Hernia Through the Foramen of Bochdalek in Infancy

This congenital defect of the diaphragm is relatively rare, but its prompt treatment yields good results. Controversial points are the method of approach, the time of operation, and the necessity for phrenic nerve crush. In the case reported each of these had to be considered.

CASE REPORT

A male infant of 5 days was admitted to hospital at 3.15 a.m. on March 26, 1954. The history was that he had been feeding by bottle satisfactorily since birth. When being put down after his 2 a.m. feed on March 26 the father noticed that he was a "bad colour."

On admission the child had an increased respiration rate and his breathing was distressed; pulse 130; weight 6 lb. 8 oz. (2.9 kg.). Heart sounds were indistinct and diffuse, but thought to be towards the right. There was relative dullness at the left base; no breath sounds or any intestinal sounds were heard. He was put in an oxygen tent and

FIG. 1

FIG. 2

FIG. 1.—After the introduction of a barium diluted feed, showing clearly the mediastinal shift and chest containing small bowel. FIG. 2.—Post-operative x-ray film of chest and abdomen.

benzathine penicillin was prescribed; his condition then improved. He continued to take his food well over the next two days, but had occasional cyanosis when removed from the oxygen tent for feeding.

On March 29 a straight x-ray film showed loculated gas in the chest, an appearance consistent with the presence of small bowel. A barium diluted feed was given (Fig. 1). This showed clearly the extent of the herniation and mediastinal shift. Operation was decided upon for the same evening. An intravenous drip was given, a stomach tube was passed, and atropine, 1/200 gr. (0.32 mg.), was injected one hour before operation.

Operation.—Ether and oxygen were supplied from a Boyle machine. An oral endotracheal tube with a modified Ayre T-tube was passed. A left upper paramedian incision was made. Distended stomach occupied much of the upper abdomen and obscured the view. Aspiration reduced this to normal dimensions. It was noted that the spleen had no other attachments than the gastrosplenic ligament and was extremely mobile. The hiatus was then seen in the postero-

lateral diaphragm with small bowel entering it. Gentle traction on the bowel brought it down, but it tended to be sucked back by negative pressure in the chest. A small catheter was then passed through the orifice into the chest, when the bowel reduced without difficulty. The hiatus was triangular in shape and about 1½ in. (3.2 cm.) from base to apex. The whole of the small bowel, with the exception of the upper and lower few inches, was in the chest, and all of this was rather larger than normal.

To obtain enough room to approach the defect and carry out the repair a transverse T extension to the left was made. It was obvious that the placing of a number of interrupted sutures was going to be difficult, so a preliminary running suture of fine catgut was used, gentle traction being put on the tied end, thus drawing the approximated edges downwards. As the last stitch was tightened the anaesthetist inflated the lung. Both ends of the catgut were left long, and with gentle traction on these the closed defect presented as a small ridge in the diaphragm through which it was a simple matter to insert interrupted linen (No. 60) sutures. There was no question whatsoever of primary closure of the abdomen, and even suturing of the skin only left an abdomen which was extremely hard and tense.

The child was returned to the oxygen tent for 12 hours and the drip continued for this time. His respiration rate improved, there was no further cyanosis, and he began normal feeding and had normal motions. Penicillin, 0.25 mg. six-hourly, was given for eight days post-operatively.

On April 5 repair of the abdominal wall was undertaken. Most of the original stitches had cut out, leaving the skin serrated. The peritoneal cavity had obviously increased in size and the bowel had been reduced to normal. Repair was carried out, the skin edges being trimmed and approximated.

X-ray examination of the chest on April 7 showed the right lung expanded and filling the chest (Fig. 2).

The infant did well, and 14 months after operation was of normal weight for his age and was thriving.

COMMENT

Operation should be carried out as soon as the infant is fit for it. If untreated before the end of the first month 75% of these patients die (Harrington, 1948). The approach should be abdominal, which allows examination of viscera for other abnormalities (58%, Swan, 1948), and skin closure only should be carried out if the bowel has "lost its right of domicile."

No phrenic nerve crush should be used in an infant unless the defect is very large.

Oxygen before and especially during operation is most important, as are intravenous fluids. The anaesthetist must be an experienced one.

Between 1930 and 1948 38 cases were reported, with 6 deaths.

I wish to thank Dr. Martin Hopkins, who referred the case; Dr. C. J. K. Orr, the anaesthetist; Dr. D. A. R. Orr, the radiologist; and Mr. Miles Gilligan, registrar.

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