TWO CASES OF ATRESIA OF THE SMALL INTESTINE IN THE NEWBORN

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Congenital atresia of the small intestine has been known since Calder reported the first two cases in 1733, but it is rare, occurring in about 1 in 20,000 births (Wangensteen, 1942). Webb and Wangenstein (1931) reported that they could trace 500 cases in the literature, and most of these were from necropsy reports. The condition was reviewed by O'Neill and his associates in 1948 (O'Neill, Anderson, Bradshaw, Lawson, and Hightower). They could find only 38 recorded cases which had been treated satisfactorily by operation. The occurrence of two cases in one hospital within a week is thus of interest.

Case Reports

Case 1. This girl was born on December 2, 1949. Delivery was normal. The birth weight was 7 lb. 6 oz. The mother's pregnancy had been normal, and she had had one previous normal pregnancy. Her blood was

Rh positive. The Kahn test was negative. Two days later the infant began to vomit dark green fluid, after having had two breast feeds. The abdomen was thought to be slightly distended and the child was fed on glucose water only. The same day she passed a small mucous plug by the rectum. On December 5 she passed a little meconium by rectum, and vomited five times during the day. The vomit was dark coloured and about 2 oz. in amount. No peristalsis was seen, but the abdomen was still a little distended. On the next day she was still vomiting dark fluid. The abdomen was a little more distended. Her weight was 6 lb. 6 oz. A radiograph, after the injection of barium through a small catheter into the stomach, showed small bowel obstruction, probably in the jejunum. The barium was aspirated back at once.

A laparotomy was performed four days after birth. Atropine gr. 1/200 and 40 ml. dextrose 5% were given subcutaneously one hour before operation. Local anaesthesia was used (amethocaine 1 in 2,000 with adrenalin 1 in 40,000). The abdomen was opened with a right split rectus incision. Complete jejunal atresia was found, the proximal segment being about one-third and the distal segment about two-thirds of the length of the small intestine. There was a complete split in the mesentery with about half an inch of separation of the bowel ends. The proximal segment of bowel was distended to a diameter of about 1½ in., and the distal coils were thin and pencil-like (Fig. 1). On opening the lumen of the distal bowel a long polypoid structure (Fig. 2) was found and removed. A side-to-side anastomosis, about 1½ in. long, was made, using two layers of fine chromic catgut on an atraumatic needle. A clamp was used on the proximal segment only, and this portion of the bowel was aspirated with a sucker to prevent contamination after

Fig. 1.—Congenital atresia of the jejunum (Case 1) showing complete separation of the two blind ends of the intestine, with a split in the mesentery.

opening. No other congenital abnormality was found in the abdomen.

Microscopic examination of the polyp removed showed a central core of fibrous tissue, completely surrounded

Fig. 2.—Longitudinal section of distal blind end of intestine (Case 1), showing polypoid structure in the lumen.

by normal mucosa, except for the distal half which was black and necrotic.

Post-operatively subcutaneous saline was given for 24 hours, and the stomach content was aspirated half-hourly. Penicillin (10,000 units) was given intramuscularly every four hours. Twenty-four hours after operation fluids were given by the mouth, and shortly afterwards the child passed a mass of mucus and faeculent material. Thereafter progress was satisfactory. Expressed breast milk was given on the third day and the next day the child passed a normal stool. The stitches were removed at the end of a week, when the wound had healed. The baby was discharged on the sixteenth day, and by this time her weight was 7 lb. 2 oz. She was seen again on February 8, 1950, and was found to be gaining weight, and having no trouble with breast feeding or bowel action.

Case 2. This male binovular twin was born on December 10, 1949. His mother, aged 40 years, had had 12 previous pregnancies. He weighed 6 lb. 15 oz. at birth. His mother had not attended the antenatal clinic, and was admitted to hospital at the onset of labour on account of mild toxæmia, with swelling of the ankles. There was no albuminuria, and the blood pressure was 130/90. Delivery was normal. The child began to vomit the day after birth. The vomit was small and dark coloured. The abdomen was slightly distended, but there was no visible peristalsis or palpable tumour. A radiograph showed obstruction in the upper part of the small intestine.

Operation was performed two days after birth, but by this time the child was somewhat dehydrated and his general physique was much poorer than that of Case 1. Pre-operative treatment was the same as in the previous case. A complete atresia of the middle of the jejunum was found, but this time without any division of the omentum. There was a thin filamentous band from the proximal end of the bowel to the back of the umbilicus, but no communicating band between the two blind ends of the intestine. The distal end was lying free, with no connexion with the umbilicus. There was no Meckel's diverticulum. The proximal segment of the bowel was grossly distended, and the distal end again very small and pencil-like. An end-to-side anastomosis was made in this case, with two layers of chromic catgut.

In spite of a post-operative regime similar to that of the previous case, this child became steadily worse, and

on the fourth day of life developed jaundice, which deepened until he died on the ninth day after birth (the seventh day after operation). There were a few small bowel actions but he did not pass a normal stool. The abdomen remained distended and he had an intermittent temperature of 100° F. until death.

Necropsy showed that the anastomosis had not worked properly and that there had been some leakage of intestinal contents, together with swelling and consequent partial obstruction at the site of anastomosis. There was diffuse general peritonitis due to the leakage. Stenosis of the hepatic and common bile ducts was also found. The lungs showed bilateral bronchopneumonia.

Discussion

Many views have been put forward regarding the aetiology of this condition (Ladd and Gross, 1941), but none is completely satisfactory, and it is probable that the same factor is not present in each case. In Case 1 the presence in the distal loop of a polypoid structure was a little suggestive of the remains of a foetal intussusception, with absorption of necrotic bowel at its proximal end (Chiari, 1888; Braun, 1902).

Deformities of other organs have been reported, but are not of frequent occurrence. In Case 2 there was stenosis of the bile ducts. His binovular twin was normal.

The distended stomach and intestine may be seen on a straight radiograph, or if barium is given the obstruction can be identified more easily. The latter procedure is not essential, however, and barium should be aspirated back as soon as possible. Barium should not be given if there is any question of atresia of the oesophagus, for fear of the presence of an oesophageal-tracheal fistula with the passage of barium into the lung, and in this case iodized oil is a better contrast medium.

Operation obviously holds the only hope of survival, but it is interesting to note that infants with intestinal atresia have been known to survive for considerable periods without relief of the obstruction. Sweet and Robertson (1927) observed an infant who lived for three weeks with atresia of the bowel, though Davis and Poynter (1922) consider that the average survival period is six days. Keith (1910) recorded a remarkable case of a child who survived for nine months with complete duodenal atresia.

During these neonatal days the mother's milk must be maintained by the usual methods. Intramuscular injections of penicillin should be given for the first four days after operation.

Summary

Two cases of congenital complete atresia of the jejunum are reported, with one recovery after operation.

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