FOETAL SALVAGE IN CORD PROLAPSE

By

N. M. Nerurkar, S. V. Parulekar and Meena S. Bhattacharyya

SUMMARY

Forty-six cases of cord prolapse are reviewed with regard to etiology and foetal outcome. The best mode of delivery was by caesarean section. The overall and corrected perinatal mortality was 41.4% and 21.1% respectively. The role of ultrasound in prevention of cord prolapse and foetal salvage is discussed.

Introduction

Cord prolapse is an uncommon obstetrical accident accounting for a disproportionately high foetal loss. This can be prevented by identifying cases at risk, careful obstetrical intervention, early diagnosis and prompt delivery. Sonography may play a role in diagnosis and management of cord presentation and prolapse.

Material and Methods

Forty-six cases of cord presentation and prolapse occurring in 16,958 deliveries from 1st January 1983 to 31st December 1987 at the K.E.M. Hospital, Bombay, are analysed. Etiological factors and determinants of foetal outcome are evaluated.

Results

The incidence of cord prolapse was 0.26%. Multiparae were found to be at a higher risk (86%) for cord prolapse than primigravidae (14%).

Malpresentations were found to be the single largest etiological factor followed by a high station of the foetal head in vertex presentation with questionable cephalopelvic disproportion. Confirmed disproportion was the cause in only 4 cases. Hydramnios, abruptio placentae, placenta praevia and multiple gestation accounted for one case each, while in 7 cases the cause was unknown.

Cord presentation was seen in 2 cases with no perinatal loss while cord prolapse accounted for all the 19 perinatal deaths. Ten cases presented with absent foetal heart sounds. Further analysis excludes these cases.

The lower segment caesarean section was the chief mode of management (69.4), with no stillbirths but 4 neonatal deaths (16%) due to intrapartum asphyxia. Breech extraction was conducted in 5 cases with 2 stillbirths of which one baby had anencephaly. Two of four babies delivered normally survived (Table I).

Of 13 babies delivered within 15 minutes of diagnosis, there was only one death (7.7%). When the interval between diagnosis and delivery was 15 minutes to

From: Department of Obstetrics and Gynaecology, K.E.M. Hospital and Seth G.S. Medical College, Parel, Bombay 400 012.

Accepted for publication on 5-4-88.

TABLE I
Mode of Delivery and Foetal Outcome

Mode of delivery	No.	Live births	Still births	Neonatal deaths	Total daaths
Vaginal delivery	4	2	2	—	2
Vacuum extraction	1	1	0	—	0
Outlet forceps	1	0	1	—	1
Breech extraction	5	3	2	—	2
Lower segment caesarean section	25	25	0	4	4
Total	36	31	5	4	9

1 hour, 5 of 19 infants (26.3%) died (Table 2).

One of the survivors is a notable case, a second-gravida first para in whom the foetus presented by the vertex, the cord prolapsed, cord pulsations and foetal heart sounds were absent but the baby was born 1½ hours later with a 5 min. Apgar score of 8/10 and survived.

The overall perinatal mortality was 41.4%. The corrected perinatal mortality excluding those presenting with absent foetal heart sound and one with a congenital anomaly incompatible with life was 21.1%. Among 36 cases presenting with a live foetus, five infants were stillborn. Twenty-nine infants were born alive with 4 neonatal deaths. Perinatal loss was more in preterm infants (42.8%) than in term infants (20.6%) (Table III). The salvageable mortality was 33.3%.

Discussion

There has not been much change in the incidence of or factors associated with

TABLE II
Time Interval and Foetal Outcome

Time interval	No.	Live births	Still births	Neonatal deaths	Total deaths
0-15 min.	13	12	1	—	1
15 min-1 hr.	19	18	1	4	5
More than 1 hr.	4	1	3	—	3
Total	36	31	5	4	9

TABLE III
Gestational Age and Foetal Outcome

Gestational age	No.	Live births	Still births	Neonatal deaths	Total deaths
28-32 wks.	2	1	1	—	1
33-37 wks.	5	4	1	1	2
37 wks. +	29	26	3	3	6
Total	36	31	5	4	9

cord prolapse, though perinatal survival has improved over the years due to improved neonatal care facilities.

Obstetric manipulation as a cause of cord prolapse is a preventable factor. Clark *et al* (1968) in their series of 117 cases reported an 11.9% incidence of obstetric intervention as the factor causing cord prolapse. Levy *et al* (1984) also reported that one in five cases of funic prolapse is associated with an iatrogenic factor especially amniotomy and midcavity forceps operations.

The determinants of perinatal mortality include presentation, foetal weight and gestational age and the time interval between occurrence of cord prolapse and delivery. The last factor can be divided into the period between occurrence and diagnosis and that between diagnosis and delivery, the latter being entirely controllable. Clark *et al* (1968) estimated that time was the most important factor in reducing perinatal mortality to 16.8% in their series, in which one-third of all infants were delivered within 10 minutes and two-thirds within 20 minutes of diagnosis. Schultz (1946) stated that a delay of more than 30 minutes resulted in a four-fold rise in foetal mortality. The interval between occurrence and diagnosis can be minimised by advising patients to report to hospital early in labour. Routine vaginal examination at the time of rupture of the membranes also helps in early diagnosis.

Caesarean section is the best method of management. Savage *et al* (1970) in a series of 516 cases reported perinatal loss to be 15% in cases of delivery by caesarean section compared to an overall loss of 38.2%. The decision for abdominal delivery must be based on an estimate of the likelihood of extrauterine survival. On this basis, two infants in our series were allowed to be delivered vaginally but were subsequently found to weigh 1,100 and 1,300 gm respectively. Breech extraction can be used in selected cases, though Daly and Gibbs (1968) recommend that regardless of presentation and cervical dilatation, preparations should be made for caesarean section, as breech extraction is associated with a high infant morbidity and mortality. In our series one stillbirth occurred in the process of breech extraction.

Antenatal ultrasonic diagnosis has been recently suggested as a means to minimise this accident. Lange *et al* (1985) advocate sonography at term in all cases of contracted pelvis or malpresentation to detect funic presentation. Driscoll *et al* (1987) have reported 2 cases of cord prolapse where ultrasound helped to detect foetal heart activity in absence of foetal heart sounds or cord pulsations. The explanation for this apparent paradox is that the pulse pressure in the cord vessels drops to a level such that the pulse is not palpable and the foetal heart is too slow to be detected or is confused with maternal pulsations. Ultrasound facilities in the labour room may thus help save babies presumed on clinical grounds to be dead.

Acknowledgement

We thank the Dean and the Head, Department of Obstetrics and Gynaecology, K.E.M. Hospital and Seth G.S. Medical College, Bombay, for allowing us to publish hospital data.

References

1. Clark, D. O., Copeland, W. and Ullery, J. C.: Am. J. Obstet. Gynec. **101**: 84, 1968.

2. Daly, J. W., and Gibbs, C. E.: Am. J. Obstet. Gynec. **100:** 264, 1968.
3. Driscoll, J. A., Sadan, O., Van Gelderen, C. J. and Holloway, G. A.: Brit. J. Obstet. Gynec. **94:** 594, 1987.
4. Lange, I. R., Manning, F. A., Morrison, I., Chamberlain, P. F. and Harman, C. R.: Am. J. Obstet. Gynec. **151:** 1983, 1985.
5. Levy, H., Meier, P. R. and Makowski, E. L.: Obstet. Gynec. **64:** 499, 1984.
6. Savage, E. W., Kohl, S. G. and Wynn R. M.: Obstet. Gynec. **36:** 502, 1970.
7. Schultz, J.: Obstet. Gynec. **6:** 657, 1955. JAMA, **1c1:** 372, 1946.