

# NEONATAL PERFORATION OF THE COLON

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## Case History

Paul R., a male infant, aged 5 days, was born in hospital; his birth weight was 7 lb. 5 oz. The mother's pregnancy and the delivery were normal. Vomiting began immediately after birth and became increasingly severe. Scanty amounts of meconium were passed on the first, second and fourth days. The abdomen was said to have been protuberant as early as on the first day, and was referred to as distended on the third day of life.

The infant was seen by a paediatrician on the fifth day, who reported that he looked ill and dehydrated with balloon-like abdominal distension. Bowel sounds were present. On rectal examination a tight, narrow rectal orifice was found; there was meconium on the fingerstall. No other abnormal physical signs were detected. A radiograph of the abdomen showed that free air was present.

**Progress.** The child was given parenteral fluids and laparotomy was carried out. Free fluids and faeces were found in the peritoneal cavity, and there was a perforation in the transverse colon. The peritoneal cavity was cleaned out, and the transverse colon exteriorized at the site of the perforation in the form of a colostomy. The patient did not stand the operation well; he collapsed on the table and was resuscitated with difficulty. He was cold, pale and cyanosed on returning to the ward. In spite of appropriate treatment with intravenous fluids and oxygen his condition improved but little, and he died quietly 10 hours after the operation and 6 days after birth.

Necropsy confirmed the presence of a solitary perforation, 0.8 cm. in diameter, in the transverse colon, 11 cm. from the ileo-caecal valve. There was uniform dilatation of the whole of the large bowel right down to the anus. No thickened plugs of meconium were found. The peritoneum was deeply congested, with numerous scattered yellow meconium flecks. The remainder of the examination revealed no abnormality. Thus there was no evidence of meconium ileus, fibrocystic disease of the pancreas, Hirschsprung's disease or intestinal obstruction.

## Discussion

Spontaneous perforation of the bowel in the newborn with peritonitis is barely mentioned in any

of the standard textbooks of paediatrics. It is known to occur not only as a complication of meconium ileus and other forms of obstruction, but also in the apparent absence of any recognizable pathological lesion, when its aetiology may be quite obscure (Franklin and Hosford, 1952). Numerous factors have been implicated at different times (Thelander, 1939). Some of these have been largely of a conjectural nature, such as birth trauma, intra-uterine infection and interference with the blood supply to the bowel. Zachary (1957) in a small series of cases attributes perforation to pressure by hard plugs of meconium. In a few instances definite congenital defects of the muscle coats of the bowel have been found. Rudnew (1915) studied a case of foetal peritonitis due to perforation of the transverse colon. He found that the continuity of the muscularis mucosa was broken at frequent intervals by blood vessels and nerves surrounded by areolar tissue. The breaks in the muscularis were of considerable size, so that the mucous membrane could herniate through them. Fischer (1928) reported a case with two perforations of the colon. Examination of the areas adjacent to the perforations showed the absence of the circular and the longitudinal muscle layers. There was herniation outwards through one of the perforations of the mucosa and the muscularis mucosa. Boikan (1930) described excessive development of the lymphatic tissues and deeply penetrating crypts of Lieberkühn at the site of a neonatal colonic perforation.

Fig. 1 shows a section of the colon close to the perforation of the present case, described above. The most striking histological feature is the presence of a large number of dilated blood vessels throughout the wall of the gut. These almost replace the muscularis mucosa and interrupt at frequent intervals the circular and longitudinal muscle layers, which are scanty and ill-defined. It seems therefore that an area of weakness may have been created by this localized infiltration of the bowel wall with haemangiomatic material.

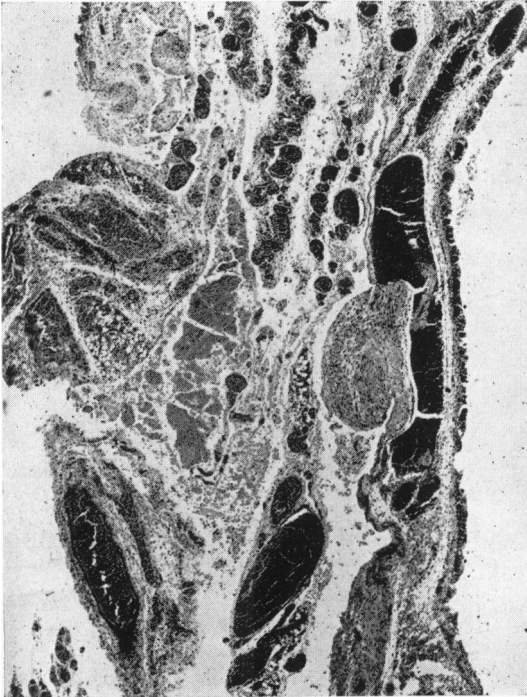


FIG. 1.—Section through colon near perforation showing haemangiomatic dilatation of vessels throughout wall.

This particular type of abnormality associated with spontaneous perforation of the intestine in the newborn does not appear to have been previously described. It is interesting, however, to compare it with the other congenital lesions reviewed above, which also weaken the muscular layers of the intestinal wall and so predispose to perforation.

#### Summary

A case of spontaneous perforation of the colon in a newborn infant is described.

A necropsy showed a solitary perforation and generalized peritonitis.

Histological section revealed a localized haemangiomatic abnormality at the site of the perforation, a lesion apparently not previously described.

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#### REFERENCES

- Boikan, W. S. (1930). *Arch. Path. (Chicago)*, 9, 1164.  
 Fischer, A. E. (1928). *Amer. J. Dis. Child.*, 36, 774.  
 Franklin, A. W. and Hosford, J. P. (1952). *Brit. med. J.*, 2, 257.  
 Rudnew, W. (1915). (Quoted by Fischer, 1928). *Ueber die spontanen Darmrupturen bei Foeten und Neugeborenen*. Dissertation, Basel.  
 Thelander, H. E. (1939). *Amer. J. Dis. Child.*, 58, 371.  
 Zachary, R. B. (1957). *Arch. Dis. Childh.*, 32, 22.