

EARLY NEONATAL OUTCOME OF LIVE-BORN INFANTS DELIVERED FOLLOWING BREECH PRESENTATION

by

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and

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Introduction

Neonatal mortality rate for infants born following breech presentation varies between 25-30%, which is about 12 times the mortality rate among non-breech deliveries (Gellis, 1976 and Gellis, 1977). This prompted us to look into the records of neonates delivered as breech at the All-India Institute of Medical Sciences, Hospital between January 1974 through December 1977. The aims of the study were as follows:

1. To determine the neonatal morbidity and mortality of infants born following breech presentation and to compare it with the overall neonatal mortality.
2. To assess the role of various factors which have an effect on neonatal mortality among these infants and
3. To suggest alternate modes of delivery which could possibly result in a more favourable outcome.

Material and Methods

The Institute Hospital is a general public Hospital but booking for antenatal care and confinement is limited by and large to high risk pregnancies. All deliveries are attended by a pediatric re-

sident for prompt resuscitation and care of the baby at birth. The case records of live-born infants delivered following breech presentation, during the period, January 1974 through December 1977 were scrutinized and analyzed. The data was compared with overall morbidity and mortality figures of all live-born infants (including those born as breech) delivered at the Institute Hospital during the same period. Student's 't' test was employed to assess the statistical significance of difference in morbidity and mortality of two groups.

Results

Two hundred and twenty infants were delivered as breech presentation during this period which constituted 3.5% of the total deliveries conducted at All-India Institute of Medical Sciences Hospital. Of these, detailed analysis was possible in 200 cases, because the remaining case records were either unavailable or incomplete.

Mode of Delivery

Of 157 infants delivered vaginally, 91, (58%) required active assistance for delivery. Forty-three (22.2%) infants were born by cesarean section. In one third, emergency cesarean section was undertaken either for fetal distress or impaction, while the rest were sectioned following a planned decision.

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Parity status

Breech presentation was more frequent among primiparous mothers as compared to multiparous ($p < 0.001$) (Fig. 1).

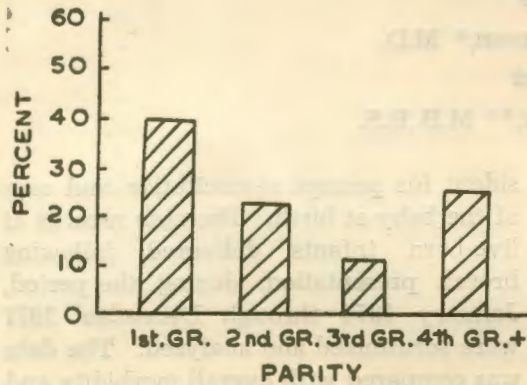


Fig. 1

Parity status of mothers of infants with breech presentation.

Birth Weight and Gestational Age

In all 55 (27.5%) infants were preterm which is statistically significant when compared with 8.6% overall incidence of prematurity ($p < 0.001$). The incidence of prematurity of 42.5% among infants who delivered spontaneously was significantly higher as compared to those who required active assistance at birth ($p < 0.05$). It would suggest that preterm infants with breech presentation are more likely to deliver spontaneously.

Seventy (35%) infants weighed 2500 g or less at birth as compared to overall incidence of 29.2% of low birth weight babies at our hospital. The higher incidence of low birth weight babies was accounted for solely by immaturity rather than intrauterine growth retardation.

Birth Asphyxia

Forty-six infants (23%) manifested birth asphyxia as evidenced by 1-minute

Apgar score of 3 or less, as compared to 5.03% overall incidence of birth asphyxia. The incidence of birth asphyxia of 28.5% among those who were born vaginally with assistance, was significantly higher as compared to 13.6% among spontaneous unassisted births ($p < 0.01$). Over one-half (62.5%) of the infants born following emergency cesarean section had birth asphyxia. Most of these infants manifested evidences of fetal distress in the form of irregularities in the fetal heart. All the 4 babies in whom cesarean section was done for meconium-stained liquor, had severe birth asphyxia. In contrast, infants delivered by elective cesarean section had lowest (3.7%) incidence of birth asphyxia ($p < 0.001$).

Birth Injuries

Evidences of birth trauma were noticed among 45 of those delivered vaginally and in only 4 infants delivered by cesarean section ($p < 0.001$). Trauma to subcutaneous tissues and genitals in the form of ecchymoses and edema was found in 30 infants delivered vaginally. Two babies delivered by cesarean section, had incisional wounds due to the surgical blade and 1 had unexplained subcapsular hematoma of the liver.

Peripheral nerve injuries Erb's Palsy 7 and Klumpke's paralysis were recorded in 8 infants. Interestingly, all instances of brachial plexus injuries in our hospital during the period of study were limited to breech deliveries. We did not encounter any instances of pseudoparalysis or spinal cord injuries. Congenital dislocation of hips, 1 bilateral and the other unilateral, was found in 2 babies.

Five infants delivered vaginally had intracranial and/or pulmonary hemorrhage. All these babies had severe birth asphyxia, and it difficult to attribute the hemorrhage birth trauma alone.

Conclusions

Convulsions were observed among 9 babies, an incidence of 4.5%. This is in sharp contrast to the overall incidence of neonatal convulsions of 0.68%. In 7 infants convulsions followed severe birth asphyxia and 1 of these had associated intracranial hemorrhage. Four infants with convulsions died.

Hyperbilirubinemia

Hyperbilirubinemia due to causes

Neonatal Mortality

Thirty-nine of the 200 babies born following breech presentation died during the neonatal period, giving a neonatal mortality rate of 19.5%. This is 5 times the overall neonatal mortality rate of 3.8%. Among those who died, 34 were delivered vaginally and remaining 5 were born by emergency cesarean section. The main causes of deaths are shown in Table I.

TABLE I
Primary Causes of Deaths Among Infants Born Following Breech Presentation

Birth asphyxia	19	(3 babies had intracranial hemorrhage)
Septicemia	7	(2 infants developed necrotizing enterocolitis)
Gross immaturity (< 30 weeks)	6	(4 died following apneic attacks and 2 developed severe hypothermia)
Postnatal aspiration	4	
Major congenital malformations	2	
Hyaline membrane disease	1	
Total	39	

which could be related to the effect of breech delivery was found in 8 (5.1%) babies delivered vaginally (2 due to birth asphyxia and 6 due to subcutaneous bleeding) and in 1 (2.3%) baby delivered by cesarean section. This difference in the incidence of hyperbilirubinemia among the two groups was not statistically significant.

Congenital Malformations

The major congenital malformations were recorded in 7 (3.5%) infants which is statistically similar to overall incidence of 2.7%. All infants had multiple system anomalies. Abnormalities of head, was seen in 3 infants (Hydrocephalus, anencephaly and microcephaly in one each). Mirchandani (1973) reported 6.9% incidence of congenital malformations among breech presenting infants.

The majority of deaths occurred during first 24 hours, while deaths after first week were mostly accounted for by septicemia (Fig. 2). Out of the total of

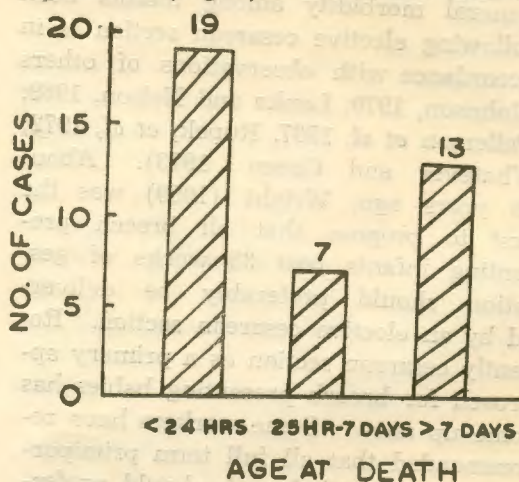


Fig. 2

Age at death. One half of infants died on the first day. Majority of deaths after first week of life were accounted for by septicemia.

70 low birth weight babies in the whole series, 30 infants died.

Discussion

Our observations do highlight and re-emphasize the fact that breech first is not a normal or safe way of coming into the world. A very high incidence of immaturity (27.5%) among infants delivered following breech presentation is comparable to the reported incidence of 20-47% by various workers (Brans and Casaady 1975; Braun *et al* 1975; Dass *et al* 1964; Fianu 1976; Kapur and Kaur, 1966; Mirchandani, 1973; Sinha, 1964). This three to four fold increase in the incidence of prematurity may partly explain the increased risk of morbidity and mortality among these infants. However, there were inherent hazards to the infants during vaginal mode of delivery, especially when delivery had to be assisted or when cesarean section was unduly delayed till after signs of fetal distress had appeared. The significantly better outcome, lower incidence of birth asphyxia and general morbidity among infants born following elective cesarean section is in accordance with observations of others (Johnson, 1970; Lanka and Nelson, 1969; Pallerson *et al*, 1967, Rupek, *et al*, 1972; Whatever and Green 1973). About 20 years ago, Wright (1959) was the first to propose that all breech presenting infants past 35 weeks of gestation should preferably be delivered by an elective cesarean section. Recently cesarean section as a primary approach for breech presenting babies has come up anew. Some workers have recommended that all full term primiparous mothers with breech should preferably be delivered by an elective cesarean section while others (Bird and McElin, 1970; Ralis, 1975; Zatuchni and Andros

1967) have used a concept of breech scoring index to identify those high-risk infants where timely decision must be taken to deliver the infant with a planned cesarean section. In case vaginal delivery is contemplated, it must be conducted by an experienced obstetrician and a senior pediatric resident who is experienced in the art of resuscitating an asphyxiated baby must be available in the labor room. It needs to be emphasized that the vaginal delivery of a breech presenting fetus is of a far greater hazard to the infant as compared to all other modes of deliveries.

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The author worked in H.E. Medical College, Simla from February 1971 to January 1974, and since then in Medical College, New Delhi. The author has given an opportunity to study the cases of abnormal pregnancy and delivery. The author generally encounters 2-3 cases of abnormal pregnancy in the last 3 years. The difference in the number of cases is due to the fact that the author has not given any special attention to the study of abnormal pregnancy. The author has not given any special attention to the study of abnormal pregnancy. The author has not given any special attention to the study of abnormal pregnancy.

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