Journal of Neonatal Surgery 2018; 7:9
Doi: 10.21699/jns.v7i1.685

OPEN ACCESS

CASE REPORT

Ileocolic Atresia due to Internal Herniation through the Falciform Ligament Defect

J D Rawat, Sudhir Singh,* Gurmeet Singh

Department of Pediatric Surgery, King George's Medical University, Lucknow, India

How to cite: Rawat JD, Singh S, Singh G. Ileocolic atresia due to internal herniation through the Falciform ligament defect. J Neonatal Surg. 2018; 7:9.

ABSTRACT

Ileocolic atresia is the rarest form of all gastrointestinal atresia. Most accepted theory for Ileocolic atresia is a sequel of in-utero vascular insult. The incidence of internal hernia through a defect in the falciform ligament is extremely rare. In this case, a 2-day-old newborn baby presented with intestinal obstruction. On exploratory laparotomy ileocolic atresia was found along with the atretic terminal ileum and cecum, ascending colon and part of right transverse colon seen herniating through the defect in falciform ligament. To best of our knowledge and literature search this is the first case of Ileocolic atresia caused by intrauterine internal herniation of ileocolic segment through the falciform ligament defect.

Key words: Ileocolic atresia (ICA), falciform ligament defect, internal herniation

INTRODUCTION

Ileocolic atresia (ICA) is a sequel of in-utero vascular insult which may result secondary to intussusception, volvulus, thrombo-embolic events, incarceration or strangulation secondary to internal herniation, and abdominal wall defects. Internal herniation through falciform ligament is a rare type of internal hernia (estimated at only 0.2%). [1] The first reported case of falciform-ligament internal hernia was described by Schultz and Ziegler in 1937. [2] Here we are reporting a case of ICA due to internal herniation through the falciform ligament in a neonate.

CASE REPORT

A 2-day-old, full term, weighing 2300g, male neonate born to a 24-year-old primipara mother was admitted with abdominal distension, bilious vomiting, and failure to pass meconium since birth. She was on regular antenatal check-up at peripheral primary health centre and no issues or polyhydramnios were detected on antenatal ultrasonography. There were no history of congenital anomalies, diabetes or hypertension in family. Mother was not taking any other drugs except iron, folic acid and calcium tablets before and during pregnancy. On examination, he had hypothermia (94.5^{0}F), tachycardia (160 beats/minute) and features of dehydration. The abdomen was grossly distended and the bowel loops were visible on upper abdomen. There were no other obvious anomalies seen. Bilious aspirate was started draining on putting the nasogastric tube. Plain roentgenogram revealed distal ileal obstruction. Contrast enema was suggestive of micro colon (Fig.1A).

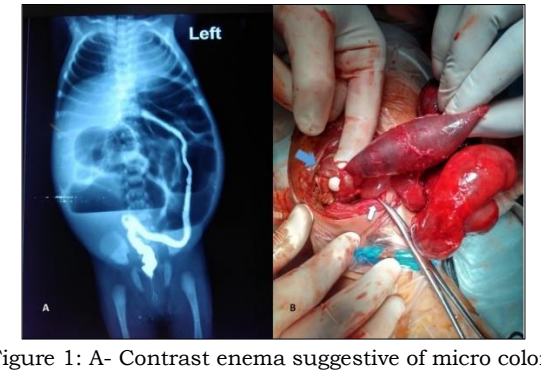

Figure 1: A- Contrast enema suggestive of micro colon, contrast unable to pass beyond the transverse colon along with dilated small bowel. B) Intra operative picture showing grossly dilated ileum with adhesion and entrapments of atretic ileocolic segment (shown by blue arrow) in of falciform ligament defect (shown by white arrow).

Correspondence*: Dr Sudhir Singh, Department of Pediatric Surgery, King George's Medical University (KGMU), Lucknow (UP) (India), Zip 226003
E mail: drsudhir_singh25@yahoo.in

Submitted: 31-10-2017 Accepted: 15-11-2017
Conflict of interest: Nil Source of Support: Nil

After adequate resuscitation, exploratory laparotomy was performed that revealed herniation of ileocolic part of bowel through a defect in the Falciform ligament (Fig.1B); there was type II ICA and approximately 150 cm of proximal ileum was found to be grossly dilated. After excision of the atretic segment, ileostomy and colonic mucosal fistula was created, primary anastomosis was not performed in view of the dilated and inflamed proximal bowel. The patient recovered uneventfully in postoperative period and was discharged on 10th post-operative day. Stoma closure was done 10 weeks later after checking the distal colon patency. The patient was thriving well at six-month follow-up

DISCUSSION

At four weeks of intrauterine life after development of foregut diverticulum and hepatic diverticulum, the falciform ligament subsequently develops from the septum between the liver and anterior abdominal wall. Hypoplasia of the falciform ligament gives rise to the noted defect during this process. [3] Over the ensuing 5 weeks, the intestinal tube, separable into cephalad and caudal limbs, rotates counter clockwise and returns to its familiar position in the abdomen. The superior mesenteric artery (SMA) gives rise to the ileocolic, right colic, and middle colic arteries, which supply the ileocecal region, the ascending colon, and the proximal transverse colon, respectively. We proposed that at the point of counter clockwise rotation if there is a defect in Falciform ligaments, a small chance that segment of ileocolic bowel may entrapped. These entrapments may lead to vascular compromise and development of ICA.

Intra-uterine vascular insults resulting in ileocolic atresia is known to occur due to varied aetiologies such as compression at the umbilical ring, internal hernia, intussusception, choledochal cyst, volvulus, and thrombosis- all may initiate bowel infarction. All these antenatal conditions lead to disintegration, reabsorption of dead tissue, and sealing of bowel ends antenatally. [4-9] Of these aetiologies, internal herniation through Falciform ligament is rather a rare cause with probably less than 10 cases reported worldwide. [8] Of these cases, the ones with resultant bowel atresia(s) are even rarer. [8,9] Ours is probably the first such case with ICA.

As most of such patients report late in the developing world, resection and primary anastomosis is not feasible most of the times and one has to resort to creation of ileostomy and colonic mucus fistula. [8, 9]

Consent: Authors have submitted signed consent form from legal guardian of the patient and available with editorial office.

Authors' contribution: All the authors equally contributed in concept, design, drafting of manuscript, and approved final version of the manuscript.

REFERENCES

1. Macina S, Testa T, Losacco C. Congenital internal hernia through defect in the falciform ligament in adult: A case report and review of the literature. Int J Surg Case Rep. 2016; 26:104-7.
2. Schultz RB, Ziegler AM. Persistent fetal tachycardia and neonatal intestinal obstruction due to internal hernia beneath the umbilical vein. Am J Surg. 1937; 33: 692-4.
3. Shiozaki H, Sakurai S, Sudo K, Shimada G, Inoue H, Ohigashi S. Pre-operative diagnosis and successful surgery of a strangulated internal hernia through a defect in the falciform ligament: a case report. J Med Case Rep. 2012; 6:206.
4. Gornall P. Management of intestinal atresia complicating gastroschisis. J Pediatr Surg. 1989; 24:522-4.
5. Wang NL, Yeh ML, Chang PY, Sheu JC, Chen CC, Lee HC, et al. Prenatal and neonatal intussusception. Pediatr Surg Int. 1998; 13:232-6.
6. Al-Wafi A, Morris-Stiff G, Lari A. Colonic atresia secondary to a choledochal cyst. Pediatr Surg Int. 1998; 13:422-3.
7. Louw JH. Investigations into the etiology of congenital atresia of the colon. Dis Colon Rectum. 1964: 7:471-8.
8. Soni V, Valse PD, Vyas S. Colonic atresia due to internal herniation through the Falciform ligament defect: A case report. J Neonat Surg. 2014; 3:21-2.
9. Shakya VC, Agrawal CS, Koirala R, Khaniya S, Adhikary S, Shakya BM. Herniation through the falciform ligament: an unusual cause of ileal atresia. J Pediatr Surg. 2009; 44:1295–7.