

Atresia of the Colon

A REVIEW OF THE LITERATURE WITH A REPORT OF 2 CASES *

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SUMMARY

Colonic atresia is a rare condition, and only 69 cases have been reported. We add 2 further cases. The first case was diagnosed late and operation was carried out 5½ days after birth. An ileostomy was performed and a final anastomosis was carried out 9 weeks later. The child is now 8 years old and growing normally.

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Atresia of the colon is a very rare anomaly. The first case was described in 1673, and the first survival after surgical correction was reported in 1922.¹ Since then cases have occurred all over the world and 69 successfully-treated cases have been reported.

Estimates of the incidence of gastro-intestinal atresia vary considerably. Evans² thinks that it occurs in 1:5 000 live births, and other authors^{3,4} estimate the incidence to be between 1:3 000 and 1:20 000 live births. Four to 15% of the atresias occur in the colon. Freeman⁵ reported 7 cases and noted that this abnormality comprised 1.8% of all the bowel atresias seen in his clinic.

We have recently admitted a second case of isolated atresia of the colon. Coran¹ pointed out that no child in whom the diagnosis was delayed until the 4th day of life, had survived. This prompted us to publish our cases because case 1 was 5½ days old when operated upon.

Excluded from this discussion are 2 other cases with extrophy of the bladder.

PATIENTS

Case 1

A Coloured female baby, birth mass 3 kg, was admitted 5 days after birth because she had not passed meconium. Her abdomen had become progressively distended, and she had started to vomit bile-stained fluid, which later became black and foul-smelling.

On examination her abdomen was grossly distended, coils of gut were visible and her breathing was very rapid. No other abnormality was detected and rectal examination was normal. A scout film of the abdomen showed multiple fluid levels and hugely distended loops of bowel. No peritoneal calcification was visible. A ba-

rium enema showed a microcolon which ended abruptly at the hepatic flexure.

These findings pointed to a large-bowel obstruction with atresia. The baby was rehydrated, gastric suction was started and acidosis corrected. At laparotomy a type 2 colonic lesion was found. The proximal colon was hugely distended and ended at the hepatic flexure. A right hemicolectomy was done, and an ileostomy positioned in the right iliac fossa, because the extent of the dilated proximal colon and the discrepancy in calibre between the 2 blind ends, made direct anastomosis a hazardous procedure. The baby was given intravenous therapy for 3 days when oral feeding was gradually commenced. Fluid loss through the ileostomy was difficult to assess, but frequent electrolyte and protein estimations permitted adequate replacement of fluid and colloids. Plasma was administered at intervals, while skin erosion in the early postoperative phase demanded frequent attention to the ileostomy.

Nine weeks later an end-to-end anastomosis between the terminal ileum and the distal colon was performed. The baby progressed satisfactorily after the operation and is now a normal child of 8 years old.

Case 2

A Coloured male, birth mass 3.5 kg, was seen 2 days after birth because he had not passed meconium. Vomiting, which was bile-stained, had occurred on 2 occasions.

On examination the baby was mildly dehydrated and the abdomen markedly distended. Several distended loops of bowel were visible in the mid-abdominal region and no peristalsis was present. Bowel sounds were weak, and no meconium, mucus or blood were detected on rectal examination. A plain X-ray film of the abdomen in the erect position showed areas of calcification in the right iliac fossa and subhepatic regions, suggestive of meconium peritonitis. A feeding tube was passed into the stomach and aspiration carried out by hand. Intravenous fluid was started immediately and rehydration completed before operation.

At laparotomy there was a type 2 lesion in the descending colon. The proximal segment was enormously distended, in contrast with the small distal segment (microcolon). The proximal colon was traversed by numerous bands and adhesions. Areas of calcification which corresponded to the opacities seen on the X-ray film, were palpable, and there was a minor defect of the mesentery.

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Primary anastomosis was deferred because of the infective nature of the contents of the distended proximal colon. The unopened proximal segment was brought through an opening in the left upper quadrant and the abdomen closed in layers. Non-absorbable material was used for muscle layers and skin. With the abdomen closed, the atretic segment was opened after it had been sutured to the opening in the abdominal wall. The distal segment was deliberately not exteriorized.

Three months later an anastomosis between proximal and distal colon was successfully performed.

DISCUSSION

We adopted the classification of gastro-intestinal atresia suggested by Louw.⁶ His experimental work in puppies confirmed the opinion that atresia of the gastro-intestinal tract is caused by a vascular accident during intra-uterine life, and not because of a failure to recanalize which was proposed by Tandler.⁷ These 2 cases have the type 2 defect. The suggested classification is as follows:

Type I: The mesentery is intact. The proximal and distal segments of bowel are in continuity, but the lumen is occluded by a membrane. The membrane may have a small central opening in some cases.

Type II: The proximal segment is hugely distended and terminates in a blind pouch. The distal segment is collapsed and the 2 segments are joined by a thin fibrous band. A small V-shaped defect may exist in the mesentery.

Type III: The appearance is similar to the type II defect, but the blind ends are completely separated and there is always a mesenteric defect.

Case 1 was free of associated abnormalities, but case 2 had an extra finger on the left hand. Case 2 showed unequivocal evidence of meconium peritonitis. The presence of this intraperitoneal meconium which was visible on the X-ray film, signifies an intraperitoneal perforation, probably subsequent to the vascular occlusion.

In half the reported cases the lesion occurred proximal to the splenic flexure. Although resection and primary anastomosis is the treatment of choice, this was only possible in half the reported cases. In the other cases the authors were guided by the findings at the time of operation whether or not to perform an ileostomy or a colostomy as the preliminary procedure. In these 2 cases a primary anastomosis was not considered safe, and a defunctioning procedure was performed.

In the delayed case superimposed infection of the contents may preclude immediate anastomosis of the 2 segments of bowel. Under these circumstances it is preferable to exteriorize the unopened proximal end and fashion a suitable colostomy after the abdomen has been closed, thus minimizing intraperitoneal contamination.

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