

## The outcome of labour in primigravida with term gestation and unengaged head at onset of labour

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### Abstract

**Introduction:** Primigravida are the group at risk. As Ian Donald has said that “Primigravida is a dark and untrained horse and potential for child bearing is determined by the outcome of labour”

Labour is onset of regular uterine contraction followed by progressive cervical dilatation, effacement and descent of presenting part. Engagement is the first step in the mechanism of labour of a primigravida. Those with unengaged head at onset of labour are considered to be at high risk for operative delivery.

**Objective:** To study the course of labour, need for intervention and fetal outcome in primigravida with unengaged fetal head at term gestation at onset of labour.

**Methods:** A prospective study carried at Dept. of OBG at Rural medical college of Telangana state from July 15 to Dec 15. Total 120 primigravidas with unengaged head at term and at onset of labour were studied. Detailed history was taken in each case. General, systemic and obstetric examination was done. Ultra sonography was done in all cases and risk factors were ruled out. Cardio tocography (CTG) was done to know the fetal condition, partogram was used to monitor the progress of labour and interventions like augmentation and instrumental delivery.

**Results:** Out of the 120 women, 91 women were in the range of 20-30 yrs, and 29 women were of less than 19 yrs. The mean duration of labour, 1<sup>st</sup> stage –(7hrs min 30 min to 10hrs 45 min) and 2<sup>nd</sup> stage (55 min to 110 min) out of total 120 cases 78 cases had vaginal delivery and 42 cases needed caesarean section. Among the 78 cases who delivered vaginally 14 cases had forceps delivery, 6 cases had vacuum assisted delivery and rest of the 58 cases had normal vaginal delivery. 42 cases required emergency LSCS, the commonest indication being failure of progress of labour. APGAR score was recorded at 5 min, 81 cases had APGAR score in the range of (7-10), in 33 babies APGAR score was (4-6), <3 APGAR score seen in 6 babies. 10 babies required NICU admission.

**Conclusion:** Primigravida at term gestation with unengaged head at onset of labour should not be the sole indication for LSCS. Vaginal delivery is possible with watchful expectancy and usage of appropriate means of intervention.

**Keywords:** Primigravida, Unengaged head, Vaginal delivery, Caesarean section

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### Introduction

Primigravida are the group at risk. As Ian Donald has said that “Primigravida is a dark and untrained horse and potential for child bearing is determined by the outcome of labour”<sup>1</sup>. Labour is onset of regular uterine contraction followed by progressive cervical dilatation, effacement and descent of presenting part<sup>2</sup>. Engagement is the initial cardinal movement of fetus in the mechanism of labour of a primigravida. The term ‘engagement’ in normal labour denotes that the greatest diameter of the head has passed through the brim of the pelvis.<sup>3</sup>

Primigravida at term gestation with unengaged head are at risk of operative delivery. In the last decade,

the rising rate of LSCS is under critical review. One of the main reason of this escalation is direct LSCS of primigravida with unengaged fetal head at term which is the frequently encountered finding in obstetric practice.<sup>4</sup>

It has been the traditional concept in obstetrics that engagement occurs before 38 weeks in primi and that engagement before the onset of labour will increase the chance of safe vaginal delivery and non-engagement before the onset of labour will decrease the chance of vaginal delivery.<sup>5</sup>

Hence controversy still exists over the significance of the fetal head level in early labour, whether it bears any relation with mode of delivery<sup>6</sup>.

Our study was aimed to know the outcome of unengaged head at term and at onset of labour in primigravida and to evaluate its effect on the mode of delivery and fetal outcome.

### Materials and Methods

Ours was a Prospective study carried out at a rural medical college, in Telangana state from July 15 to Dec 15. 120 primigravidas with unengaged head at onset of labour were enrolled in the study.

**Inclusion criterion**

- Primigravidas with term gestation and unengaged head at onset of labour who had no medical complication and normal fetal heart rate on admission.

**Exclusion criterion**

- Primigravida with engaged head and those with medical disorders.
- Primigravida in preterm labour,
- Primigravida with risk factors i.e. elder age group(>35 yrs), multiparity, malpresentation and those with abnormal fetal heart rate at admission.

Informed written consent was taken from all patients enrolled for the study. Institutional ethical committee clearance was taken before hand.

**Methods**

Detailed history was taken, general physical examination was done, obstetric examination was done to assess the gestational age, lie, presentation and to estimate the fetal weight.

Fetal head was considered unengaged when more than 2/5<sup>th</sup> of the fetal head was palpable on abdominal examination (Crictons method) and/ or both poles of the fetal head i.e., sinciput and occiput were palpable by 2<sup>nd</sup> pelvic grip. Ultrasonography was carried out in all the patients for expected fetal weight, liquor content, placental position and its maturity. Admission CTG (Cardio Tocography) was done to rule out fetal distress.

In all patient's pelvic assessment and bishops scoring was done as they presented in early labour. The Muller Munro Kerr maneuver<sup>7</sup> was used to assess the adequacy of the pelvis and diagonal conjugate was accurately measured to rule out cephalo pelvic disproportion. When patient was diagnosed to be in labour, soap water enema was given, parts were prepared, partogram was plotted to assess the course of labour. Oxytocin augmentation was started in Patients where uterine contractions were not effective to produce cervical dilatation and descent of the head, and the dose of oxytocin was titrated as per requirement. Foetal heart rate was monitored as per protocol. Emergency LSCS was performed in patients having fetal distress. In few cases artificial rupture of membranes was done to augment the labour and to rule out meconium staining of liquor. All interventions - medical or surgical were recorded and documented. Weight of all the newborns was measured and recorded, APGAR scoring was done at 1min and 5 min.

**Results****Table 1: Age distribution of the patients (N-120)**

Age	No. of patients	Percentage
<20 Yrs	29	24.8%
20-30Yrs	91	75.8%

**Table 2: Measure of central tendency of age**

Mean Age	23.43 years
Median Age	24.0 years
Age Mode	24.0 years

**Duration of labour**

- Length of 1<sup>st</sup> stage of labour ranged from 7hrs 30 min to 10hrs 45 min
- Duration of 2<sup>nd</sup> stage of labour ranged from 50-110 min
- Augmentation of labour was needed in 92 cases (76.6%)

**Table 3: Mode of delivery**

Mode of delivery	No. of patients (N-120)	Percentage
Normal Vaginal Delivery	58	48.3%
Forceps	14	11.66%
Ventous	06	5%
Emergency LSCS	42	35%

**Table 4: Indication for LSCS**

Indication	No. of patients (n - 42 cases)	Percentage
Arrest of progress	25	59.5%
Fetal distress	14	33.3%
Obstructed labour	3	7.14%

**Table 5: APGAR score at 5 min**

APGAR score range	No. of patients (n = 120)	Percentage
7-10	81	67.5%
4-6	33	27.5%
<3	06	5%

NICU admission was required in 10 cases, 6cases were treated for meconium aspiration.

**Discussion**

This was a prospective study, where 120 primigravidas with unengaged foetal head in early labour who had no indication for LSCS were evaluated. The aim of the study was to analyse the progress of labour with regards to duration of labour, uterine action, foetal condition throughout the process of labour. The need for active medical and surgical interventions were also studied along with the effects on the neonatal outcome.

In our study of 120 primigravidas, 78 cases(65%) had vaginal delivery and 42 cases (35%) underwent emergency LSCS. *Noura s et al*<sup>8</sup> in their study observed Vaginal delivery in119 cases(79.3%) and LSCS in 31 cases (20.7%)<sup>8</sup>

*N Khurshid and F Sadiq*<sup>9</sup> in Lahore conducted a similar study and found Vaginal delivery occurred in 67% of cases, and 33% of cases had caesarean section. No interference was required in 60% of cases, while

ventouse or forceps was required in 7% of cases. In 64% of cases labour lasted more than 12 hrs<sup>9</sup>.

*Siama Choudhary*<sup>10</sup> in her study had vaginal delivery in 83.11% cases and LSCS was done in 16.89% of cases. The results of our study with regard to mode of delivery were found to be correlating with the

study of *Ambwani et al*<sup>6</sup>, where vaginal delivery was seen in 66% of cases and LSCS in 34% of cases. *Farhana shaik*<sup>11</sup> in Liaquat University observed 59% of cases underwent vaginal delivery, *Neha mahajan*<sup>12</sup> also observed that 59.33% of cases underwent vaginal delivery.

**Table 5: Comparison of our result with similar studies**

Mode of delivery	Our Study	Siama et al <sup>10</sup>	Kurshid et al <sup>9</sup>	Naura et al <sup>8</sup>	Ambwani et al <sup>6</sup>	Farhana shaik et al <sup>11</sup>	Neha mahajan <sup>12</sup>
Vaginal	65%	83.11%	67%	79.3%	66%	59%	59.33%
LSCS	35%	16.89%	33%	20.7%	34%	41%	40.6%

Indications for LSCS were compared with the results of *Naura S et al*<sup>8</sup>.

In our study the most common cause of cesarean section was failure of progress (59.5%) and in *Noura.s study*<sup>8</sup> it was slightly higher than ours at 67.7%, whereas fetal distress(33%) in our study was higher when compared to their study(19.4%). This could be because of the usage of oxytocin for augmentation, which was higher in our study.

**Table 6: Comparison of indications for LSCS**

Indication for LSCS	Our study (n-42)	<i>Naura s et al</i> <sup>8</sup> study (n-31)
Arrest of progress	25(59.5%)	21(67.7%)
Fetal distress	14(33.3%)	06(19.4%)
Obstructed labour	03(7.14%)	04(12.9)

Age: Out of 120 primigravida, 91 (75.8%) were in the age group of 20-30 yrs. Similar study done by *Mahajan et al*<sup>12</sup> in Srinagar observed that of the 150 primis, 110(70%) were in the age group of 20-30 yrs Another study in Pakistan by *Khurshid N et al*<sup>9</sup> observed that of the 100 primis, 70% were in the age group of 20-30yrs.

In a study done by *Siama choudhary*<sup>10</sup>, duration of labour of 1<sup>st</sup> stage was 11.04±2.04 hours and that of 2<sup>nd</sup> stage of labour was 37.8±20.3 minutes, where as in our study the mean duration of labour in 1st stage was 12.06±0.50 hours and of 2<sup>nd</sup> stage was 36.3±15.2 minutes.

In the present study Augmentation with oxytocin was needed in 92 cases (76.6%). In *Naura. S et al*<sup>8</sup> study, 109 cases (72.7%) needed oxytocin augmentation, in a study by *Abraham Debby*<sup>13</sup>, 61.9% of cases required oxytocin augmentation. In our study oxytocin augmentation was done to prevent the prolongation of first stage of labour due to weak uterine contractions and poor cervical dilatation.

*Naura. S et al*<sup>8</sup> and *Abraham Debby*<sup>13</sup> in their study found that although floating head has no effect on duration of first stage of labour the incidence of cesarean section was higher, and this was due to oxytocin correcting suboptimal labour progress in these cases. Only when oxytocin augmentation failed, the fetus was delivered abdominally.

Fetal outcome with respect to APGAR score at 5min were comparable to study of *Farhan Shaik et al*<sup>11</sup> conducted in Pakistan. NICU admission was required in 10 cases, same as in their study and we observed meconium aspiration in 6 cases and in their study 4 cases had. APGAR score at 5 minute was 7-10 in 113 (75.33%), 4-6 in 30 (20%), 3 and below in 7 (4.67%) neonates.

Apgar score	Farhan shaik <sup>11</sup> (n-100)	Neha mahajan <sup>12</sup> (n-150)	Our study (120)
7-10	75 (75%)	113 (75.33%)	81 (67.5%)
4-6	20 (20%)	30 (20%)	33 (27.5%)
<3	5 (5%)	7 (4.67%)	6 (5%)

In our study the mean birth weight was 2.83 kg ±0.17kg, *Naura et al*<sup>8</sup> study(3.15±0.35kg(SD)), *siama choudary et al*<sup>10</sup> the mean birth weight was 3.07±0.35kg(SD). In a study done by *Daniel Roshanfekar*<sup>14</sup> et al in 1999 the mean birth weight was 3.34±0.55kg. Another study done in Bhopal by *Dayal S*<sup>15</sup> in 2014, where they studied primi gravidas with engaged and unengaged fetal head, they also observed

that the mean birth weight was 2.77kg in the unengaged group, which is very similar to our study.

By analysing the results we can imply that primigravida with unengaged fetal head at onset of labour may deliver vaginally if they are given trial of labour with watchful expectancy, there might be slight increase in the duration of labour. The need for augmentation of labour is also increased in these cases.

## Conclusion

Primigravida with unengaged head at term at onset of labour is not an indication for LSCS per se. Watchful expectancy, appropriate means of intervention, augmentation by oxytocin, ARM, and with the aid of instruments like forceps & ventous, vaginal delivery is possible with minimum maternal and fetal morbidity.

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