The First Year of Life

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BIRTH TRAUMA

Intracranial injuries

Hypoxia is the commonest cause of "cerebral" signs, though it is not usually thought of as a form of injury. Fetal distress due to hypoxia may be succeeded by petechial subarachnoid and intracerebral haemorrhages.

Intraventricular haemorrhages occur in pre-term infants, especially those with the respiratory distress syndrome, and are a common cause of death in these infants.

When the fetal head is large in relation to the pelvic outlet or delivery is precipitate or by the breach, there is a risk of extracerebral haemorrhage due to laceration of the tentorium cerebelli or falx cerebri affecting a venous sinus.

Infants may be unduly lethargic or especially irritable shortly after birth, and there are usually no helpful confirmatory signs then. Later there may be pallor, a high pitched cry, poor muscle tone or increased tone, convulsions, reluctance to suck, vomiting, or apnoeic attacks, and fast or periodic breathing. Rarely the tension of the anterior fontanelle is raised, the heart rate is slow, or the pupils fail to react to light. A Dextrostix test should be performed to exclude hypoglycaemia, a plasma calcium concentration estimated, and a lumbar puncture considered to exclude meningitis.

The infant should be nursed in an incubator for easy observation but if he weighs over 3000 g the thermostat should be turned to the minimum level.

Convulsions

If convulsions occur intramuscular paraldehyde should be given (an ordinary disposable syringe is safe). Adding hyaluronidase, made up with water and well shaken, increases the rate of absorption of paraldehyde and accelerates its maximum therapeutic effect. An intravenous infusion should also be started and about three hours after the fit phenytoin 8 mg/kg should be given intravenously over 15 minutes to prevent a recurrence. 24 hours later the maintenance dose of phenytoin should be started but may usually be discontinued after 48 hours. Alternatively, intramuscular phenobarbitone may be given instead of phenytoin.

Doubts have been cast on using phenytoin in the first year of life as there is evidence that it may interfere with cerebellar maturation that occurs at this time. This is not a serious contraindication to short-term use of the drug. Phenytoin has the great advantage that it does not lower the level of consciousness or make the infant reluctant to suck. Feeds should be stopped for 24 hours and fluids given intravenously.

Cephalhaematoma

Cephalhaematoma is a subperiosteal haemorrhage which is limited by surrounding sutures. In most cases there is probably a hairline fracture of the underlying cranial bone, which may be difficult to demonstrate but is unimportant since it affects only the outer table. There is usually no brain damage. A surprisingly large amount of blood may be present and blood transfusion is occasionally required. The lesion may not be noticed until the third day.

During resolution a calcified rim may appear, which suggests a depressed fracture, or there may be a hard swelling which takes several months to disappear.

Chignon

Cephalhaematoma must be distinguished from caput succedaneum, which is a soft tissue swelling due to oedema of the part of the head presenting at the cervix and which is not limited by the sutures.

Vacuum extraction is often associated with a "chignon"—subcutaneous oedema where the cap has been applied. In some cases a large haematoma may form and occasionally the skin becomes necrotic. Nevertheless, the skin grows rapidly from the borders to cover the area within a few weeks.

Fractures

Fractures of the clavicle or humerus and stretching of the brachial plexus present as lack of spontaneous movement and an absent Moro reflex in the arm on that side. The clavicle and humerus should be radiographed. Fracture of the clavicle needs no treatment, but if the humerus is fractured the arm should be splinted to the infant's body with a crêpe bandage. Injuries to the brachial plexus sometimes have a poor prognosis and the infant should be seen by an orthopaedic surgeon for advice on preventing contractures. Diaphragmatic paralysis often accompanies stretching of the brachial plexus and may cause a raised respiratory rate. Another condition that may be mistaken for injury of the brachial plexus is temporary paralysis of the dorsiflexors of the wrist caused by pressure on the radial nerve in the radial groove.

Other conditions

A sternomastoid "tumour" is not noticeable at birth but usually presents after the first week. A firm mass, 1-2 cm in diameter, is usually found in the middle or lower third of the sternomastoid muscle but it may be anywhere along its length. It will disappear within a year and usually the infant will then be perfectly normal. The mother is taught by a physiotherapist to move the infant's head passively through the whole range of normal movements daily until the lesion resolves. Without treatment about 10% of the infants develop torticollis in the second year of life and a further 10% when they are over 5 years old.

Subconjunctival haemorrhages, like petechiae on the head and neck, are common and unimportant. But if there are petechiae on the trunk further investigations are indicated.

Subcutaneous fat necrosis produces a firm subcutaneous area at the site of pressure, especially of the obstetric forceps. It may be red and tender. No treatment is needed. If the site is unusual and the swelling not noticed until a few days after birth, the area of necrosis may be confused with a pyogenic abscess.

Pressure on the facial nerve before birth or from obstetric forceps may cause a transient palsy which lasts up to two weeks. Care of the exposed cornea is essential.

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The photograph of sternomastoid tumour was reproduced from *Atlas of the Newborn* by permission of Professor Neil O'Doherty and MTP Press.