

ENGAGEMENT OF FOETAL HEAD IN PRIMIGRAVIDAE AND ITS RELATIONSHIP TO PERIOD OF GESTATION AND TIME OF ONSET OF LABOUR

by

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Traditionally engagement of foetal head is said to take place at 36th week of gestation in primigravidae being expected to occur at this time of pregnancy in some 80 per cent of women (Percival, 1969). Engagement has been defined as the passage of the biparietal diameter of the foetal skull through the plane of the pelvic inlet (Donald, 1969). In clinical terms this means that very little of the foetal head can be felt on abdominal examination and the examining fingers can not be dipped below the presenting part (Clayton *et al*, 1972). The recognition of this phenomenon in the antenatal clinic is, however, dependent upon clinical skill and experience. Most obstetricians will have encountered primigravidae in whom engagement of the foetal head has been recognized even as early as 30th week of gestation in a woman "Sure of her dates" and will also have seen those with the "phenomenon of the high head at term." As a result of a clinical impression that engagement of the foetal head very frequently had not occurred at 38 weeks in primigravidae patients, and in the absence of any recent comprehensive studies on the subject, we were prompted to investigate the frequency distribution of the duration of gestation at engagement in all, primigravidae attending

the antenatal clinic at U.I.S.E. Maternity Hospital, over the period of January 1974 to December 1975 and to attempt to see what was the relationship between duration of gestation at first reported engagement and duration of gestation at the time of delivery.

Method

This analysis is based on a retrospective survey of the antenatal records of delivery of 462 consecutive primigravidae who had a labour of spontaneous onset and were delivered after 30 weeks of pregnancy at U.I.S.E. Maternity Hospital, Kanpur during 1974 and 1975. Patients were examined from 28 weeks at two weekly intervals until 36 weeks and thereafter weekly interval until delivered. Engagement was said to have taken place when the examining fingers could not be dipped below the presenting part and very little of the foetal head could be felt on abdominal examination. Included in this study were patients who booked before 16 weeks of gestation, had regular cycles of 28-30 days and in whom the size of the uterus at booking was compatible with the calculated duration of pregnancy.

Result

Duration of gestation at first reported engagement

In this series the mean time of first reported engagement of the foetal head was

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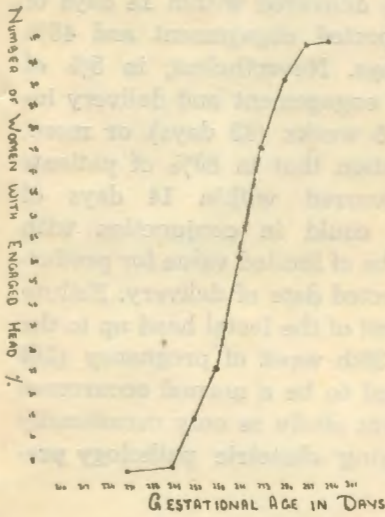
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271 ± 11.9 (SD) days of gestation (38.67 ± 1.7 weeks).

Graph I shows the incidence of engage-

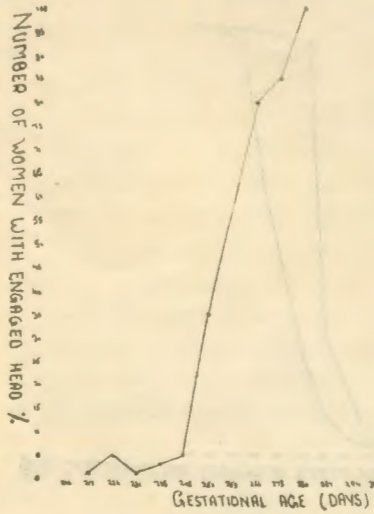
GRAPH I SHOWING THE INCIDENCE OF FIRST REPORTED ENGAGEMENT OF FOETAL HEAD IN PRIMIGRAVIDAE



ment between 210 and 294 days (30 to 42 weeks of gestation). Fifty per cent of the patients were seen to have an engaged head by 266 days of gestation (the beginning of the 39th week), but at 273 days of gestation (the end of the 39th week) 35 per cent of the patients were still not reported to have an engaged head. At 259 days of gestation (37 weeks), the time when the foetal head is clinically expected to engage in the primigravidae patients, engagement was found in only 23 per cent of all the patients.

Graph II indicates the frequency distribution of the time of the first reported engagement of the foetal head. The greatest incidence of the finding of engagement for the first time occurred at 280 days of gestation (40 weeks). The highest rate of engagement occurred between 273 and 280 days of gestation (39 and 40 weeks). In 50% of primigravid patients studied

GRAPH II SHOWING FREQUENCY DISTRIBUTION OF THE TIME OF FIRST REPORTED ENGAGEMENT OF FOETAL HEAD IN PRIMIGRAVIDAE



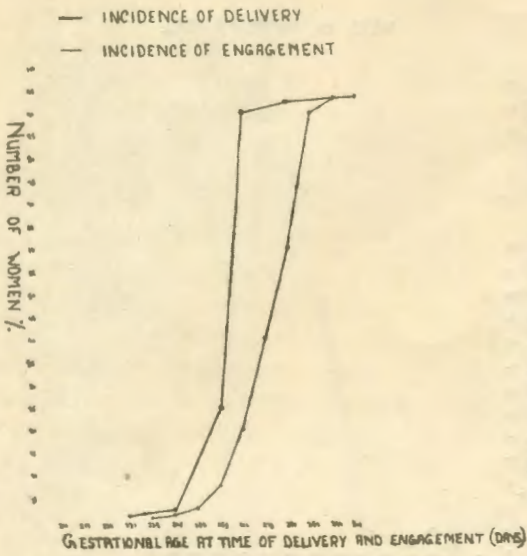
engagement occurred between 266 to 294 days of gestation (38 to 42 weeks).

Relationship between time of first engagement and time of delivery

Graph III shows the cumulative incidence of delivery in the studied group of patients. The mean gestational age at delivery was 279 ± 10.5 (SD) days (39.8 ± 1.48 weeks). The mean interval between the first reported engagement and delivery was 10 ± 13.3 (SD) days (1.39 ± 1.94 weeks). In 44 per cent of the patients studied, the head was not reported to be engaged until they presented in labour.

In only 20 per cent of patients engagement and delivery interval was more than 14 days. In only 4 of the 422 patients included in the series was an unengaged head at term associated with cephalopelvic disproportion or placenta praevia.

GRAPH III SHOWING INCIDENCE OF ENGAGEMENT OF FOETAL HEAD AND DELIVERY IN PRIMIGRAVIDAE



Discussion

Many standard obstetrical text books state that spontaneous engagement of the foetal head in primigravidae should have occurred by the 37th week of pregnancy and suggest that failure to do so is an indication for further investigations. The results of this study are not in agreement with this reading. Our study showed that only a minority of primigravidae will have an engaged foetal head in the supine posi-

tion by the end of 37th week (259 days) and in the majority of patients engagement takes place after the end of the 38th week of pregnancy (266 days). There was a close relationship between engagement of the foetal head and duration of pregnancy at delivery. 80 per cent of patients in our study delivered within 14 days of the first reported engagement and 46% within 7 days. Nevertheless, in 5% of patients the engagement and delivery interval was 6 weeks (42 days) or more. The observation that in 80% of patients delivery occurred within 14 days of engagement could in conjunction with other facts, be of limited value for predicting the expected date of delivery. Failure of engagement of the foetal head up to the end of the 38th week of pregnancy (266 days) seemed to be a normal occurrence in the present study as only occasionally was underlying obstetric pathology present.

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