.2-3.6 kg, of which 28 cases underwent caesarean section.

Only 4 cases had baby wt >3.6 kg and all the cases underwent caesarean section [8] (Graph 6).



Graph 5: Relation of mode of delivery with Z score(breech presentation) [7].



Graph 6: Distribution of breech according to mode of delivery and fetal wt (Z A score) [8]

Table 9: Relation of gestational age with fetal outcome

Gestational age	Full term		Preterm		Total
	Good	NICU	Good	NICU	
Breech	271	9	13	9	302
Face	13	2	0	0	15
Brow	3	0	0	0	3
Transverse	24	2	1	1	28
Compound	2	0	0	0	2
Total	313	13	14	10	350

Table 10: Relation between early fetal outcome with mode of delivery

Fetal outcome	Good	NICU	Total
LSCS	229	8	237
Vaginal delivery	98	18	116
Total	327	26	353

According to table 9 and 10, of the total no of cases that underwent LSCS 97% had good immediate fetal outcome.

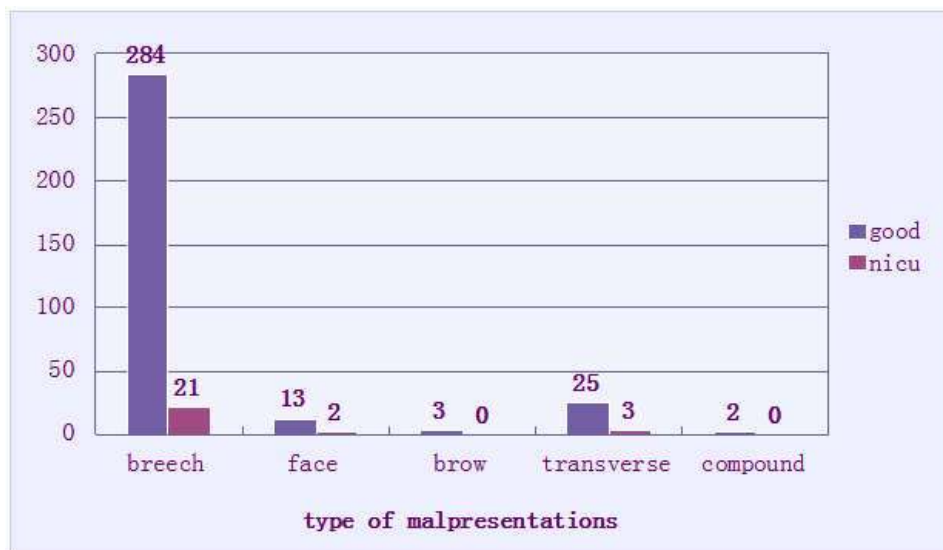
Out of the 116 cases that were delivered vaginally 84% had good fetal outcome [10] (Graph 7).

Table 11: Relation of fetal malpresentation with immediate fetal outcome

Fetal outcome	Good	NICU	Total
Breech	284	21	305
Face	13	2	15
Brow	3	0	3
Transverse lie	25	3	28
Compound	2	0	2
Total	327	26	353



Graph 7: Relation between early fetal outcomes with mode of delivery [10]



Graph 8: Relation of fetal malpresentation with immediate fetal outcome [11]

According to the above table 11, of the 328 cases of breech, 284 cases had good fetal outcome whereas 21 cases baby were admitted in NICU.

Thirteen (13) cases of face presentation had good fetal outcome and 2 cases in which babies were admitted to NICU.

Eighty six (86)% cases of transverse lie had good fetal outcome and also all cases of brow and compound presentation had good fetal outcome [11] (Graph 8).

Table 12: Early and late neonatal outcome

Late outcome	Early outcome	Good	NICU	Expired
Good		305	20	2
NICU		16	0	10

The above table 12 shows that cases with good early fetal outcome also had good late neonatal outcome [12].

Discussion

- Malpresentations constitute a distinct high risk group for which proper management of cases is required for good fetal outcome.
- As such malpresentations is not associated with poor maternal and fetal outcome but neglected malpresentations can lead to serious maternal and fetal outcome. This shows the importance of proper antenatal care of such cases for proper management, early diagnosis and hence prevent neglected cases.
- Our study shows the distribution of fetuses according to malpresentation at the time of birth which shows that breech presentation is the most common form of fetal malpresentation at term.
- In this study there is 86% of breech population according to which the incidence of breech presentation is 2.4% which is similar to study conducted by R. Anitha et al. [36] is 2.65% and 2.1% in Abha Singh et al. study and compared to 1.4% in Kothapally K et al. [37] and 3% in a study by Saira Das et al.
- The percentage of cases of transverse lie in our study is 8.1% which is next to breech presentation, followed by face 4.2% and then brow and compound presentation.
- In this study, 90% cases of breech and 90% cases of transverse lie were >37 weeks along with all the cases of face, brow and compound presentation. It is seen that 91% of cases of breech, 86% cases of transverse lie, 81% cases of face and all cases of brow and compound presentation which were >37 weeks have good immediate fetal outcome.
- According to our 55.1% of cases of breech were primigravida, i.e breech is more common in primigravida which is similar to Kothapally K et al. study [37]. 80.6% of cases of transverse lie were multigravida which show that transverse lie is more common in multigravida which is compared to Robina Ali et al. study [38].
- According to our study the percentage of complete breech is 49%, that of frank breech is 41% and 10% is footling presentation. In this study cases of complete breech showed that ratio of mode of delivery is almost 1:1. Whereas maximum patients of frank breech were delivered by caesarean section (65%) which is contrary to that of Kothapally K et al. [37] study were 90% of cases of breech underwent caesarean section. 34% of frank breech were delivered vaginally which is similar to 30.3% of vaginal deliveries in frank breech in R. Anitha et al. study [36].
- According to table 5 about 60.3% of cases of breech were delivered by caesarean section and 39.6% delivered vaginally, this show that delivery by caesarean section is more common than vaginal delivery in breech. All the cases of transverse lie, brow and compound presentation were delivered by caesarean section, which shows that caesarean section is choice of delivery.
- In our study out of the total no of cases that underwent caesarean section 97% had good immediate fetal outcome.
- In our study Z-A score was applied to 290 cases, 47.5% underwent caesarean section with ZA score of 0-4 and 44.4% were delivered vaginally with ZA score of 5-10. Only 1 case with ZA score of 0-4 was delivered vaginal as the baby was IUD. According to our study with favorable ZA score fetus can be delivered vaginally safely with good fetal outcome.
- In our study out of 33 cases of transverse lie 24.4% of cases had poor perinatal outcome, 4 cases were IUD and 4 cases were shifted to NICU after emergency caesarean section which is similar to results in Robina Ali et al. [38] study which is 26%. One of the case had maternal morbidity in the form of wound gap and resuturing.

- According to our study out of 5 cases of brow 2 cases had ruptured uterus out of which 1 case underwent obstetric hysterectomy with bladder repair. Both cases had maternal morbidity in form of ruptured uterus and bladder repair and fetal mortality.
- Out of the 16 cases of face presentation, 3 cases had perinatal morbidity and mortality. 2 cases had perinatal morbidity in the form of facial trauma and extensive facial odema for which they were admitted in NICU and 1 case had IUD baby.
- In our study 327 cases had good early fetal outcome, out of which 93.2% had good late neonatal outcome. This shows that with proper management and suitable mode of delivery, good early fetal outcome can be achieved which can lead to good late neonatal outcome.

Conclusions

- Our study revealed that 86% were breech presentation, 8.1% were transverse lie, 4.2% were face presentation and brow and compound presentation were 0.7% and 0.5%.
- Our study states that breech presentation is the most common type of malpresentation and though caesarean section yields better perinatal outcome, we can conclude that vaginal breech delivery is also safe and effective with good maternal and fetal outcomes.
- It is obvious from this study that transverse lie and brow presentation are conditions that pose significant clinical challenge, both in terms of feto-infant and maternal survival. Thus early diagnosis followed by caesarean delivery for late cases are likely to give better clinical outcome.
- The corner stone of proper management of malpresentations lies in provision of good antenatal care. The maternal and fetal outcome can be improved by early diagnosis during the antenatal period. Delivery should be conducted in hospital with well equipped caesarean facilities because once it becomes neglected then the picture for maternal and fetal outcome is poor.

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