



(CASE REPORT)



Radiological diagnosis of microcolon in a 5-day old neonate: a case report

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Abstract

Microcolon is a radiographic feature of a low intestinal obstruction that result from intrauterine underutilization or what is term unused colon. The finding of microcolon on contrast enema study in newborn with distended abdomen usually suggests jejunoileal obstruction, jejunoileal atresia, meconium ileus, or occasionally totals colonic aganglionsis. We are therefore presenting this case to highlight the wonders that imaging will perform in prompt diagnosis and management of this condition.

Keywords: Microcolon; Radiological Diagnosis; Neonate

1. Introduction

Microcolon is a radiographic feature of a low intestinal obstruction that result from intrauterine underutilization or what is term unused colon [1]. The finding of microcolon on contrast enema study in newborn with distended abdomen usually suggests jejunoileal obstruction, jejunoileal atresia, meconium ileus, or occasionally totals colonic aganglionsis [2]. These conditions require immediate treatment either surgically or by hyperosmolar contrast enema [3]. It is a rare disease and even rarer in the tropic [4]. The aim of this report is to describe the typical imaging findings of this disease and possible etiology.

2. Case report

A 5 day old male neonate presented with progressive abdominal distension, vomiting and failure to pass meconium. The mother is a 25 years old para 2+0. Her antenatal care was uneventful. The baby is a product of full term delivery that was uneventful. Subsequently mother and baby were discharged home. They returned to the hospital on third day with complain of progressive abdominal swelling, vomiting that is non bilious and no passage of stool since birth. On examination, the child was not in respiratory distress, not pale and anicteric. The abdomen was grossly distended, however no mass was palpable and no organomegaly. Rectal examination admitted a tip of finger and no meconium stain. Chest, cardiovascular and neurological examinations were essentially normal.

A provisional diagnosis of intestinal obstruction was made presumably due to Hirschsprung's disease and plain abdominal radiograph and ultrasound was requested. Ultrasound shows gaseous distention of the bowel loops preventing visualization of entire abdominal organs. Plain abdomen revealed gaseous distension of the bowel loops with difficulty in distinguishing the small from large bowel or mechanical or functional obstruction as shown in Fig 1. There was bilateral flank fullness as also shown in Fig 1. Barium enema showed small caliber colon but of normal length with termination of contrast at the ceecal region and the rectum was normal as shown in Fig 2 and 3. So an impression of microcolon was made with probably associated distal ileal atresia. Surgery was carried out and surgical finding was distal ileal atresia. The atretic region was surgically resected and bowel anastomosis was performed. Rectal biopsy shows presence of ganglionic cells which rule out Hirschsprung. Patient did well post operatively.

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Figure 1 Plain abdomen showed marked bilateral flank fullness with distended bowel loops.

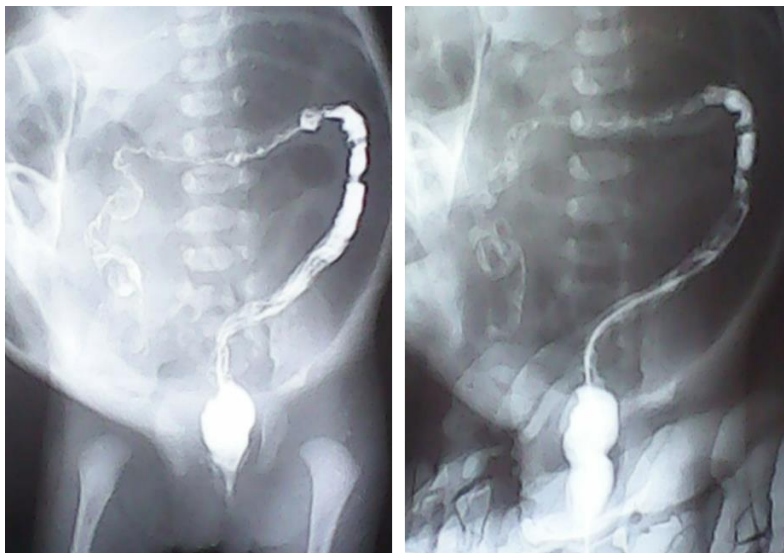


Figure 2 Barium enema showed colon of normal length but of reduced caliber (arrows). The rectum is normal.



Figure 3 Lateral view of the barium enema shows reduced caliber of the colon

3. Discussion

Congenital anomalies of the gastrointestinal tracts are significant cause of morbidity in children and less frequent in adult [5]. Neonates with complete high intestinal obstruction do not usually require further radiologic evaluation following plain radiographs, whereas those with complete low obstruction should undergo a contrast enema examination [6].

Microcolon is termed as "unused colon", is defined as a colon of abnormally small caliber but of normal length [1]. There is no definite or absolute standard of measurement for this entity, although some state that a colonic segment with a caliber less than the interpedicular space of the L1 vertebra is considered microcolon [7]. It has also been defined as luminal diameter less than the height of an upper lumbar vertebral body [1]. There are variations in the radiologic pattern of microcolon, ranging from focal to long segment or even diffused pattern [3]. Whether the entire colon or focal segment is affected, the distal colon is often affected [1]. The situation occurs when little or no small bowel contents reach the colon during fetal life and the entire colon therefore remains thin and ribbon-like [8]. This may be due to obstruction at the small intestine as a result of vascular insult during fetal life [2]. The disease is more common in males with a ratio of 7:6 [4]. It is a condition that is more common in the Caucasian [4].

Intestinal atresia is an important cause of neonatal intestinal obstruction [9] as in this case. Four main types of intestinal atresia have been described; Type I is characterized by a thin diaphragm that occludes the lumen. In type II, two blind ends are connected with a fibrous cord of atretic bowel. Type IIIA, two blind ends terminate with a V-shaped mesenteric defect (this is the most common type), Type IIIB, apple-peel or Christmas-tree atresia, involves a large, V-shaped mesenteric defect in which the blind-ended bowel to the distal atresia is wrapped around blood supply. Type IV is defined as multiple atresia [2], as in our case. The level of obstruction and severity determines the clinical presentation. Approximately, 95% of intestinal obstructions diagnosed in the first two weeks of life are due to atresia and or stenosis of small intestine [9].

Neonatal intestinal obstruction depending on the site, presents with increasing abdominal distension, vomiting and delay or no passage of meconium [4]. Imaging may be the only clue to the diagnosis, which is necessary for early detection, determination of the extent of the lesion and possible associated lesions [1]. It is useful in the planning treatment option and follow-up [1].

In neonate the large and small bowel cannot be distinctly distinguished because the intestinal loops are featureless and sometimes do not lie in the predictable anatomical position of the air-filled bowel loops [10]. A high intestinal obstruction pattern usually shows a few scattered air-filled loops in the upper abdomen. Low gastrointestinal obstruction generally has plain radiographic features of many dilated and air-filled small intestinal loops with a paucity of air within the colon and rectal region [1]. This distinction is important in deciding appropriate imaging step [2]. Familiarity with these gastrointestinal abnormalities is essential for correct diagnosis and appropriate management [9].

4. Conclusion

The finding of microcolon on contrast enema study in newborn with distended abdomen usually suggests jejunoileal obstruction, jejunoileal atresia, meconium ileus, or occasionally total colonic agangliosis. We are therefore presenting this case to highlight the wonders that imaging will perform in prompt diagnosis and management of this condition.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest

Statement of informed consent

Informed consent was obtained from the patients' parents

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