

# RELATIONSHIP OF TIME OF ENGAGEMENT OF HEAD IN PRIMIPARA WITH SPONTANEOUS ONSET OF LABOUR

By

MEENAXI SAIKIA AND M. P. GOGOI

## SUMMARY

The present study was carried out on 100 primigravida cases to study the relationship of the time of engagement of head with spontaneous onset of labour. It was found that in 94 per cent of cases the head had engaged either before the onset of labour (in 6.38%) or in the first stage of labour (in 93.62%). It has been observed clinically that the engagement of the foetal head frequently did not occur at 36 weeks of pregnancy in the primigravidae, contrary to the common obstetric teaching. It was further observed that there was no significant difference in the course and outcome of labour in the cases where the head engaged before the onset of labour and in the cases where the head engaged in the first stage of labour.

### Introduction

Engagement is the process by which the biparietal diameter of the foetal head passes through the pelvic inlet. The usual clinical observation and teaching that in primigravida the head engages in the pelvis by 37 completed weeks of pregnancy, has recently been the subject of controversy. According to Greenhill (1965) in the primigravida the foetal head is engaged a week or more before the onset of labour, in the first stage and sometimes in the second stage of labour. Percival (1969) reported that the foetal head should be engaged by the 36th week of gestation. Chogtu and Khanum (1977) observed that in 95 per cent primigravidae the head did not engage till the

onset of labour. Browne (1978) stated that if the head remains unengaged till the 38th week the reason should be sought.

Due to different observations reported by different workers regarding the time of the engagement of the foetal head, we thought it worthwhile to carry out a study with the following aims and objectives.

- (i) To find out the time of engagement of the foetal head in primipara.
- (ii) To observe the effect of engagement on the onset and course of spontaneous labour.
- (iii) To find out the mode of delivery in case of engaged and unengaged head at the time of onset of labour.
- (iv) To study the foetal outcome in these cases.

*From: Gauhati Medical College, Gauhati, Assam.*

*Accepted for publication on 22-7-87.*

*Material and Methods*

The present study was carried out in the Department of Obstetrics and Gynaecology, Gauhati Medical College, Assam from March, 1981 to May, 1982. During this period 100 primipara patients, who had attended the O.P.D., were examined clinically from 36 weeks of pregnancy onwards and emergency cases with unengaged head at the onset of labour were included in the study. Cases in which the patients were not sure of their last menstrual period or with irregular cycles were not included in the study.

*Criteria of engagement followed in the present study*

(i) Both poles were not palpable per abdomen.

(ii) On vaginal examination the lower most portion of the head was at the level of the ischial spines.

A thorough general, systemic and obstetrical examination was made of each case. When the diagnosis of labour was made and where vaginal delivery was anticipated, the patient was given plain water enema and sedation, labour was allowed to follow the natural course under close observation. To accelerate labour, artificial rupture of membrane or two units of syntocinon of five per cent Dextrose was infused intravenously or a combination of both was used. Trial of labour was allowed in certain cases of borderline cephalopelvic disproportion.

*Results and Observations*

The foetal head engaged in 88 (93.62%) cases in the first stage of labour. In only six cases the head engaged before the onset of labour (i.e. 6.38% of the total engaged cases).

TABLE I  
*Engagement of the Foetal Head*

Engaged or non-engaged	No. of cases	Percentage
Engaged	94	94
Non-engaged	6	6

In cases where the head engaged before the onset of labour, spontaneous onset of labour occurred in five cases in 40 weeks of gestation. In cases where the head engaged in 37 weeks of pregnancy, labour started at 38 weeks of pregnancy.

TABLE II  
*Time of Engagement*

Duration of pregnancy in weeks	No. of cases	Percentage
36	—	—
37	1	1.06
38	—	—
39	—	—
40	5	5.32
40-42	—	—
First stage of labour	88	93.62

In 50 per cent of the cases the head engaged before labour, the cervical dilatation was two centimeters at the onset of labour. In 57.95 per cent cases where the head engaged in the first stage of labour, the cervical dilatation was two centimeters. It was three centimeters in 50 per cent of the cases where the head did not engage.

The engagement delivery interval was 7 days in the case where the head engaged at 37 weeks and in the remaining 5 cases where the engagement took place at 40 weeks, it varied from one to three days. The mean engagement delivery interval was 3.16 days in these cases. The engagement delivery interval of the cases where engagement took place in

TABLE III  
Duration of Labour

Average duration of 1st stage of labour in the cases where the head engaged before onset of labour	Average duration of 2nd stage of labour in cases where head engaged before onset of labour	Average duration of labour
10 hours 33 minutes	43 minutes	11 hours 23 minutes
Average duration of 1st stage of labour in cases where head engaged in 1st stage of labour	Average duration of 2nd stage of labour in cases where head engaged in the 1st stage of labour	Average duration of labour
10 hours 59 minutes	30 minutes	11 hours 33 minutes

the first stage of labour varied from 5 hours 55 minutes to 20 minutes. The average time was 1 hour 56 minutes.

*Mode of delivery:* The incidence of spontaneous vaginal delivery was 66.66 per cent and that of low forceps 33.33 per cent in the cases where the head engaged before the onset of labour. In the cases where the foetal head was engaged at the onset of labour, the incidence of spontaneous delivery was 78.72 per cent, low forceps 14.89 per cent and caesarean section was 6.38 per cent. Birth weight of the babies where the head engaged before the onset of labour was 2.63 Kg. and in the unengaged group at the onset of labour was 2.84 Kg.

#### Discussion

In the present study it was observed that the head engaged in 6.38 per cent (6 cases) before onset of labour and in 93.62 per cent (88 cases) the head engaged in the first stage of labour. The head did not engage in 6 cases. Out of 6 cases where the head engaged before the onset of labour, in one case the head engaged at 37 weeks and in 5 cases it engaged at 40 weeks of pregnancy. Lister (1960) reported in majority of the primipara the

head did not engage till late in the first stage or sometimes in the second stage of labour. Similarly, Chogtu and Khanum (1977) reported that 95 per cent of primipara had spontaneous onset of labour with unengaged foetal heads. Only in 5 per cent it engaged before the onset of labour and was at station 'O'. According to them unengaged head at the onset of labour does not mean inadequacy or contraction of pelvic inlet as 95 per cent of the cases had vaginal delivery. The findings of the present study show a close similarity with the findings of Lister (1960) and Chogtu and Khanum (1977). Choudhury *et al* (1980) also stated that incidence of engagement in primigravida at term or even at the onset of labour was much less than the usual clinical observation. They were of the view that failure of engagement at term or even at the onset of labour was of normal occurrence. It was also observed that the position of the foetal head had no influence on engagement. Auer and Simmons (1949), Stipp (1969) and Anderson and Turnbull (1969) are also of the same opinion.

No significant difference was observed in the total duration of labour between

TABLE IV  
Mode of Delivery Where Cases Where Head Engaged Before Onset of Labour

	Present study	Stipps (1969)	Chaudhuri <i>et al</i> (1980)		
Spontaneous delivery	66.33%	98.5%	99.1%		
Low forceps delivery	33.33%	—	—		

  

Mode of delivery in cases where the head was not engaged before the onset of labour					
	Present study	Alter & Simmons (1949)	Stipp (1969)	Chogtu & Khanum (1977)	Chou- dhuri <i>et al</i> (1980)
Vaginal delivery	93.61%	76%	94.6%	—	—
Caesarean section	6.38%	24%	5.1%	5%	5.4%

the two groups of cases. Stipp (1969) and Chaudhuri (1986) had similar observation. Mean engagement delivery interval was 3.16 days where the head engaged before the onset of labour. It was 1 hour 56 minutes, in the cases where the head engaged in the first stage of labour. Weeks and Flynn (1975) reported engagement delivery interval as 9.7 days.

The average birth weight of the babies was higher in the unengaged group which was similar to the findings of Choudhuri *et al* (1980). Auer and Simmons (1949) and Stipp (1969) stated that there was no statistical difference in the birth weight between engaged and unengaged head at the onset of labour.

Circumference of the head of babies had no effect on engagement of foetal head or outcome of labour. Similar findings were also reported by Weinberg and Scadron (1946) and Auer and Simmons (1949). There was no significant difference in the Apgar score between the two groups of cases, Stipp (1969) had similar observation.

#### Conclusion

It has been observed from the present study the foetal head in primipara frequently does not engage in the later

weeks of pregnancy, contrary to the common obstetric teaching. Therefore, although floating head at term in a primipara is of clinical significance, there should not be any undue apprehension on this account. However, proper clinical assessment and constant vigilance during labour is necessary.

#### References

1. Auer, E. S. and Simmons, J. M.: *Am. J. Obstet. Gynec.* 58: 291, 1949.
2. Anderson, A. B. M. and Turnbull, A. C.: *Am. J. Obstet. Gynec.* 105: 1207, 1969.
3. Browne, J. C.: *Melure-Brownes Antenatal Care. J & A Churchill Ltd., 11th Edn., 1978.*
4. Chogtu, L. and Khanum, W.: *J. Obstet. Gynec. India*, 27: 329, 1977.
5. Choudhuri, S. K. and Ghose, P.: *J. Obstet. Gynec. India*, Vol. XXX, No. 2, 228, 1980.
6. Greenhill, J. P.: *Obstetrics*, 1965, 13th Ed., W. B. Saunders and Co., Philadelphia and London.
7. Lister, Quoted by Bhatt, R. V. and Shirali, P. M.: *J. Obstet. Gynec. India*, 12: 83, 1961.
8. Percival, R.: *Holland and Brews Manual of Obstetrics*, 1969, 13th ed.
9. Stipp, C. G.: *Am. J. Obstet. Gynec.* 104: 267, 1969.
10. Weekes, A. R. L. and Flynn, M. J.: *Brit. J. Obstet. Gynec.* 82: 7, 1975.
11. Weinberg, A. and Scadron, S. J.: *Am. J. Obstet. Gynec.* 52: 225, 1946.