

## PARTOGRAPHIC ANALYSIS OF LABOUR IN BREECH PRESENTATION\*

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### SUMMARY

Mean duration of breech labour in nullipara of this series is  $13.11 \pm 5.1$  hours, latent phase is  $7.52 \pm 4.1$  hours and active phase  $5.3 \pm 2.8$  hours. In multipara, mean duration of labour is  $8.15 \pm 3.3$  hours, latent phase  $4.64 \pm 2.8$  hours and active phase  $3.27\% \pm 2.17$  hours.

Latent phase and active phase are more frequently prolonged if membranes rupture earlier than 3 cm. dilatation.

Progress of labour is adversely affected by high station and increasing weight of the baby.

Perinatal mortality and depressed baby is more frequent if cervicograph crosses action line before patient delivers.

Friedman's analysis of labor and maintenance of partographs have successfully contributed to modern active management of labor with vertex presentation. It is debatable whether the same criterion for latent phase and rate of cervical dilatation in active phase can be considered for breech also.

Labor in breech has not received due consideration. There is no reason to suspect that labor in breech presentation differs from that in vertex provided passage is adequate and uterine action appropriate and the latter can only be assessed after a certain period of active labor. Uterine inertia occurs in 7.9% of breech labor (Todd and Steer, 1963) and

this adds significantly to perinatal risk. Perinatal mortality in breech labor lasting more than 24 hours increases to 19.5% compared to 5.9% in breech in general (Mirchandani, 1973).

Cervicographic analysis of breech labor would be helpful in exploring the possibility of utilising guidelines on similar lines as suggested by Philpott for vertex presentation (1979).

### Material and Methods

Two hundred and sixty-six singleton breech cases with gestational period of 34 weeks and above, observed in labor ward of Smt. S. K. Hospital over a period of 2 years were taken up for study. Those who had cesarean section on admission in labor or were seen in second stage only

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were excluded. Each case was scored according to Zatuchni-Andros (1965) scoring system on the basis of findings at the time of admission and progress of labor. Patient was considered to be in latent phase till the first detection of cervical dilatation of 3 cm. and from this point onwards till the first detection of full dilatation she was considered to be in active phase. Out of 266 cases studied data was available on latent phase in 126 and active phase in 266 cases (Table I).

### Observations

#### A. Factors affecting cervical dilatation

1. Time of rupture of membranes—Duration of labor and incidence of protracted phases was more in cases where membranes ruptured early. With rupture of membranes before 3 cm cervical dilatation i.e. in latent phase, mean duration of labor was 12.95 hours, frequency of prolonged latent phase was 57.8% and protracted active phase was 48.9% com-

TABLE I

Number of Cases with Available Data on Latent and Active Phase in 266 Cases of Breech Labour

Cervical Dilatation on Admission	Latent phase	Active Phase	
		Duration	Rate of cervical dilatation
3 cm.	Nil	56	56
More than 3 cm.	Nil	Nil	84
Less than 3 cm.	126	123	126
Total	126	179	266

The various phases of labor and total duration was termed prolonged, or protracted according to present and following criterion.

Latent phase is 'prolonged' if in hospital it exceeds 8.6 hours in primigravida or 5.3 hours in multipara Philpott (1979).

Active phase is 'protracted' if rate of cervical dilatation is less than 1.2 cm/hour in primigravida or 1.5 cm/hour in multipara.

Labor is considered 'prolonged' when it exceeds mean plus 2 S.D.

Partogram with 'alert' and 'action' guidelines (Philpott, 1979) was followed for recording all relevant factors in labor in 104 prospective cases, and fetal outcome evaluated in relation to cervicographic guidelines.

pared to 9.5 hours mean duration of labor, 33.3% prolonged latent phase and 23.5% protracted active phase in cases with rupture of membranes in active phase. These differences were statistically significant (Table II).

2. Type of breech presenting. It is well known that extended breech is a better dilator than complete breech. Protracted active phase was found in 43.75% of footling presentation (n=16), 41.03% flexed breech (n=78) compared to 27.4% in extended breech (n=112). Latent phase could not be studied due to lack of relevant information early in labor. However, type of breech does affect the station of the presenting part.

3. Weight of the fetus—Frequency of protracted active phase increases with birth weight (Table III) of the fetus, be-

TABLE II  
Effect of Time of Rupture of Membranes on Labour and its Phases

	Membranes ruptured in latent phase		Membranes ruptured in active phase	
	No.	%	No.	%
Total Cases	45	100	81	100
Prolonged Latent Phase	26	57.8	27	33.3*
Protracted Active Phase	22	48.9	19	23.5*
Mean Duration of Labour (Hours)	12.95		9.58	

\* Statistically significant by proportion test.

TABLE III  
Frequency of Protracted Active Phase in Various Fetal Weight Groups

	1.5-2.0 K.G.		2.0-2.5		2.5-3.0		3.0-3.5		3.5 and above	
	No.	%	No.	%	No.	%	No.	%	No.	%
	Total Cases	28	100	89	100	113	100	29	100	7
Protracted Active Phase	3	10.7	29	30.34	37	32.74	13	44.8	7	100

ing 44.8% in 3 to 3.5 kg and 100% in above 3.5 kg.

4. Station of presenting part. Higher the station, longer the labor, being 10.92 hours where station is -3 at onset of labor compared to 6.0 hours with -1 station (Table IV). Frequency of prolonged latent phase and protracted active phase

is significantly increased with higher station at onset of labor.

5. Zatuchni-Andros score at onset of labor. Zatuchni Andros score is useful for assessing individually as it considers parity probable weight of the baby, station of presenting part and dilatation of cervix. Total labor and second stage are

TABLE IV  
Effect of Station of Presenting Part at Admission on Labour and its Phases

	-3		-2		-1 & below	
	No.	%	No.	%	No.	%
Total Cases	142	100	87	100	37	100
Average duration of labour (Hrs.)	10.52		7.95		6.0	
Prolonged Latent Phase	46	32.39	7	8.04	—	—
Protracted Active Phase	56	39.43	24	27.58	7	18.91

prolonged significantly in low score cases both in primigravida and multipara. However, no difference was found in duration of active phase (Table V).

B. Mean duration of labor and its phases. Labor was analysed separately in primigravida and multipara:

Mean duration of labor is 13.11 hours in primigravida and 8.15 hours in multipara (Table VI). Mean duration of latent phase 7.52 hours in nullipara and 4.64 hours in multipara (Table II) actually is shorter than the mean for vertex presentation quoted by Friedman (1954) i.e. 8.6

TABLE V

*Duration of Labour and Its Phases in 266 Breech Cases in Relation to Zatuchni-Andros Score*

	Low Score (0-3)			High Score (4-11)		
	No.	Mean	S.D.	No.	Mean	S.D.
<i>Duration of Labour (Hrs.)</i>						
Primigravida	34	14.47	5.38	29	11.52*	4.74
Multipara	21	10.19	3.80	39	7.02*	3.5
<i>Latent Phase (Hrs.)</i>						
Primigravida	34	8.35	4.35	29	6.55	3.78
Multipara	23	6.17	3.43	40	3.74*	2.36
<i>Active Phase (Hrs.)</i>						
Primigravida	49	5.8	3.52	48	4.75	2.03
Multipara	24	4.0	2.83	61	2.98	1.87
<i>Second Stage (Min.)</i>						
Primigravida	43	36.16	11.85	72	30.22*	15.59
Multipara	23	28.22	10.02	116	21.29*	9.51

\* Statistically significant difference (P less than 0.05).

TABLE VI

*Mean Duration of Labour, Latent and Active Phase in Breech Labour*

	Labour (Hrs.)		Latent Phase		Active Phase	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Primigravida	13.11	5.1	7.52	4.1	5.3	2.8
Multipara	8.15	3.3	4.64	2.8	3.27	2.17
More than Mean $\pm$ 2 S.D.	No.	%	No.	%	No.	%
Primigravida	6/63	9.52	5/63	7.92	4/77	5.2
Multipara	4/60	6.67	3/63	4.76	4/85	4.7

hours and 5.3 hours respectively. Active phase was however found to be longer in breech in present study, it was 5.3 hours in nullipara and 3.27 hours in multipara, compared to that for vertex i.e. 4.9 hours and 2.2 hours respectively as reported by Friedman (1954, 56).

C. Correlation of prolonged latent phase with active phase:

In a parturient progressing slowly in latent phase, active phase is also likely to be slow, being 50.94% compared to 19.18% protracted active phase where progression of labor was within normal limits (Table VII).

cervicograph did not cross alert line. This was because of delivery of breech through incompletely dilated cervix. In these cases though alert line was not crossed, active phase was protracted in terms of rate of cervical dilatation.

Low apgar score at 5 min. (i.e. less than 6) was four times more frequent when cervicograph crossed action line as compared to when only alert line was crossed (Table VIII).

#### Discussion

It is well known that prolonged labor in breech is associated with high perinatal

TABLE VII  
Effect of Duration of Latent Phase on Active Phase in 126 Cases

Active Phase	Normal Latent Phase		Prolonged Latent Phase	
	Normal	Protracted	Normal	Protracted
No.	59	14	26	27
%	80.82	19.18	49.06	50.94*

\* Statistically significant (P less than 0.05).

#### D. Guidelines:

On partographic record plotted prospectively guidelines 'Alert' and 'Action' as suggested by Philpott (1979) were superimposed. It was found 57.1% (28/69) of nulliparae and 65.45% (36/55) of multiparae delivered before cervicograph crossed alert line. Only 18.45% (9/49) of nulliparae and 18.18% (10/55) of multiparae delivered after action line. It is this category of cases where perinatal mortality may be decreased by augmentation after alert line. No perinatal death occurred in both primigravida and multipara if active phase was completed before action line even though it had crossed alert line but there were 4 corrected perinatal deaths when cervicograph crossed action line. However 3 deaths occurred even when

mortality. Schmitz *et al* (1955) found perinatal mortality of 21.8% with prolonged labor as compared to 4.12% associated with normal labor.

Partographic record of pertinent events in labour helps in proper assessment of progress in each labour case. Duration of labour exceeded by two standard deviation of the mean in 9.52% of nulliparae and 6.6% of multiparae (Table V) and active phase exceeded 2 S.D. in 5% of parturients. Wherever active phase lasts beyond 'action' line, depressed baby is four times more frequent.

A cervicograph would help in detecting slow progressing cases early. High station of presenting part and big baby favours slow progress. Flexed breech necessarily starts at higher station than

TABLE VIII  
Fetal Outcome in Relation to Cervicographic Guidelines in 104 Prospective Cases

	Never Crossed Alert Line		Crossed Alert Line		Crossed Action Line	
	No.	%	No.	%	No.	%
<i>Primi.</i>						
Total Cases	28	100	12	100	9	100
Corrected PNM	1	3.57	0	—	2	22.22
5 min. A/s less than 6	2	7.15	1	8.33	3	33.33
<i>Multi</i>						
Total Cases	36	100	9	100	10	100
Corrected PNM	2	5.55	0	—	2	20
5 min. A/s less than 6	2	5.55	1	11.11	5	50

extended breech and is associated with early rupture of membranes. Early rupture of membranes is as frequent as in 20-30% of breech cases (Munro Kerr 1977). In present study early rupture of membranes has been found to be associated with longer mean duration of labour, prolonged latent phase and slow rate of cervical dilatation in active phase (Table II).

Evaluation of breech cases at onset of labour by Zatuchni-Andros (1965) score warn about high-risk in low score cases, still there would remain some cases with high score and those with early rupture of membranes who have insufficient uterine forces or slow dilatation. Statistically significant prolongation of latent phase and second stage is found in low score cases particularly so in multiparae (Table V).

Prolonged latent phase i.e. more than 8.6 hours in nullipara and 5.3 hours in multipara in hospital should be taken as a

warning as also in vertex Philpott (1979), case reassessed and augmented as protracted active phase is more often associated with prolonged latent phase (Table VII). Prolongation of latent phase alone does not increase fetal hazard but when both phases are prolonged risk to fetus is increased. Cervicographic guidelines 'Alert' and 'Action' lines would help in detection of protracted active phase and its timely treatment.

Perinatal mortality is about 20% if cervicograph crosses action line and this may be reduced by earlier augmentation as indicated by prolonged latent phase and protracted active phase. However, some fetal loss due to terminal difficulties or undilated cervix will still occur.

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