

TRANSABDOMINAL DECOMPRESSION OF HYDROCEPHALUS

by

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Hydrocephalus is one of those congenital malformations which pose difficulties not only in diagnosis but also in management. In this condition the cerebral ventricles are over-distended with cerebrospinal fluid—the amount varying from mild to gross (in the latter the fluid content in the brain may be as much as 10-15 pints). It is often associated with other abnormalities like spina bifida, talipes, and in 25% of cases presents as breech (Baird).

The management creates problems, as often these cases are not diagnosed early or come in late when labour has already been protracted and this carries two important risks—rupture of the uterus and postpartum haemorrhage. The recognised treatment is decompression of the head transvaginally, either slowly with a lumbar puncture needle or with perforation of the foetal skull. In the 35 cases of hydrocephalus admitted to this hospital during the last 4½ years, this line of treatment was carried out. In 11 cases a slow transvaginal tapping of the hydrocephalus was done and in another 11 cases perforation was done, 10 cases delivered spontaneously—here the baby was small and below 1900 gms. However, there

are certain cases where due to the excessive size of the hydrocephalus or blockage of the vaginal outlet by the shoulders in a breech delivery with the hydrocephalic head above the brim, the head cannot be readily reached vaginally. Walsh, in 1933, dealt with such a case of gross hydrocephalus by abdominal encephalocentesis and thus easily extracted the baby vaginally. Three cases of breech with hydrocephalic head are presented in whom, because of a large head high above the brim and other mechanical difficulties plus a thinned out tender lower uterine segment with its danger of threatened rupture, a transabdominal tapping of the hydrocephalus was done followed by an easy delivery without traumatizing or jeopardizing the mother.

Case 1

Mrs. S. para 4, gravida 6, was admitted on 11-1-'65 at 12.30 A.M. with amenorrhoea of 8 months and leaking for 3 hours. On admission her B.P. was 120/90, pulse 86 per minute, haemoglobin 8.5 gms%. Her abdomen was markedly distended upto the xiphisternum and foetal parts were not easily made out. Vaginal examination showed a cervix admitting 2 fingers with a very high presenting part, breech with membranes intact. She was leaking clear fluid and hydramnios was diagnosed.

At 6.35 P.M. the abdomen was still distended. Vaginal examination revealed a cervix hanging loose and what was originally thought to be a bag of membranes now appeared to be a meningocele as spines

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could be felt below. The foetus was high above the brim. X-ray showed an enormous hydrocephalus. At 9 P.M. under general anaesthesia vaginal examination was done. The cervix was 3/5th dilated and the half breech was brought down and a weight attached to it. The patient soon pushed out the breech, and at the base of the spine, a meningocele was found. The head was still very high. An aspiration needle was put into the spinal canal but the flow of cerebrospinal fluid was very slow. Foetal heart sounds had disappeared. Laminectomy was done and a catheter passed in but the flow continued to be slow. To prevent further distension of the lower segment and as the hydrocephalus was too high to allow of a perforation, an abdominal encephalocentesis of the hydrocephalus was done. The patient was catheterised. Under local infiltration anaesthesia and with an assistant steadying the head, a 16 gauge lumbar puncture needle was put in through the anterior abdominal wall, uterine wall and into the foetal head at a spot half way between the symphysis pubis and the anterior superior iliac spine.

Cerebrospinal fluid 1200 cc was aspirated easily and with the collapse of the head a female foetus was easily delivered as a breech at 10.20 P.M. There was a spurt of bleeding. Manual removal of the placenta and an exploration were done. Intravenous methergin, 0.2 gms was given followed by a syntocinon drip of 5 units in 540 cc of 5% glucose solution. The uterus contracted well and the patient made an uneventful recovery. The weight of the foetus was 4000 gms + 1200 cc of cerebrospinal fluid = 5136 gms (total weight). Duration of labour was 13 hours 25 minutes.

Abnormalities: Hydrocephalus and a large meningocele at the base of the spine.

No post-mortem was allowed on the foetus.

Case 2

Para 1, gravida II, was admitted as an emergency on 3-2-66 at 1.05 P.M. with a history of amenorrhoea of 9 months and a breech already delivered upto the shoulders at 11.30 P.M., 1½ hours before admission. The head was still in and there was no

pulsation in the cord. On general examination her pulse was 88/min., B.P. 160/60, Hb 10.4 gms%.

On abdominal examination—the uterus was 3 inches above the umbilicus with a tense lower segment and no foetal heart sounds.

Per vaginam—there was a partially delivered breech with both hands out at the vaginal outlet. The shoulders were still in, the neck was stretched and the head was high in the abdomen and could not be reached vaginally. The cervix was fully dilated. Spinal puncture of the foetus was done but only blood-stained fluid was removed. Perforation from below was attempted but the head was too high and the neck excessively stretched making it difficult to reach the head. Abdominal encephalocentesis was done under local anaesthesia of 1% Novocaine. A needle was put half way between the symphysis and umbilicus in the midline of the abdominal wall and uterine wall into a suture in the foetal skull which could be palpated per abdomen. Throughout the procedure the head was steadied by an assistant; 700 cc were aspirated and within 5 minutes i.e. at 2.35 P.M. the foetus was easily delivered. The placenta was delivered normally. The uterus was explored to exclude any rupture. There were no complications.

The post natal period was normal. The weight of the foetus 3000 gms + 700 cc = 3653 gms (total weight).

Duration of 2nd stage 3 hours.

Abnormalities - hydrocephalus

Case 3

A gravida eleven, para 9, was admitted on 11-12-1966 at 3-30 a.m. as an emergency with the breech delivered upto the shoulder for 1 hour + 3 loops of cord around the neck. There were no pulsations in the cord and there was a meningomyelocele over the lower spines of the foetus.

General examination: Pulse 120/min. B.P. 120/90, urine normal, Hb. 10.6 grm%. Per abdomen cystic mass extending from the pelvis to the umbilicus was felt. The lower uterine segment was very tense and tender. Vaginal examination revealed a fully dilated cervix and a breech hanging out of the vulva. The neck was excessively

stretched and the head was very high above the brim. At 4-25 a.m. The bladder was catheterised. Drainage of the foetal spinal canal with a needle was attempted twice but the drainage was slow. Perforation of the hydrocephalus per vaginam was also attempted but not persisted in as the lower segment appeared thin and tense and it was felt that any extra force or manipulation may result in a rupture. An abdominal encephalocentesis was then decided upon. A suture could be palpated below the umbilicus and a little to the left of the midline. Under local anaesthesia a needle was put in and 900 cc of cerebrospinal fluid aspirated. The breech was easily delivered as soon as the tapping was over. The placenta came away normally and the uterus was explored and found to be intact. There were no complications in the postnatal period. The weight of the foetus 3600 gms + 900 cc = 4425 gms, sex female.

Duration of the 2nd stage was 3 hours.

Abnormalities—hydrocephalus, meningo-myelocele and left sided talipes equinovarus.

Discussion

Abdominal tapping of the hydrocephalic head is not very often used. Fara, using this technique, decompressed the head prior to the onset of labour, and noted that it was easier and less traumatic than craniotomy. Lauderdale also used it on a breech with hydrocephalus and recommended it as easy and simple. Bednoff and Delson recommended easy decompression of the hydrocephalic head to prevent prolonged overdistension of the uterus and hence to avoid postpartum haemorrhage and rupture of the uterus. In all the 3 cases presented, the hydrocephalus was gross and the amount of cerebrospinal fluid tapped varied from 700 to 1200 c.c. Following removal the delivery was easy—the foetus slipping out within

a few minutes. Two foetuses were associated with other congenital abnormalities. It is regrettable that no post-mortem was allowed. The total weight of the foetuses varied from 3653 gms. to 5136 gms. In each case tapping of the spinal canal was attempted as also laminectomy in one, without success; probably these were cases of obstructive type of hydrocephalus. Perforation was also attempted but due to technical difficulties, the head being very high, it was not possible. In the third case, the lower uterine segment was so tense and thinned out that though perforation, if persisted in, may have been successful, it certainly carried a greater risk of rupture of the lower segment. Under such circumstances where the head was very high and due to mechanical difficulties perforation of the skull hazardous, especially with a stretched out lower segment, transabdominal encephalocentesis was easily done and was followed by successful delivery.

Marshall notes that the approach is most aseptic and of tremendous value in gross cases where the lower segment is stretched so that it can easily rupture, especially in multiparas. He categorically states that it is obligatory when the head is inaccessible vaginally or accessible only with risk. He used this procedure successfully in 3 cases. Walsh has used it recently and without mishap in 10 cases out of 27 with gross cephalic enlargement.

Dangers

This procedure does carry the risk of puncture of the bladder and bowel but if the precaution of catheterising

the bladder and percussion over the selected spot is done these dangers, can be avoided.

Summary

Three cases are discussed in whom due to mechanical difficulties abdominal decompression of the hydrocephalic heads was done. The delivery of the breech was easy after the tapping and there were no complications.

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