

OUTCOME OF PRIMIGRAVIDA WITH UNENGAGED VERSUS ENGAGED FETAL HEAD AT TERM OR ONSET OF LABOUR

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ABSTRACT

The objectives of the study were to compare the progress of labour, need of medical and surgical interventions and fetomaternal outcome in primigravidae with non-engaged versus engaged fetal head at term or onset of labour. This study was performed at Services Hospital from July 2008 to December 2008. A total of 200 cases were studied over a six months period. Among these, 100 had engaged head and 100 had unengaged fetal head. Among these 100 women with unengaged head 62% had normal vaginal delivery and 38% had Caesarean delivery versus 85% normal vaginal delivery in engaged group. No etiology was found for unengaged fetal head in 46% cases. Duration of labour was prolonged and there was a greater need for active medical and surgical intervention in the unengaged group. There was no significant difference in maternal and neonatal morbidity between the two groups. Thus primigravidae with unengaged fetal head at term or onset of labour should be considered high risk and with proper monitoring and maintenance of partogram vaginal delivery is possible in majority with minimal fetomaternal morbidity.

Key words: Primigravidae with engaged head, high head at term, unengaged head in labour.

Introduction

Labour is the onset of regular uterine contractions followed by progressive cervical dilatation, effacement and descent of presenting part¹. Fetal head is said to be engaged when its widest diameter has fit into the pelvic inlet². It had been a traditional concept in Obstetrics that engagement of fetal head occurs by 38 weeks gestation in primigravida. In majority, engagement occurs between 38 and 42 weeks or even during the first stage of labour³.

Debby found that the incidence of unengaged head in primigravida was 31% out of which 82.9% delivered vaginally and 17.1% had caesarean section, a rate which was four times higher than the control rate of 4.2% (p value <0.0001). None of the women who had persistently unengaged head after 7 cm cervical dilatation delivered vaginally. These women had larger birth weights (p value <0.03) and lower Apgar score of babies (p value <0.0001)². Ambwani said that the incidence of unengaged head in primigravida at the onset of labour was 20.87%. Among these 66% delivered vaginally and 34% had a caesarean section which was double than the overall rate of 17%³.

Unengagement of head in primigravida has long been considered a possible sign of cephalopelvic disproportion.²⁻⁴ It is associated with a higher risk of obstructed labour⁵. Non engagement at the onset of active phase of labour is a predictor of the risk of caesarean section⁶. Surgical interventions are quite high.^{2,3} Latent phase is prolonged and duration of

first stage is increased from 12 to 14 hours due to improper adaptation of fetal head, high station and misdirection of uterine expulsive forces. Thus the total duration of labour also increases significantly³.

The problems of prolonged labour are that the mother is exposed to high risk of infection, ketosis and obstructed labour while the fetus faces the danger of asphyxia and infection⁷.

The purpose of the present study was to make a partographic analysis of progress of labour in primigravida with unengaged versus engaged fetal head, to determine the role of active medical and surgical interventions in primigravida with unengaged versus engaged fetal head and to determine fetomaternal morbidity associated with unengaged versus engaged fetal head in primigravida.

METHOD

Study Design: Cross-sectional analytical study.

Setting: Gynae unit III, Services Institute of Medical Sciences/ Services Hospital, Lahore.

Duration of Study: Six months from July 2008 to December 2008.

Sample Size: 100 primigravida with unengaged fetal head and 100 with engaged fetal head at the onset of labour.

Sampling Technique: Non probability, purposive convenience sampling.

Inclusion Criteria: Primigravida with cephalic presentation and estimated fetal weight of 2.5 to 4 Kg with or without labour.

Exclusion criteria: Those with skeletal deformity, intrauterine growth restriction, previous uterine surgery, placenta previa and multiple gestation were excluded. Similarly primigravida who presented with fetal distress in labour room were excluded from this study.

Outcome Measures: Duration of active phase of labour, medical interventions like use of prostaglandins and oxytocin, surgical interventions i.e. assisted vaginal delivery and caesarean section, mode of delivery, maternal and fetal morbidity were the main outcome measures.

Data collection: Patients were selected according to inclusion and exclusion criteria. After taking informed consent and reassuring patients regarding expertise and confidentiality, those with unengaged fetal head were placed in group A and those with engaged fetal head in group B.

Detailed history was taken regarding parity, duration of pregnancy and history of labour pains. Examination was done including general physical examination (i.e. height, weight), abdominal examination for fundal height, lie, presentation, engagement, amount of liquor, estimated fetal weight, palpable uterine contractions and fetal heart rate. Pelvic examination was done for pelvic assessment and bishop score. Ultrasonography was done to confirm the above mentioned findings. All the data was entered in proformas.

Patients above 41 weeks and not in labour were induced using prostaglandins. Duration of latent phase of labour was measured and patients with inadequate uterine contractions were augmented with oxytocin. The course of labour in all the patients was recorded on partograph. All the patients were studied in detail with reference to the course of labour, intervention required, mode of delivery and fetomaternal outcome. Data was transferred and analysed by SPSS version 11.

RESULTS

Two hundred primigravida were included in the study, out of which 100 had unengaged head (group A) and 100 had engaged head (group B). Maternal demographic characteristics i.e. age and parity were similar in both the groups. Most common apparent aetiological factor in group A was deflexed head present in 25% followed by CPD in 20% and no cause of un-engagement was found in 46% women.

Vaginal delivery occurred in 62% women with unengaged head and 85% women with engaged head. Caesarean section was done in 38% women with unengaged head i.e. more than double the caesarean section rate in engaged head. None of the women whose head remained unengaged till 7 cm delivered vaginally.

Table 1: Apparent etiology of unengaged head in Group A.

Apparent etiology	Number (N = 100)	Percentage
Deflexed head	25	25%
Cephalopelvic disproportion	20	20%
Loops of cord around neck	4	4%
Prelabour rupture of membranes	3	3%
Hydrocephalus	1	1%
Polyhydramnios	1	1%
No cause found	46	46%

Table 2: Mode of delivery.

Mode of delivery	Group A (N = 100)	Group B (N = 100)
Spontaneous vaginal delivery	47	73
Assisted vaginal delivery	15	12
LSCS	38	15

Duration of labour was less than 12 hours in 74% women with engaged head vs 34% with unengaged head. 66% women with unengaged head had a labour duration of more than 12 hours.

Table 3: Duration of labour.

Duration of labour	Group A (n=100)	Group B (n=100)
<12 hours	34	74
>12 hours	66	26

Only 41% women with unengaged head presented in spontaneous labour (vs 78% with engaged head) and rest were induced with prostaglandins for postdates. 95% women with unengaged head who presented with spontaneous onset of labour delivered vaginally and caesarean section was mostly required in induction group. Regarding augmentation with oxytocin, its requirement was much less in women with engaged head.

Maternal morbidity was higher in women with unengaged head but there was no significant difference in the maternal morbidity and fetal outcome between the two groups.

Table 4: Use of prostaglandins and oxytocin.

	Group A (N = 100)	Group B (N = 100)
Spontaneous onset of labour	41	78
Induction with prostaglandin	59	22
Augmentation with oxytocin	72	33
Required	28	67
Not required		

Table 5: Maternal morbidity.

Maternal morbidity	Group A (N = 100)	Group B (N = 100)
Perineal tears (third degree)	2	-
PPH	18	10
Wound infection	5	2
Hospital stay > 2 days	15	10

Table 6: Fetal outcome.

Fetal outcome	Group A (n=100)	Group B (n=100)
Admission to NNU	10	9
Meconium aspiration	4	2
Neonatal intubation	3	1
Early neonatal death	-	-

DISCUSSION

This study was carried out on two hundred primigravidas, 100 with unengaged head and 100 with engaged fetal head attending labour room from July 2008 to December 2008. In our study the most common cause for unengaged fetal head at term or onset of labour was deflexed head followed by cephalopelvic disproportion, loops of cord around the neck, prelabour rupture of membranes, hydrocephalus and polyhydramnios. No cause was found in majority of the women i.e. 46%. The duration of latent and active phase of labour was significantly increased in women with unengaged fetal head (66% vs 26%) due to improper adaptation of presenting part, deflexed head, misdirection of uterine expulsive forces, early rupture of membranes and ineffective uterine contractions. These results were consistent with the study conducted by Ambwani et al.³

The rate of caesarean section was 38% in women with unengaged head vs 15% in women with engaged head in our study. These results were consistent with the results of many studies.^{3,6,9,10} Ambwani et al stated that the rate of caesarean section was 34% in women with unengaged head at term but according to Debby², 82.9% of women with unengaged head delivered vaginally and 17.1% had a caesarean section which was quite less than our rate but it was 4 times their control rate of 4.2%.

Majority of women in engaged group presented in spontaneous labour (78% vs 41%) and majority of women in unengaged group had induction of labour at 41 weeks (59% vs 22%). There was greater need for augmentation with oxytocin in women with unengaged group (72% vs 33%). According to a study done by Saqib et al¹¹ the single most important predictor for vaginal delivery in women with unengaged head was natural onset of labour and this was seen in our study where 95% women with unengaged head who presented with spontaneous onset of labour had a vaginal delivery. Thus women with unengaged head should be induced cautiously and with counseling for increased need for caesarean section.

There was no significant difference in the maternal and neonatal morbidity between the two groups although it was slightly higher in the unengaged group. There were no serious maternal complications except third degree perineal tear.

It is **concluded** that the incidence of active medical and surgical intervention in primigravidas with unengaged fetal head at term or onset of labour is quite high. Total duration of labour is also increased in these women. If the attitude of watchful expectancy and timely intervention is used in these cases, especially in cases where no aetiological factor is found, by plotting a partogram and using oxytocin judiciously when labour appears to be taking a protracted course, most of these will deliver vaginally with minimal maternal and fetal morbidity.

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