Case Report

Colonic Atresia: A Case Report

Nessa M[1], Khan SUDE[2], Hossain MS[3]

Abstract

Atresia of the colon is among the rare types of all gastrointestinal atresias. Descending colon is the rarest site of all the colonic atresias. A case report of 3 days old female baby was presented with the features of distal intestinal obstruction. At laparotomy type I atresia of the middle part of asending colon, with proximal dilatation of caecum and ilum. Microcolon was noticed in ascending colon, transverse colon, descending colon and sigmoid colon when newborn underwent exploration. Primary ileostomy and distal mucus stoma of ascending colon was done. After four weeks, closure of ostomy was done.

Key-words: Colonic atresia, Ileostomy, Abdominal distension.

Introduction

Atresia of the colon is an uncommon entity distinct from congenital pouch colon, which is a more frequent and is associated with anorectal malformations[1,2]. Colon atresia is a rare cause of intestinal atresia in neonates.The reported incidence varies widely, 1 in 1,498 live births[3,4] to 1 in 40,000. The figure of 1 in 2,00,000 is widely referenced[5,6]. Colonic atresia is typically classified according to the 1989 descriptions of intestinal atresia by Bland- Sutton and the 1964 descriptions by Louw[7,8]. In type 1 colonic atresia, the bowel and mesentery remain intact, but the bowel lumen is interrupted by a complete membrane. In type 2 colonic atresia, the bowel is discontinuous, with portions connected by a fibrous cord. In type 3 colonic atresia, the bowel ends are completely separated, and the mesentery has a gap. Stenotic lesions are characterized by intact bowel with incomplete occlusion and require no classification. In 1990, Davenport et al reviewed 118 cases of colonic atresia and reported the following distribution of lesion sites[9].

- Ascending colon - 33 (28%)
- Hepatic flexure - 4 (3%)
- Transverse colon - 27 (23%)
- Splenic flexure - 30 (25%)
- Descending and sigmoid colon - 24 (20%)

Two thirds of colonic atresias are in the distribution of the inferior mesenteric artery (IMA). This finding may be related to a lack of collateral blood supply or to disease processes that render this portion of the colon more susceptible to injury. Although the underlying cause of colonic atresia may be vascular insufficiency, the association with Hirschsprung's disease[10,11]. in particular, and the gross discrepancy between the proximal and distal bowel diameters play a major role in the way of management in contrast to management strategies described for small bowel atresias. With colonic atresia and stenosis, survival is related to the patient's condition before surgery, technical difficulties with the colonic anastomosis, sepsis, and associated anomalies[11,12]. Whereas older series reported a high mortality for colonic atresia, modern series report survival of all patients, except those with significant life-threatening comorbidities. Patients with Hirschsprung disease[13] and colonic atresia have more complicated courses and a mortality of 10%.

Case Report

A 6 days old term Female baby was born by LUCS at 32 wks of pregnancy. Baby was premature with low birth weight at a peripheral hospital. The baby was referred from CMH (Combined Military Hospital) Bogra to CMH Dhaka at the age of 6 days. Prenatal problem was detected on routine antenatal visits. The baby did not pass meconium till 8th day when she developed marked abdominal distension along with other features of intestinal obstruction. At the time of admission to our hospital newborn had distension and

1. **Col Meherun Nessa**, MBBS, MS (Paed Surgery), Adviser Specialist in Paediatirc Surgery, CMH, Dhaka 2. **Col Shams-ud-Din Elias Khan**, MBBS, MS (Paed Surgery), Classified Specialist in Paediatric Surgery, CMH, Dhaka 3. **Maj Md Shakhawat Hossain**, MBBS, MS (Paed Surgery), Department of Paediatric Surgery, CMH, Dhaka.

mild dehydration. There was polydactyly hand left as associated anomaly (Figure-1). After Rectal irrigation small amount of whitish mucous plug was passed. Plain X-ray of the abdomen in erect posture showed multiple air fluid levels suggestive of distal small bowel obstruction (Figure-2). A diagnosis of distal large bowel obstruction was made. Baby was optimized by fluid and electrolytes replacement. Parenteral antibiotics along with vitamin K were administered. Laparotomy was performed. On exploration there was Type-1 atresia (Membrane within the lumen) of ascending colon with proximal gross dilation of ascending colon caecum and distal part of ileum (Figure-3). A nasogastric tube was introduced through the distal microcolon and wash given, fluid flown out of anus suggesting distal patency. In view of size disparity proximal ileostomy and distal mucus stoma of the asending colon was made (Figure- 4). Biopsy taken from caecum, appendix and from terminal ilium were sent to see the presence of ganglion cell. Histopathology report showed presence of ganglion cells which exclude Hirschsprung's disease (HPD). Newborn recovered well and started oral feeding on 3rd postoperative day. Ileostomy stoma functioned well and became healthy (Figure-4). Newborn was planned for definitive procedure of ileocolic anastomosis during later date. After four weeks patient was admitted for closure of ostomy. Distal loopogram was done and report was normal. Closure of ostomy was done. Post operative recovery was uneventfull and patient was discharged on 10th post operative day.

Discussion

Colonic atresia accounts for 1.8-15% of intestinal atresias[14]. Ascending colon is the rarest site of colonic atresia. Due to its rarity it is usually not thought of in the differential diagnosis of neonatal intestinal obstruction. Delayed recognition of symptoms increases the risk of complications like perforation and sepsis[15,16]. Etiology of this anomaly is still debated. Commonly accepted theory is that vascular accidents in-utero in early weeks of gestation. Colonic volvulus, intussusception, incarceration and strangulation of internal hernias in-utero, are also the probable etiological factors[17]. Failure of recanalization after the solid cord stage as in duodenal atresia is also considered to be the cause of colonic atresia. Due to the rarity of the disease available literature is scanty. Uncomplicated right colonic atresia can be treated with primary anastomosis with little morbidity whereas staged reconstruction with proximal diversion is advised in sigmoid and left colonic atresia, transverse colon is to be avoided due to the complications of anastomosis[16,18].

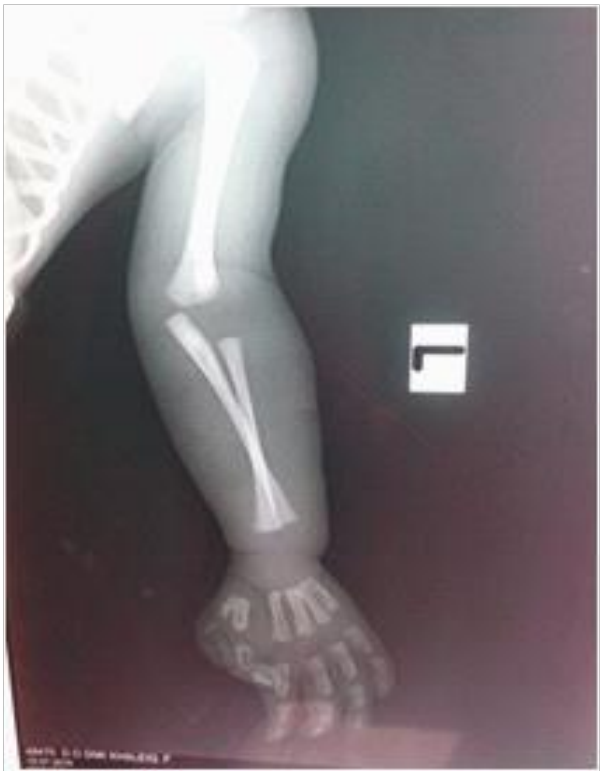

Fig-1: Polydactyly hand left as associated anomaly.

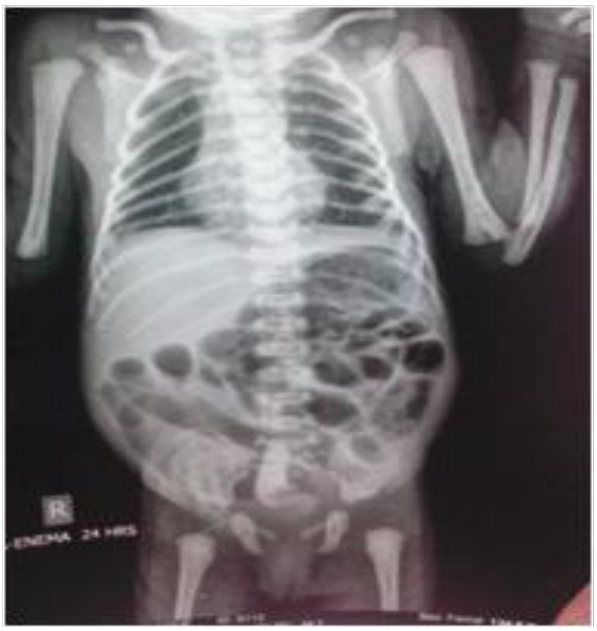

Fig-2: Multiple air fluid levels suggestive of distal small bowel obstruction.

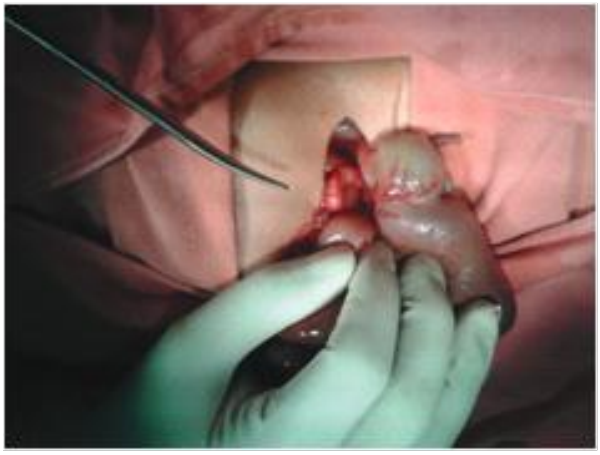

Fig-3: Proximal gross dilation of, ascending colon caecum and distal part of ileum.

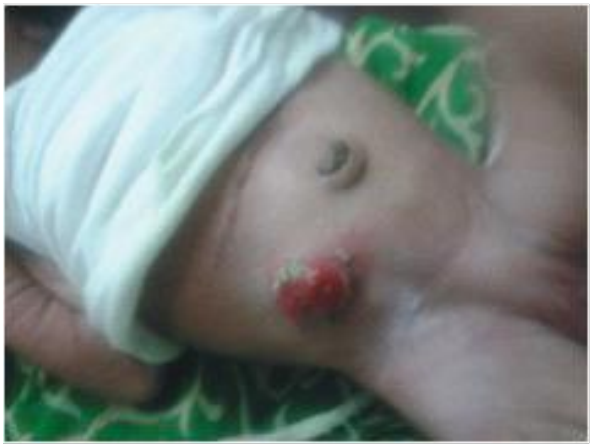

Fig-4: Proximal ileostomy and distal mucus stoma of the asending colon was made.

Primary anastomosis or primary anastomosis with intestinal diversion depending on the condition of the newborn is considered as an efficient approach for the management of colonic atresia. However, primary anastomosis may be technically difficult because of the very large difference between the sizes of the distal and proximal bowels, and the loss of length associated with resection of dilated proximal colon[19]. Preservation of ileocecal valve is desired for future growth of the child. Due to hugely dilated caecum and the enormous disparity between the caecum and atretic transverse colon in the reported case primary anastomosis was deferred and hence ileostomy seems appropriate. Histopathology report shows presence of ganglion cells which exclude HPD. Literature has estimated that coexistent Hirschsprung's disease is present in 2% of patients with colonic atresia[20], incidence of simultaneous colonic atresia and Hirschsprung's disease is estimated to be 1 in 10 million live births[21]. However the operative strategy depends on the clinical state of the patient and the safety of the procedure should always be a priority[22]. Many authors have reported the resection and primary anastomosis as a reasonable treatment option regardless of the location of colonic atresia, if the newborn's condition allows it[23]. In the present case, staged procedure was adopted and it resulted in early recovery and discharge of the patient. Stoma care is an issue in these cases especially with ileostomy where effluent is more fluid in nature. To address this issue an early reversal was planned in our patient. After four weeks closure of ostomy was done.

Conclusion

Colonic atresia is rare entity having better prognosis when intervened earlier which can be managed with primary ileostomy and planned ileocolic anastomosis at later date.

References

1. Benson CD, Lotfi MW, Brogh AJ. Congenital atresia and stenosis of the colon. J Pediatr Surg 1968; 3:253-7.

2. Karnak I, Ciftci AO, Senocak ME et al. Colonic atresia: Surgical management and outcome. Pediatr Surg Int 2001; 17:631-5.

3. Evans CW: Atresias of the gastrointestinal tract. Int Abstr Surg 1951; 92:1-8.

4. EA Frankas JR. Editor: Gastrointestinal imaging in Pediatrics. 2nd ed. New York, 1982. Harper and Row.

5. Benson CD, Loh MW, Brough AJ. Congenital atresia and stenosis of colon. J Pediatri Surg 1968; 3:253.

6. Webb CH, Wangen Steen OH. Congenital intestinal atresia. Am J Dis child 1932; 14:262.

7. Bland-Sutton JD. Imperforate ileum. Am J Med Sci 1889; 98:457-62.

8. Louw JH. Investigations into the etiology of congenital atresia of the colon. Dis Colon Rectum Nov-Dec 1964; 7:471-8.

9. Davenport M, Bianchi A, Doig CM et al. Colonic atresia: Current results of treatment. J R Coll Surg Edinb 1990 Feb; 35(1):25-8.

10. Etensel B, Temir G, Karkiner A et al. Atresia of the colon. J Pediatr Surg 2005; 40:1258-68.

11. Ameh EA, Nmadu PT. Intestinal atresia and stenosis: A retrospective analysis of presentation, morbidity and mortality in Zaria, Nigeria. West Afr J Med 2000; 19:39-42.

12. DallaVecchia LK, Grosfeld JL, West KW et al. Intestinal atresia and stenosis: a 25-year experience with 277 cases. Arch Surg 1998 May; 133(5):490-6; discussion 496-7.

13. De Jesus LE, Marques AM, Rocha MS et al. Left colon stenosis caused by tuberculosis. J Pediatr Surg 2004 Oct; 39(10):e5-7.

14. Boles ET Jr, Vassy LE, Ralston M. Atresia of the colon. J Pediatr Surg 1976; 11:69-75.

15. Cox SG, Numanoglu A, Millar AJ et al. Colonic atresia: Spectrum of presentation and pitfalls in management. A review of 14 cases. Pediatr Surg Int 2005; 21:813-8.

16. Davenport M, Bianchi A, Doig CM et al. Colonic atresia: current results of treatment. J R Coll Surg Edinb 1990; 35:25-8.

17. Harris J, Källén B, Robert E. Descriptive epidemiology of alimentary tract atresia. Teratology 1995; 52:15-29.

18. Kim PC, Superina RA, Ein S. Colonic atresia combined with Hirschsprung's disease: A diagnostic and therapeutic challenge. J Pediatr Surg 1995; 30:1216-7.

19. Hsu CT, Wang SS, Houng JF et al. Congenital colonic atresia: Report of one Case, Pediatr Neonatol 2010; 51(3):186-9.

20. Arca MJ, Oldham KT Atresia, stenosis and other obstructions of the colon. Pediatric Surgery (7th ed), 2012, Elsevier, Amsterdam, The Netherlands, 1247-53.

21. Bley WR, Franken EA. Roentgenology of colon atresia. PediatRadiol 1973; 1(2):105-8.

22. Pohlson EC, Hatch EI Jr, Glick PL. Individualized management of colonic atresia. Am J Surg 1988; 155:690-2.

23. Pohlson EC, Hatch EI Jr, Glick PL et al. Individualized management of colonic atresia. AmJ Surg 1988; 155(5):690-2.