Case Report

Pediatric Surgery Section

In utero intestinal perforation presenting as Ileal atresia with calcification: A Case Report

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ABSTRACT

We report a case of intrauterine bowel perforation presenting as ileal atresia with calcification. A seven-day-old girl presented with abdominal distension, bilious vomiting and not passing meconium. A provisional diagnosis of distal ileal atresia was made on clinical examination and investigations. Exploratory laparotomy revealed distal ileal atresia type IV, a calcified mass attached to atretic ileum and adhesions. Adhesiolysis, resection of atretic segments with calcified mass and ileostomy was done. She was on regular follow up for one month, thereafter lost to follow up.

Key Words: Intrauterine intestinal perforation, Ileal atresia, Calcification, Ileostomy

INTRODUTION

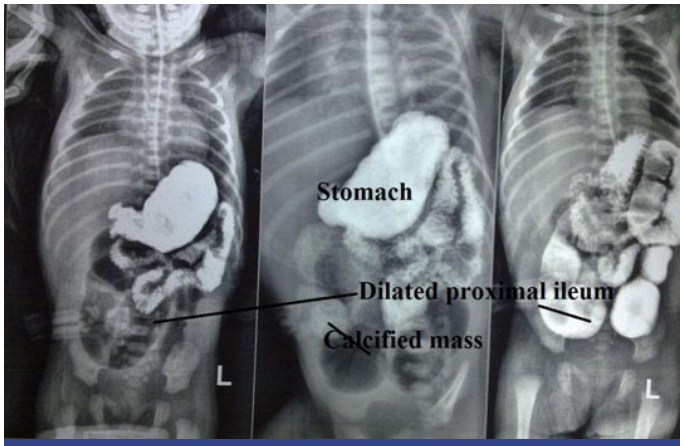
Meconium peritonitis is a sterile chemical peritonitis resulting from perforation of the bowel inutero [1], [2]. In most of the cases the perforation occurs proximal to an obstruction but obstruction may be absent [1], [2].

Causes of the meconium peritonitis include: perforation of jejuno-ileal atresia, perforation of the Meckel's diverticulum, intussusception, perforation of intestinal duplication, etc. [1], [3], [4].

Postnatally infants may present with abdominal distention, bowel obstruction, cystic collection, peritonitis, etc. The present article reports a case of meconium peritonitis / calcification resulting from inutero perforation of the ileum secondary to ileal atresia.

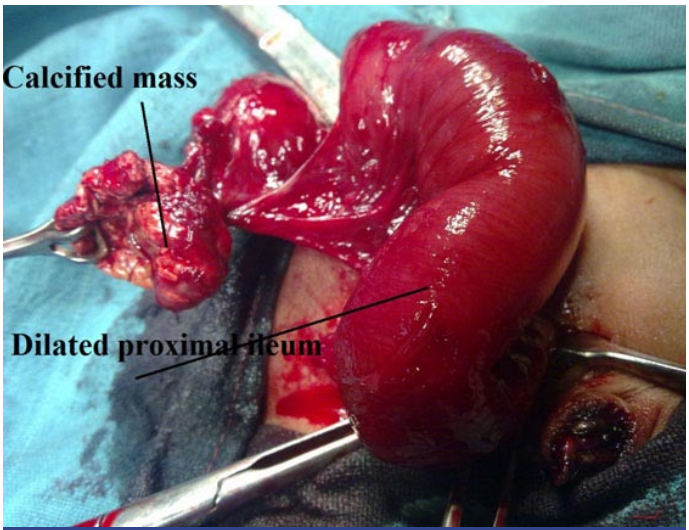
CASE REPORT

Seven-day-old, 2.25 kg, girl child was referred to us with a history of not passing meconium, abdominal distension and bilious vomiting since birth. She was born full term, delivered normally at hospital to a Gravida III Para II, 25 years old mother. The pregnancy and delivery were uneventful. The infant was investigated and treated by a pediatrician for 5 days before admission. Clinical examination revealed that she was dehydrated and her general condition was poor. Her abdomen was distended and visible loops of bowel were seen. Abdominal roentgenograms revealed features suggestive of a small-bowel ob- struction with intra peritoneal calcification. Ultrasound examination (USG) of the abdomen and pelvis revealed dilated loops of bowel without intra peritoneal collections. A gastrograffin study (upper GI) done previously showed dilated loops of distal ileum and calcifica- tion on right side of abdomen and no contrast in colon [Table/Fig 1]. A provisional diagnosis of distal ileal atresia was made. Findings at celiotomy were: dilated ileum and jejunum, distal ileal atresia (type IV), features of antenatal peritonitis and adhesions and a calcified mass 3x2 cm attached to atretic ileum ([Table/Fig 2] and [Table/Fig 3]). Adhesiolysis, resection of the atretic segments, excision of calcified mass and ileostomy was done. Atresia of remaining distal ileum and colon also ruled out and distal ileum was brought out as mucus fistula. The length of ileum proximal to ileocaecal area was about 15 cm. She had an uneventful recovery and discharged on 6th post operative day. Histology of the excised mass showed multiple areas of calcifications and necrosis within the muscular coat as well as on serosal surface [Table/Fig 4]. She was on regular follow up for one month and was doing well, there after lost to follow up. **[Table/Fig 1]**.



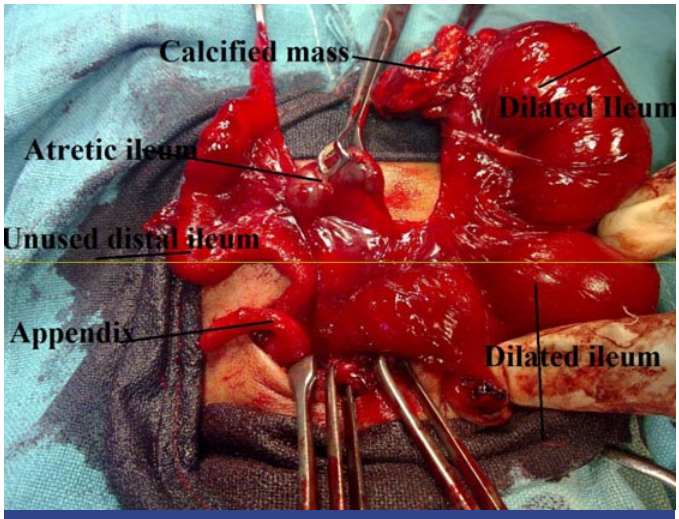
[Table/Fig 1]: Gastrograffin study (upper GI) showing dilated loops of small intestine, calcification on right side of abdomen and no contrast in colon

[Table/Fig 2]



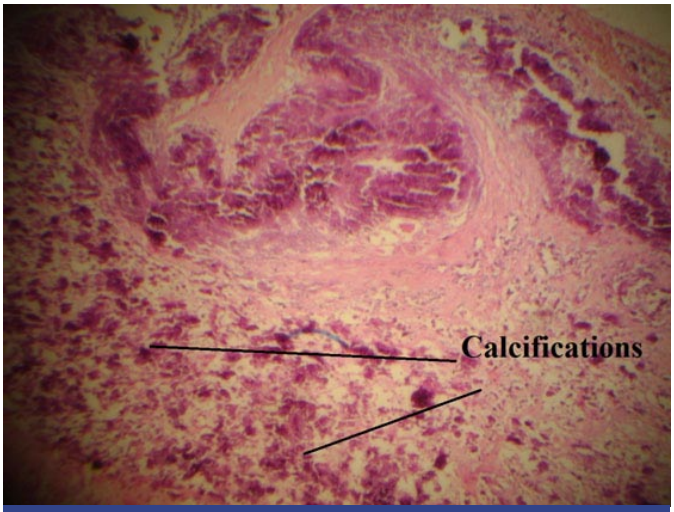
[Table/Fig 2]: Operative photograph showing calcified mass attached to the atretic ileum with dilated proximal ileum

[Table/Fig 3]



[Table/Fig 3]: Operative photograph showing dilated proximal ileum, calcified mass, ileal atresia (type IV), distal unused ileum and appendix

[Table/Fig 4]



[Table/Fig 4]: Histology of the excised specimen showing multiple areas of calcifications and necrosis within the muscular coat and on serosal surface

DISCUSSION

Intra-uterine intestinal perforation leads to a sterile chemical peritonitis and results from antenatal passage of meconium from the foetal gut into the peritoneal cavity [1], [2], [3].

The usual site of perforation is the small bowel, the distal ileum being the most frequent site [1], [5].

When perforation seals off before birth "fibroadhesive meconium peritonitis" is the rule. When it occurs in utero but remains open "cystic meconium peritonitis" with the open perforation communicating with the cyst cavity is to be expected. Cystic meconium peritonitis is a large meconium filled cyst lined by a thick membrane containing multiple calcium deposits and plaques. When the perforation occurs during labour or in early extra uterine life generalized meconium peritonitis occurs [6].

Intra-uterine bowel perforation leading to meconium peritonitis may be diagnosed prenatally by the presence of generalised foetal ascites, giant pseudocyst, calcifications, dilated bowel loops [1], [2], [3].

According to ultrasonographic findings inutero, patients are classified into three types; type I - massive meconium ascites, type II - giant pseudocyst and type III - calcification and / or small pseudocyst [5].

Foetal CT scan and MRI may confirm the findings of USG [3], [7].

Prenatal assessment is useful for planning delivery and neonatal management. Postnatally plain radiographs, USG and CT scan of abdomen and pelvis may provide sufficient anatomical information depending upon the amount of collection of meconium, and the cause of the antenatal perforation.

Surgical treatment depends upon the clinical presentation and the underlying cause. In cases of antenatal bowel perforation with fibroadhesive meconium peritonitis or cystic meconium peritonitis with ileal atresia the treatment is laparotomy, excision of cyst and primary anastomosis of the intestine would be the best, if possible. [1], [8].

Traditional surgical treatment for multiple atresias has included tapering enteroplasty, resection, and primary anastomosis. They often necessitate en-bloc resection and a single anastomosis, rather than multiple anastomoses.

It is important, however to maintain maximum bowel length to avoid short bowel syndrome. The other surgical options for the multiple atresias are (a) primary end-to-end anastomosis with proximal jejunostomy or ileostomy which carries a high risk of cutaneous problems and electrolyte disturbance from the leaking bile and (b) "shish-kebab technique" - to perforate multiple membranous obstructions as an alternative to multiple resections and intraluminal silastic stents used to support multiple hand-sewn anastomoses [9].

In the present case, as the general condition of the patient was not good with late presentation and fortunately the length of the jejunum and ileum was adequate and the atresia involved to the distal ileum, ileostomy was performed. Mortality is also reported in 10% to 50% of the cases with inutero bowel perforation needing post natal surgical intervention [1], [2].

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