HYDROCEPHALUS AS A CAUSE FOR DYSTOCIA IN LABOUR

(With Two Illustrative Case Reports)

BY

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Definition

Hydrocephalus is a condition in which there is an excess of cerebro-spinal fluid within the skull. The volume of the fluid may be as much as 10-12 pints (6—12 litres). The cerebral ventricles become distended. The vault of the cranium is greatly enlarged, the individual bones being separated by gaping sutures and fontanelles. The circumference of the head may be as much as 30 inches (75 cms.). The body is small in comparison with the size of the head. Other foetal abnormalities such as spina bifida or talipes may co-exist.

Hydrocephalus, although uncommon, is not rare enough to be dismissed. It is said to occur once in a thousand deliveries (Dugald Baird). There were six cases of hydrocephaly met with at the Government Raja Sir Ramaswamy Mudaliar Lying-in-Hospital in a total of 11,047 deliveries conducted in the years 1953 and 1954. Two of them were in 1954 and both are reported here.

It is not difficult to diagnose hydrocephalus in the ante-natal clinic. A foetal head that is suspiciously oversize should be investigated further by radiography. When diagnosed early, the pregnancy may be terminated by inducing labour. Usually hydrocephalus presents as an emergency in obstetrics, labour being well advanced. The desirability of presenting herself at a maternity hospital may not occur to the patient until she has suffered a protracted and fruitless labour.

Although the majority of hydrocephalics present by the vertex, a good proportion 25% (Dugald Baird) present by the breech. The explanation offered for those that present by the breech is that the pelvic cavity cannot accommodate the large sized head. Whatever be the presenting part, labour becomes obstructed by the large hydrocephalic head.

Vertex Presentation

In theory the enlarged and elastic head of the foetus should be palpated per abdomen either at the ante-natal clinic or in the labour ward by the experienced accoucheur. It is not always easy to be certain except when the head is grossly enlarged. Mild degrees of hydrocephalus have

to be distinguished from moderate degrees of deflexion of a normal sized head. This is difficult, sometimes even with the aid of radiography.

Radiographs may show considerable enlargement of the head. There may be bulging of the brow area and widening of the sutures and fontanelles. The bones of the vault are thin. Sometimes, when the breech presents, the foetal head is nearer to the X-ray tube than the body and the head becomes unduly magnified. This pitfall should be avoided.

The clinical picture is one of delay in the second stage even after the membranes have ruptured. The head is felt per abdomen as an enlarged, elastic, globular structure which is larger and softer than a normal head. It is restricted in its mobility, because the large head occupies and distends the lower uterine segment.

If the cervix is sufficiently dilated and elastic the widely separated sutures and the large fontanelles of the presenting head can be palpated on vaginal examination. Sometimes the soft protuberant head may at first be mistaken for a bag of unruptured membranes.

Should forceps be injudiciously applied failure will result. If the hydrocephalus is mild in degree, it will be a difficult forceps delivery with likely damage to the maternal birth canal.

Neglect of the condition will lead to rupture of the uterus and its natural sequelae—shock, sepsis and death.

Breech Presentation

Here labour may progress until the trunk and the limbs are born. Then there is delay in the birth of the aftercoming head. The findings on vaginal examination are apt to be deceptive if careful abdominal palpation has been neglected and the presence of the large head which has become obstructed at the pelvic brim is overlooked. The bones of the face feel quite normal in their construction. It is the vault of the head which is enlarged and this may be beyond the reach of the examining finger.

Whenever there is difficulty in delivering the aftercoming head in a breech presentation, hydrocephalus should be borne in mind. If the body of the child looks puny and ill-developed, and perhaps bears evidence of congenital malformations such as spina bifida or talipes of the feet, the diagnosis of hydrocephalus is most suggestive. Suprapubic pressure and violent attempts at delivery of the head will almost invariably cause the thinned out lower uterine segment to rupture.

Diagnosis is the important thing in hydrocephalus. Once the diagnosis has been established further management is usually straightforward. The object is to reduce the size of the head by emptying it of excessive cerebrospinal fluid. This is usually done by perforation of the skull. Labour then progresses swiftly. Perforation is generally done at the vault in vertex presentation or the occiput in the case of the aftercoming head of breech presentation. In the former the cervix is generally sufficiently dilated to allow the perforator to be introduced. Delivery may be hastened with the aid of forceps if other conditions are satisfactory for its

safe use. In breech presentations, once the trunk has been born, Van Hueval advocates tapping the spinal cord and draining of the cerebrospinal fluid—a method first employed by Tarnier in 1868.

In all cases of delayed labour general attention to the patient's well being is imperative. Dehydration and dechloridation should be overcome by the use of glucose-saline by the intravenous route. Blood transfusion may be required to combat shock. Antibiotics such as penicillin may be injected intramuscularly to prevent sepsis. The timely use of oxytocic drugs such as ergometrine may aid contraction of the uterus and prevent post-partum haemorrhage.

Two interesting case reports are presented. In the first case the hydrocephalic infant presented by the vertex. In the second case delay in the after-coming head of a breech presentation led to the correct diagnosis. In both cases there was a prolonged second stage and labour was obstructed.

Case 1. A Hydrocephalic Child which Presented by the Vertex

P., an impoverished Hindu woman of 30, of average build, pregnant for the 4th time was admitted to the hospital on the morning of 24/10/1954 having been in labour since the previous evening. She had borne three children. The first two were alive and well but the third had died soon after birth. The deliveries had been uncomplicated. Her present pregnancy had been uneventful. She claimed to have reached term and her uterus bore witness to that. It was full term and acting. Her membranes had ruptured 10 hours prior to admission. In spite of good pains there had been no progress. Her general condition was satisfactory (temperature 98.4°F., pulse 76, respiration 22). She was slightly anaemic. Her heart, lungs and other organs were normal on clinical examination. On abdominal examination the foetus appeared to be left occipito-anterior in position and the head felt large and elastic, but was not mobile. The foetal heart was audible. Vaginal examination showed the cervix to be soft and well taken up. It was two fingers dilated. The membranes were absent. The presenting part, vertex, was high but because the cervix was dilatable the widely separated sutures and large fontanelles were felt.

A course of penicillin was started. She was given 1/100 grain of atropine. She was anaesthetized, using ethyl chloride for induction and aether for maintenance, on an open face mask. With the aid of an assistant who kept up a steady fundal pressure to press the head down, a Simpson's perforator was cautiously introduced through the cervix and the head was perforated. A large quantity of cerebrospinal fluid escaped along with some brain matter. Willet's forceps were applied to the scalp and continuous traction was maintained by attaching a 1 lb. weight to it.

The maternal pulse rose to 120 following this operation. Intravenous infusion of 5% glucose saline was begun. Labour progressed normally and at 2 p.m. the same afternoon the patient delivered a still-born male hydrocephalic monster weighing 6½ lbs. Ergometrine was given both by the vein and muscle route. Within ten minutes a normal placenta, with its membranes entire, was expressed from the vagina. The uterus was well contracted and there was no postpartum haemorrhage. The patient's general condition was good. Although blood had been taken for grouping and cross-matching it was not necessary. Even glucose saline infusion was discontinued after one pint. The patient had an uneventful puerperium. She received in addition to the drugs customarily given in the puerperium, a course of stilboestrol therapy to suppress lactation. She was discharged on the 5th day.

Case 2. A Hydrocephalic Child which Presented by the Breech

P., an impoverished Hindu woman of 30, lean in build, pregnant for the 3rd time was

brought from a distant village in a bullock cart by her relatives. She was admitted late at night on 7/9/1954. Her previous deliveries had been normal and she would not have consented to come to hospital had she not been 16 hours in unfruitful labour. Her membranes had ruptured 9 hours prior to admission and it was during the journey in the cart that the child was born spontaneously up to the neck. There was no further progress and it was in this state that she was admitted. Her present pregnancy had been uneventful. She claimed to have reached full term. Although she was long in labour her general condition was fairly satisfactory (temp. 98.4° F., pulse 112, respiration 24, blood pressure 90/60). She was slightly anaemic but her heart, lungs and other organs were quite normal. The child which was born up to its neck was cold and lifeless. Its body was covered with pieces of straw from the cart. The cord was not pulsating. Findings from abdominal examination were not relied upon until the patient had been catheterized of 12 ozs. of urine. After the bladder was emptied a soft elastic foetal head was felt above the pelvic brim. Vaginal examination showed the face to be directed towards the mother's sacrum but it was normal in its build. The cranial sutures could not be clearly felt. The cervix was fully dilated. The pelvis seemed quite adequate (Fig.).

A course of antibiotic therapy with penicillin was begun. Intravenous 5% glucose saline was started and blood was taken for grouping and cross matching. 1/100 grain atropine was given intramuscularly. General anaesthesia was administered by the open method (ethyl chloride and aether). With an assistant pulling the trunk downwards a perforator was carefully introduced and an opening was made in the occipital region. After more than a pint of cerebrospinal fluid had escaped the head was easily delivered. The child was a stillborn female hydrocephalic monster weighing 6 lbs. Ergometrine was given both by intravenous and intramuscular route. It was later followed by one ampoule of Pitocin intramuscularly.

The placenta was expressed entire with membranes from the vagina. There was slight bleeding. She required a slow transfusion of two pints of blood to tide her over the shock following prolonged exposure outside and then the operation.

She had an uneventful convalescence and was discharged after a week. During her stay she was given stilboestrol therapy to suppress lactation.

Summary

The malformation of hydrocephalus sometimes complicates labour. The diagnosis and management of this condition is briefly discussed and two illustrative and instructive cases are presented.

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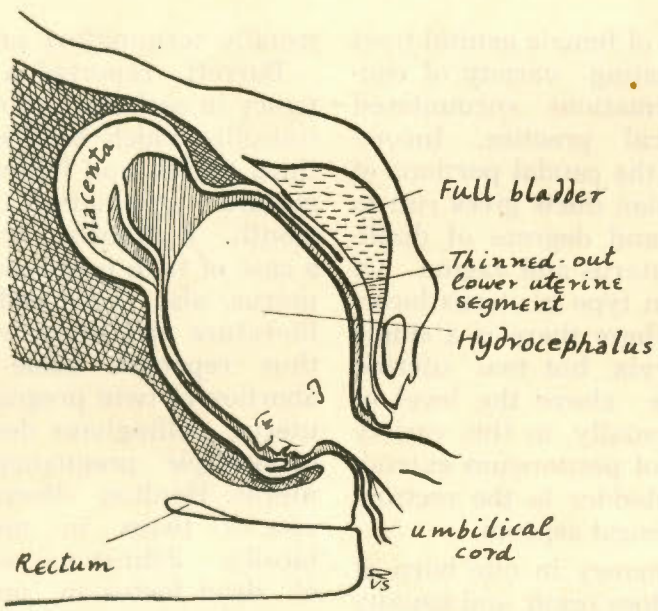

Fig.
Diagram to show aftercoming hydrocephalic head giving rise to dystocia in labour.