

Subdural Haematoma in Nigerian Newborns

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Summary

Azubuike, J. C. and Izuora, G.I. (1980). *Nigerian Journal of Paediatrics*, 7(1), 16. **Subdural Haematoma in Nigerian Newborns.** Ten cases of subdural haematoma in the immediate neonatal period are reported. Precipitate and prolonged labour appeared to be important causative factors. Clinical features which should raise suspicion include convulsions, tense or bulging anterior fontanelle, apnoea and irritability. Early diagnosis and evacuation of the haematoma carry a good prognosis.

SUBDURAL haematoma or haemorrhage is a localised and circumscribed collection of blood between the cerebral mantle and the dura mater. In the newborn infant, the lesion is often traumatic in origin. It should be suspected in any infant with a history of a potentially traumatic labour and delivery who develops cerebral symptoms and signs during the first week of life. Diagnosis in suspected cases may be confirmed by performing subdural taps at both lateral angles of the anterior fontanelle. The condition is amenable to treatment by aspiration.

Recent autopsies carried out on two newborn infants with apnoea, hyperirritability, seizures and slightly tense anterior fontanelle in the Newborn-Special-Care Unit of the University of Nigeria Teaching Hospital (UNTH) Enugu, revealed subdural haemorrhage. These two cases prompted us to undertake a prospective study of this condition in order to define its clinical features and the prognosis in survivors.

Materials and Methods

During an eighteen-month period (September 1974 to February 1976), all babies admitted to the Newborn-Special-Care Unit of the UNTH, Enugu, with complaints of seizures, hyperirritability and apnoea were investigated. The investigations included lumbar puncture, serial half-hourly blood sugar determinations using Dextrostix-Eyctone (Ames) and chest roentgenograms. Blood cultures were also done if and when indicated. The presence of clear cerebrospinal fluid and tense anterior fontanelle further necessitated diagnostic subdural taps. All newborns with confirmed meningitis, sepsis or hypoglycaemia were excluded. Included in this series were those newborns with confirmed subdural haematoma.

Subdural taps were performed by the introduction, under aseptic conditions, of a No. 20 or 21 short-bevelled needle, 0.2-0.5 cm. at the lateral angles of the anterior fontanelle. A positive tap was followed by repeated taps every second or third day until a dry tap resulted. The quantity of blood obtained at each tap was noted.

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Infants with convulsions or evidence of cerebral irritation were treated with diazepam and/or phenobarbitone. Convulsions were immediately controlled with very slow intravenous injection of diazepam, using a dose of 0.05–0.2 mg per kilogram of body-weight. Phenobarbitone, used as a prophylaxis (3–5 mg per kilogram of body-weight) was given orally in two divided doses. This medication was discontinued during subsequent follow-ups, if there were no convulsions in the preceding six months. The duration of follow-up was between 12 and 30 months.

Results

During the 18-month period of study, subdural taps were performed in 80 newborn infants who manifested signs and symptoms suggestive of subdural haematoma. Sixteen out of these 80 newborns had confirmed subdural haematoma. Out of the remaining 64 newborns, laboratory investigations confirmed the following diagnoses: hypoglycaemia (15), aspiration pneumonia (7), sepsis (16) and meningitis (8). No definitive clinical diagnosis could be made in the remaining 18 patients.

The total number of babies delivered at UNTH, Enugu, during the period of the study was 3,550, giving an incidence of subdural haematoma of 0.45 per cent. Six out of the 16 children with the haematoma were excluded from the series because of irregular follow-up. The perinatal data on the remaining 10 cases are summarised in Table I. There were 7 males and 3 females, consisting of 8 fullterm and 2 preterm newborns. The birth weights varied between 1,800 gm and 4,500 gm. The one-minute Apgar score in all the cases was 5 or below, reflecting the poor clinical condition of the infants at birth. The five-minute Apgar score was above 7 in 8 of the patients and 7 and 6 respectively in the remaining 2 patients.

The amount of fluid recovered at each subdural tap varied from patient to patient. Between 2

and 5 ml of fluid were obtained at each tap, in eight patients, whilst 20 and 30 ml were obtained from the first taps in the remaining 2 patients respectively. Subsequent taps in these two patients yielded smaller amounts (5–10 ml). On the whole, an average of 7 consecutive taps was performed before the collections became dry. The haemorrhage was bilateral in 3 patients and unilateral in the remaining seven.

Obstetric History

Two preterm babies and one full term baby were products of precipitate labour (less than three hours) in primigravidae. Seven full-term infants were products of prolonged labour (longer than 24 hours) in multiparae. Deliveries of these multiparae were by Caesarean section. In two of these cases, delivery by vacuum extraction had been attempted but the procedure failed.

Clinical Features

The clinical features in the 10 patients are listed in Table II. Seizures (generalised, focal or combination of both) was the commonest symptom and occurred in eight (80 per cent) of the ten babies. Tense anterior fontanelle was the next common feature. Attacks of apnoea with cyanosis occurred in six (60 per cent) of the ten patients. The apnoea was often one of the first clinical manifestations. Hyperirritability and high-pitched cry were also frequent. Retinal haemorrhages on fundoscopy were present in two patients. Most of these features occurred between 24 and 72 hours after birth.

Absence of normal neonatal responses such as sucking, grasp, rooting, incurvation and asymmetric tonic neck reflexes was noted in four of the infants. The Moro reflex was often exaggerated initially, but became depressed or absent later. Hyperactive knee-and ankle-jerk reflexes was observed less frequently. Transillumination of the skull demonstrated lucency in only one patient.

TABLE I

Perinatal data on 10 Infants with Subdural Haematoma

<i>Patient No.</i>	<i>Birthweight (Grams)</i>	<i>Gestational Age</i>	<i>Sex</i>	<i>Apgar Score 1 min/5 min</i>	<i>Obstetric History</i>
1	4500	term	M	4/8	Obstructed prolonged labour due to cephalopelvic disproportion, Caesarean Section.
2	3000	term	F	4/8	Prolonged labour, attempted vacuum extraction, C-S.
3	1800	34 weeks	M	5/7	Precipitate delivery.
4	3400	term	M	5/9	Prolonged labour, C-S for foetal distress.
5	4000	term	F	4/8	Prolonged labour, attempted vacuum extraction, C-S.
6	3200	term	M	5/9	Prolonged labour.
7	3600	term	F	5/9	Prolonged labour, C-S for breech presentation.
8	2400	36 weeks	M	4/9	Precipitate delivery.
9	3150	term	M	3/8	Precipitate delivery.
10	3800	term	M	3/6	Obstructed, prolonged labour, C-S for foetal distress.

C-S = Caesarian section

TABLE II

Clinical Features in 10 Newborns with Subdural Haematoma

<i>Feature</i>	<i>Number of Patients</i>	<i>Per cent of Total</i>
Seizures	8	80
Tense anterior fontanelle	7	70
Apnoea	6	60
Irritability	6	60
Pathological reflexes	4	40
Retinal haemorrhages	2	20

Prognosis

Two of the patients were readmitted at the ages of 3 and 6 months respectively, with haemophilus meningitis and died within two days of admission. One of these patients had a head circumference

above the 97th percentile at the time of re-admission.

Six of the remaining eight patients developed normally. They had normal head sizes for their respective ages and achieved head control between two and three months of age; they sat at five to six months of age, crawled and stood with support at seven to nine months of age and were able to walk and call 'mama' and 'papa' before the age of fifteen months. One patient, a female, had convulsions with fever at the ages of four and six months respectively, despite phenobarbitone medication. Developmentally, her head size was below the 3rd percentile at the age of two years. She crawled at ten months, walked at eighteen months of age and is still unable to talk.

The last patient had poor head control and was unable to sit without support at the age of fourteen months. She weighed 3800 gm at birth and had an Apgar score of 6 at five minutes

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Discussion

Trauma is often associated with subdural haematoma in the newborn. Mealey (1975) reported that out of eighty infants with haemorrhagic subdural fluid collections, 21 per cent had a history of traumatic delivery. Although a prolonged and difficult delivery may be a causative factor, precipitate delivery especially if associated with prematurity, is more likely to cause haemorrhage. Very rapid delivery may lead to sudden release of pressure and tearing of blood vessels with haemorrhaging into the subdural space which may manifest clinically within hours or days of delivery (Moyes, 1969).

Seizure was the most common feature in the present series, occurring in 80 per cent of the infants. The incidence of 0.45 per cent of subdural haematoma in our series contrasts with the study of Rowe and Lombroso (1970), who reported that out of 137 full-term infants with seizures within the first three weeks of life, 20 (14.6 per cent) had intracranial birth injuries and none was of the subdural variety. The occurrence of subdural haematoma in our series may have been contributed to by obstetric factors. In our institution, a significant proportion of deliveries is by women who received no antenatal care. Such women come to the hospital for delivery often after spontaneous onset of labour at home. Delivery of most of these women is frequently by Caesarean section, as was the case in most of the deliveries in the present series. Although the incidence of birth trauma is low in deliveries

by Caesarean section per se, obstructed and prolonged labour which lead to the operative delivery would appear to be the most important contributory factor.

Differential diagnostic possibilities such as meningitis, sepsis, hypoglycaemia, and pneumonitis usually considered when newborns present with seizures, hyper-irritability and apnoea, were excluded in the present study after appropriate laboratory investigations.

To our knowledge, very little has been written on the subsequent development of infants with subdural haematoma in the newborn period. In the present series, two patients died from pyogenic meningitis. There was however, no evidence that the basis for the meningitis was the haematoma. The two infants with microcephaly and psychomotor retardation had low 5-minute Apgar scores. In addition, well over 70 ml of haematoma was aspirated during seven consecutive taps from each of the two patients. In contrast, the six infants with normal psychomotor development had normal Apgar scores, the amount of aspirate was less than 5 ml during each tap and none of them was tapped for more than three times before a dry tap resulted.

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