

CONGENITAL INTESTINAL OBSTRUCTION *

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Congenital mechanical obstruction of the bowels not due to a developmental defect is so rare a condition that the following case seems worth reporting.

Baby, male, 4 days old, first child, normal delivery, no bowel movement since birth. There had been no stain of meconium on the diapers, which had been observed carefully. Micturition was normal. On the second day the baby vomited a small amount of dark yellow material, rather suggestive of meconium. A second vomiting occurred on the third day, but not on the fourth, although the baby had nursed at four-hour intervals during the day. On the fourth day the abdomen was quite markedly distended and tense, so that no mass could be felt, although there seemed to be rather more resistance on the right side. There was slight dullness in the flanks, especially the right. Visible peristalsis was distinct and continuous. There was no intermittent crying suggestive of intussusception. A finger could be inserted 2 inches or more into the rectum and nothing could be felt except that the rectum seemed somewhat tighter than usual. Repeated soapsuds enemas brought no stain of meconium or blood—only very scanty mucus. Not over one ounce actually entered the bowel, the return flow pouring out around the catheter. At 2 p. m. on the fourth day the temperature was 102; at 8 p. m. it was 100.5. The child's color was good and its general condition good. The head was kept well retracted with moderate spasm. The chest was normal.

The child was taken to the hospital and the abdomen opened at 10 p. m. (fourth day). Immediately clear, slightly yellowish serous fluid poured out. On evisceration the condition was readily seen to be a complete twist of the mesentery of the small intestine with complete obstruction approximately at the middle of the small intestine. On untwisting, gas escaped through into the collapsed bowel beyond. The appendix, sharply coiled, and the ileocecal region were normal. The abdomen was closed and the child seemed to be in good condition. A catheter inserted into the rectum allowed a small amount of gas to escape but nothing else. During the night there were two good bowel movements of meconium. The next day the child seemed to be in fair condition in spite of a temperature of 104. There was a series of about ten bowel movements. Toward evening the color of the ears and the fingers became livid. The temperature, pulse and respiration continued high, the latter about 100. The head was retracted, the legs relaxed. The forehead was kept tonically wrinkled and the eyes wide open, suggestive of an abdominal facies, although the abdomen was soft and not unduly distended. The child died about thirty hours after the operation. Necropsy was not permitted.

When one is confronted with a case of intestinal obstruction at birth, the presumptive diagnosis is some developmental defect, the most common being intestinal atresia. The foregoing case is one of the rare instances in which a more remediable condition existed and is

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instructive from the point of view of prognosis and treatment of these cases as a class. A fairly careful review of the literature shows only four cases at all comparable to the one reported. These are referred to again in an excellent article by N. I. Spriggs,¹ perhaps the most comprehensive recent publication on the subject in English. A very complete bibliography is appended. The first of these cases was reported by Harrison Cripps in 1880, a case of congenital volvulus of the lower ileum. On rectal examination it was noted the little finger could be introduced a fair distance, but seemed to meet an obstruction suggesting a blind end. A congenital atresia was diagnosed and an inguinal enterostomy performed on the third day. There had been persistent vomiting and complete obstruction. The child died from peritonitis. At the necropsy the rectum, colon and about 2 feet of the ileum were found intact but extremely small, having about the caliber of a pipe-stem. A loop of ileum at this point was completely twisted on itself with distended bowel above. The undeveloped lower bowel was explained to be due to the absence of meconium from early fetal life and the consequent lack of stimulation to growth.

Newton Pitt in 1891 reported a similar case of congenital volvulus of the ileum, 2 feet from the ileocecal valve. It was also regarded as a case of imperforate rectum and inguinal colostomy performed. At necropsy a sharp line of demarcation could be seen between the strangulated and healthy bowel.

Spriggs also refers to Carwardine's case of congenital volvulus occurring at the point of Meckel's diverticulum with completely collapsed bowel below, and to another case by Eschback. None of these, however, had a complete twist of the mesentery as in the case reported above.

These cases, rightly considered, merely represent a more hopeful group of the general class of congenital intestinal obstruction. They may only differ in degree from the rest, since fetal volvulus, like other fetal accidents, such as intussusception, kinking, peritonitis, etc., have been pretty well shown to play a part in the causation of intestinal atresia. The etiology of the latter condition seems to be a very complex one. A large proportion of intestinal atresias occur at the location of some embryologic event such as the junction of the vitelline duct with the bowel or of the common bile-duct, which really indicates the point of the original evagination to form the liver, or the point of fusion between the hindgut with the proctodeum. There are many instances of atresia at other points, however. In fact, atresia of the alimentary tract may occur at any point or, although less frequent, at multiple points between the pharynx and anus. For this reason and

1. Spriggs, N. I.: Congenital Occlusion, *Guy's Hosp. Rep.*, 1912, lxvi, 143.

from embryologic evidence, Kreuter and others hold to the theory that atresias are the result of the suspension of the process of canalization of the solid intestinal cord which exists in the early fetal life of vertebrates. Again, vascular accidents may be instrumental in this lack of development.

The symptoms of obstruction of the bowels at birth seem to be identical whether there is atresia or mechanical obstruction without atresia. Constipation usually is absolute from birth, because the condition usually dates from early fetal life before meconium has reached the lower bowel. There are a few cases on record, however, in which a few movements occurred just after birth and then stopped. In some a prenatal obstruction was obvious at necropsy. On attempting to give enemas it is frequently reported that the injection fluid returns directly around the catheter or at most 1 or 2 ounces are retained. This, together with the absence of any meconium or blood stains, has repeatedly led to the error of diagnosing a rectal atresia, which may be seemingly confirmed by an apparent obstruction of the rectum on digital examination. Perineal operations have been attempted under these conditions and valuable time lost without relieving the obstruction. If there is an imperforate rectum only, a bulging distended bowel should be palpated, especially when the child cries. If collapsed or small undeveloped bowel is encountered, there is probably atresia much farther up in the abdomen. In the first place, it should be remembered that rectal atresia practically always occurs within two inches of the anus.

As in acquired ileus, vomiting is a practically constant symptom and occurs early, usually the second day. The vomitus may contain meconium, bile or blood-stained mucus, the character of it giving some clue to the level of the obstruction. The child may nurse fairly well.

Distention nearly always occurs, but is not usually present at birth, although in a case reported by MacCallum it was so extreme as to interfere with parturition. This was due, however, to fetal peritonitis with many adhesions.

Icterus neonatorum has been mentioned as a symptom, but it would be difficult to say whether it is more frequent in these cases than in normal new-born infants. Visible peristalsis is of considerable aid especially when the obstruction is high and associated with gastric dilatation, which might be determined by percussion, skiagraphy or lavage. Free peritoneal fluid should also be examined for. Anuria has been described, even in cases in which there were no developmental defects in the urinary system. Convulsions have also occurred.

In the diagnosis it might bear repeating that too much attention should not be paid to a questionable stenosis of the rectum 2 inches or

more from the anus, because the lower bowel may be extremely small and undeveloped from a high obstruction. The possibility of general peritonitis must also be considered.

The prognosis in these cases is somewhat different from that of intestinal obstruction in adults. Serious symptoms develop comparatively less rapidly. The majority of patients will die in the first week, although many are on record living from fifteen to eighteen days. In general, the lower the obstruction the longer they will live. Cripps reported a case of imperforate rectum in which operation was refused on the third day. The child was brought back at the end of a month with little change in its condition in spite of fecal vomiting every two days. Spriggs quotes a case of a girl of 14 years with complete rectal occlusion, who vomited her feces every few days. A well-marked stenosis may cause little or no symptoms, but is probably the cause of some cases of Hirschsprung's disease later in life. It should be remembered that inspissated meconium may cause complete obstruction which may be fatal, or may be spontaneously relieved. There is a case on record² in which a child with congenital obstruction was in such desperate condition on the third day that operation seemed inadvisable. When it was 5½ days old, during a spell of crying, a mass of meconium was expelled, followed by a series of copious movements. The child fully recovered. For this reason it would seem justifiable to give gentle massage and enemas a fair test—for a short period of time, however, since the loss in weight is so rapid and the operative risk at best great. Spriggs states that in at least eighty-two cases of operation there has not been a single recovery, although two patients lived a couple of weeks. Most of the cases, however, had extensive anastomoses or enterostomies. The practical point is that conditions such as volvulus, intussusception, etc., at or before birth cannot be distinguished from intestinal atresia, which is hopeless without operation and operation for the former conditions might succeed in a fair proportion of cases.

2. Med. Rec., 1899, lvi, 133