Congenital Atresia of the Colon:
Review of Literature and Report of Two Cases

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Congenital atresia of the colon, though one of the least common causes of intestinal obstruction in the newborn, is probably not as rare as it was once thought. Some years ago this condition was considered to be almost inevitably fatal. Now, with the great advances in surgery of the newborn, in anesthesia and in diagnosis, successfully treated cases are increasing rapidly as attested by the number of such cases reported in medical literature.

One of the most comprehensive studies on the subject of gastro-intestinal atresia was made by Evans in 1954. He studied 1,948 reported cases, 139 of which had been operated upon successfully but of these, only six involved the colon. In an excellent study by Louw, in 1959, he emphasized the theory of impaired blood supply to the bowel in utero as the chief etiologic factor in stenosis and atresia (Fig. 1).

Atresia of the colon is basically similar in type and etiology to that occurring in the small intestine, but the percentage of these cases salvaged has been significantly less. One of the reasons for this difference appears to be delay in diagnosis which is due, primarily, to the fact that low obstruction often does not produce dramatic symptoms immediately after birth. There may be massive distention of the abdomen at birth, suggesting low obstruction, or the distention may be gradual and progressive immediately after birth. Meconium may be scant and either normal or abnormal in appearance or no meconium may be passed in some cases. Vomiting of bile may not occur until two to three days have elapsed and, by that time, the condition of the infant might have become quite serious, especially if it has been born prematurely as is often the case.

Other factors contributing to the relatively low salvage rate in colon atresias are their occasional multiplicity, their association with atresias elsewhere in the gastro-intestinal tract and other defects such as malrotation, volvulus and omphalocele. In some cases the amount of salvable intestine may be insufficient for maintenance of life.

Definition: There should be no confusion about the terms “atresia” and “stenosis,” but all too frequently they are used almost interchangeably. “Atresia” means the absence or total closure of a normal opening, while “stenosis” means a narrowing or stricture and is subject to considerable variation in the dimensions of the lumen. There are two variables with respect to bowel atresia: (1) numerical—single or multiple, and (2) structural. The two structural types are atresia in continuity and atresia without continuity. The former consists of a septum or diaphragmlike occlusion of the lumen without visible disturbance of the external contour of the bowel other than marked proximal dilatation and narrow, underdeveloped, collapsed bowel distally; the latter being secondary to disuse. Atresia without continuity consists of a total absence of a segment of bowel.
which may vary in length from a few millimeters to half or more of the colon. The proximal and distal portions of the gut are “blind” and the intervening segment may be completely absent with a corresponding defect in the mesentery, as in our second case. On the other hand, the missing portion may be a thin, stringlike, fibrous cord, as in our first case.

Severe stenosis and atresia have much in common in that the onset of symptoms occurs soon after birth and the infant cannot survive unless the obstruction is corrected promptly. The diagnosis of complete obstruction is relatively easy because, on abdominal x-ray, no gas is seen distal to the lesion and, proximally, there are distended loops of bowel. In severe stenosis, often, the minute opening is obstructed completely by meconium. Unless the obstruction is very high, it is virtually impossible to distinguish distended colon from distended small bowel on plain films.

Incidence: The incidence of gastrointestinal tract atresia has been the subject of some controversy. Estimates vary from one in 20,000 births to one in 1,500. Occlusion can occur in any part of the intestinal tract but is least frequent in the colon where it is said to occur in 4 to 5 per cent of such obstructions. Evans estimated that throughout the world some