

# LABOUR IN PRIMIGRAVIDAE WITH UN-ENGAGED HEADS

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## Introduction

Contrary to the widely held view that in nulliparas the head is engaged at term or in early labour in most of the cases we have observed that in Kashmir the head is unengaged at this stage in about 95 per cent of women and only a very small percentage present with engaged head. This led us to study the effect of high station of head on the (i) pattern of descent of head (ii) course of labour and (iii) inter-relationship with dilatation of cervix.

## Material and Methods

This study was carried out on 250 consecutive primigravidae going into spontaneous labour. Their age ranged from 16 to 26 years with an average of 21 years. Patients with cephalopelvic disproportion, toxæmias, and those presenting with advanced labour were not studied. During the course of labour we used sedation and uterotonic drugs where necessity arose. Mean labour curve for each patient was plotted as per Friedman (1954, 1955). The station of head was denoted under following categories:

(i) Station Zero (0)—Vertex at level of ischial spines.

(ii) Station minus (—)—above ischial spines.

(iii) Station plus (+)—below ischial spines.

The various phases of first stage of labour were defined as follows:

Latent phase—Commencing at the onset of true labour pains and lasting upto 2.5 cm. cervical dilatation.

Active phase: (a) acceleration phase—from 2.5 cm. to 4 cm. cervical dilatation.

(b) phase of maximal slope—from 4 cm. to 9 cm. cervical dilatation.

(c) deceleration phase—dilatation of last 1 cm. of cervix leading to second stage of labour.

## Results

### A. Station of head in relation to phase of labour.

Table I shows the station of head as related to various phases of labour. The most striking feature is the presence of unengaged head at the latent phase in 95 per cent of cases, only 5 per cent being at station zero. However, descent is seen to occur throughout the active phase of first stage and the second stage of labour. The main descent occurs during the phase of maximum slope by the end of which more than two third of cases have heads fully engaged. Further descent is achieved during the deceleration phase and then continues linearly into the

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TABLE I  
Percentage of Cases at Various Stations of Head During Different Phases of Labour

Phase of Labour	Station (Percent of patients)				
	Above -2 cm.	-1 to -2 cm.	Zero	+1 cm.	+2 cm. & below
Latent Phase	60	35	5	-	-
Acceleration Phase	36	54	10	-	-
Phase of Max. Slope	6	27	54	13	-
Deceleration Phase	-	7	43	43	7

second stage of labour till the perineal floor is reached.

B. Duration of Various Phases of Labour

(i) Latent Phase (Table II)

TABLE II  
Duration of Latest Phase of Labour

Duration in hours	Percentage of Patients
Less than 8 hours	24
8 to 14 hours	30
14 to 20 hours	26
20 to 24 hours	18
More than 24 hours	2

From a study of Table II it is seen that the latent phase of labour is prolonged beyond 14 hours in 46% of patients and more than 20 hours in 20%; only 24% completed the latent phase in less than 8 hours.

(ii) Acceleration Phase (Table III)

TABLE III  
Duration of Acceleration Phase

Duration in hours	Percent of Per cent of
1.5 or less	34
1.5 to 2.0	35
2 to 2.5	20
2.5 to 3	5
3 to 3.5	6

It is clear from Table III that the acceleration phase was completed in 34%

in 1.5 hours or less and about 90% of cases within 2.5 hours. 11% patients took 2.5 to 3.5 hours.

(iii) Phase of Maximum Slope (Table IV)

TABLE IV  
Duration of Maximum Slope

Duration in hours	Percentage of Patients
1.5 or less	48
1.5 to 2.0	30
2 to 2.5	20
2.5 to 3	2

Again the maximum slope is achieved in 78% within 2 hours and the remaining 22% complete it in 3 hours time.

(iv) Deceleration Phase (Table V)

TABLE V  
Duration of 2nd Stage of Labour

Duration in hours	Percentage of Patients
1.0	2
1.0 to 1.5	93
1.5 to 2.0	5

In 95% patients the deceleration phase was completed within 1.5 hours.

(v) Second Stage of Labour (Table VI)



TABLE VI  
Duration of 2nd Stage of Labour

Duration in hours	Percentage of Patients
1.0	75
1.0 to 1.5	15
1.5 to 2.5	10

Thus, the second stage of labour was completed within 1.5 hours in 90% of cases and in the remaining 10% within 2.5 hours.

### C. Mode of Delivery

70 per cent patients had spontaneous vaginal delivery while another 23% were assisted by vacuum suction applied during the deceleration and second stage of labour. This was done as a part of the teaching programme for house staff and maternity students, and was applied in those cases where the 2nd stage and deceleration phase were getting prolonged. Outlet forceps was applied in 2% cases for similar reasons. In 5% cases caesarean section was performed because of prolonged labour and fetal distress.

### Discussion

Amongst the Kashmiri Women 95 per cent of primigravidae going spontaneously into labour present with unengaged heads. This observation is in complete contrast to the various reports in literature. Shirali and Bhatt (1961) followed the course of 2,000 primigravidae and found 80.7 per cent with engaged head at labour. There is no explanation for this observation in our cases at present. However, we found that unengaged heads at the onset of labour do not mean inadequacy or contraction of pelvic inlet as most of our patients delivered vaginally. In fact even at the deceleration phase 43 per cent of our cases were hav-

ing station of head above zero. Eastman and Hellman (1961) remarked that engagement conclusively demonstrates the adequacy of pelvic inlet exceptions being recognised. This is a natural corollary though our study demonstrates that the reverse is not always true. There is another report of equal incidences of unengaged heads in primigravidae and multiparae from Nigeria (Lister 1960), which demonstrates that this feature of unengaged heads is not unique to Kashmiri primigravidae. The high station of head at the onset of labour and during its various phases influences the course of labour in certain well defined ways. We have observed a proportionate prolongation in the latent phase of labour in patients with high station, though this is not an invariable feature. Forty-six per cent of our patients had a latent phase of more than 14 hours, yet a quarter of all the patients had a latent period of less than 8 hours.

This trend is also reflected in the active phase of first stage and the second stage of labour but not to the same extent as in the latent phase. One third of our cases had an acceleration phase of more than 2 hours, one half had a maximum slope of more than 1.5 hours, while the deceleration phase was complete within 1.5 hour in 95 per cent patients and the second stage of labour was complete within 1 hour in 75 per cent. These observations are in conformity with Friedman and Schleben (1965) and Kalyanakuti and Raj Gopalan (1973).

Though the high station in our patients leads to a prolongation of various phases of labour descent of head occurs throughout the first and second stages of labour and is related to cervical dilatation, though the relationship is not intimate. Ultimately vaginal delivery is effected in



most of our cases proving that the head station becomes correctable in them at some phase of labour. However the application of vacuum suction in the phase of deceleration and 2nd stage of labour reflects our impatience to expedite the later phase of labour in order to prevent fetal distress. As will be seen, though we excluded cephalopelvic disproportion, toxæmias and other complications from our study, we still had a caesarean section rate of 5 per cent which is rather high.

The fear that may be generated at the onset of labour with high percentage of unengaged heads is therefore unwarranted as in most of the cases (93%) the stations got corrected. But it certainly calls for constant vigilance on the part of the obstetrician throughout the course of labour. The obstetrician will then be able to decide as to when a patient needs intervention in the form of uterotonic drugs, sedation, vacuum suction or caesarean section.

#### Summary

1. 250 consecutive primigravidae were studied for the course of labour.
2. 95% had unengaged heads at the onset of labour.

3. Descent of head occurred throughout the first and second stages of labour and was related to cervical dilatation.

4. A high station at the onset of labour led to prolongation of the first and second stages of labour but the high station became correctable in 93 percent of patients by the deceleration phase.

5. A high station at the onset of labour does not mean inlet contraction though it does reflect in higher rate of interference due to prolonged labour.

6. Patients with unengaged heads call for constant vigilance on the part of the obstetrician.

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