

Meckel's Diverticulum in a 6-Year-Old Girl. A Rare Presentation of Intussusception and Volvulus of Small Bowel

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Abstract

This report is presenting a very rare case of Meckel's diverticulum causing intussusception of the small bowel in a 6-year-old girl. The aim through this case report is to increase awareness of this possible complication and provide potential guidance towards its ideal management.

Keywords: Meckel's Diverticulum; Intussusception; Small Bowel

Background

Meckel's diverticulum is a common congenital anomaly of the small bowel caused by an incomplete obliteration of the vitelline (omphalomesenteric) duct. Most cases are asymptomatic with this abnormality that could be discovered incidentally during laparoscopic procedures and on imaging studies [1].

The most common reported presentation of Meckel's diverticulum is painless bleeding per rectum (PR) mainly in boys in 30% of cases. Other encountered presentations include abdominal pain and swelling due to diverticulitis, chronic ulceration, intestinal obstruction, perforation and intussusception with the latter being extremely rare in such cases [2].

The incidence of complicated Meckel's diverticulum is 4 - 9% and it typically presents in infants under 2 years of age [3]. Intussusception is represented by the least percentage of these complications and the presentation in the paediatric community is typically that of bleeding PR [4].

Case Presentation

A 6-year-old girl with a history of Constipation presented with a 2-day history of severe colicky abdominal pain. The pain was centrally located and associated with multiple episodes of nonbilious vomiting and loose stools. On clinical examination, her abdomen was soft, however she demonstrated generalised abdominal tenderness and guarding. There were no palpable masses or organomegaly. A clinical assessment of the patient revealed that she was afebrile and normotensive with no evidence of tachycardia or tachypnoea. Urine Dipstick tests were normal. Blood tests, abdominal radiography, ultrasonography of the abdomen as well as computed tomography (CT) of the abdomen and pelvis were carried out.

Investigations

Blood investigations showed WBC of 7.22, C-reactive protein of 10 and lactate was 1. Abdominal X-ray showed gas filled dilated loops of bowel in the central abdomen which measured up to 2 cm. The abdominal ultrasound was highly suggestive of small bowel intussusception in the right lower quadrant with a swirled pattern of hyper-echogenicity and hypo-echogenicity representing alternating layers of bowel (Figure 1). Note was also made of free fluid within the intussusception. The reporting radiologist also recommended an urgent CT scan of the abdomen and pelvis. This showed small bowel intussusception in the right iliac fossa with the intussuscipten being dilated and fluid-filled and with no clear start and end point. This was suggestive of a closed loop obstruction. There was also a sliver of free air in the right iliac fossa with enlarged mesenteric lymph nodes at the base of the end of the intussusceptum. A twist of the blood supply was also noted within the intussusceptum indicating volvulus of the intussuscipten (Figure 2).



Figure 1



Figure 2

Treatment

The patient underwent an urgent laparotomy for exploration the intussusception and possible reduction of the salvageable bowel. Intraoperatively, it was discovered that the patient developed intussusception on top of a Meckel's diverticulum complicated with volvulus of the small bowel involved into the intussusception. This was excised in conjunction with the necrotic bowel and a primary anastomosis was fashioned. Following the procedure the patient was started on intravenous triple antibiotics (Gentamicin, metronidazole and CO-amoxiclav and controlled analgesia). She was deemed fit for discharge 7 days postop. The patient was followed-up at the outpatient clinic and the recovery process was unremarkable.

Discussion

Meckel's diverticulum is an outpouching of all three layers of the enteric mucosa and is characterised by a persistent remnant of the vitelline duct. It is the most common congenital anomaly of the gastrointestinal tract, occurring in 2 - 3% of the population with a classic symptomatic presentation before 2 years of age in boys [5].

Intussusception and Meckel's diverticulum are two distinct gastrointestinal conditions, but there can be a correlation between them in rare instances. In some cases, Meckel's diverticulum can serve as a "lead point" for intussusception. This means that the presence of Meckel's diverticulum can initiate or contribute to the telescoping of the intestine. The presence of a diverticulum can create a pocket in which the intestine can fold into. This results in intussusception. Children with Meckel's diverticulum are therefore at a slightly higher risk of developing intussusception when compared to those without this congenital anomaly.

When Meckel's diverticulum is the cause of intussusception, it may present with unique symptoms or complications, such as bleeding from the diverticulum or abdominal pain related to its presence or both [6].

If intussusception is suspected or diagnosed, treatment is focused on resolving the intussusception through non-surgical or surgical means, depending on the case - in this case, since me of presentation varied from onset of symptoms, surgical measurements including minimally invasive surgery had to be taken as soon as possible before the bowel suffered perforation or necrosis. If Meckel's diverticulum is found to be the cause or contributing factor, it may also be addressed surgically to prevent recurrence. The correlation between the two conditions underscores the importance of thorough evaluation and individualized treatment plans in cases of gastrointestinal issues in children [7].

Conclusion

Intussusception of a portion of the small bowel due to Meckel's diverticulum is a very rare complication. Laparotomy is the most commonly used diagnostic and treatment method in acute presentations. This enables the surgeon to better visualise the pathology and in certain cases can detect pathology which could have been missed on imaging. High index of suspicion is crucial in such cases.

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