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Meckel's Diverticulum: A Case Report

Case Report

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Abstract

Although bleeding per rectum is a relatively common presentation in the pediatric population with different underlying causes, Meckel diverticulum is considered one of the diagnostic challenges. In our case, the patient presented at different times to the emergency room with recurrent abdominal pain and bleeding per rectum. Lastly admitted where investigations included imaging study, however, technetium 99 nuclear scan identified the unusual location of the diverticulum at the higher small intestine which was resected by a pediatric surgeon. The patient was seen as a follow-up in the clinic where all his symptoms disappeared completely.

Keywords: Meckel diverticulum and bleeding per rectum.

Introduction

Meckel's diverticulum is the most common birth defect of the digestive system. It is present in about 2% of the population. The symptom seen most often with Meckel's diverticulum is the passage of a large amount of dark red blood from the rectum. There may also be brick-colored, jelly-like stool present. Passing the blood is usually painless, although some children may have abdominal pain.

- Meckel's scan. A substance called technetium is injected into your child's bloodstream through an intravenous (IV) line. The technetium can be seen by Gama CAMERA machine in areas of the body where stomach tissue exists, such as the Meckel's diverticulum,
- Recto sigmoidoscopy**.** A small, flexible tube with a camera on the end is inserted into your child's rectum and sigmoid colon (the last part of the large intestine). The inside of the rectum and large intestine are evaluated for bleeding, blockage, and other problems.
- The treatment is surgical since it was removed it does not recur.

Our Case

2 y/o, boy, presented to our Emergency room complaining of a recurrent history of bloody stool for 5 days, abdominal pain, and Vomiting for 1 day. History of passing fresh blood mixed with stool, 2 times/day, a large amount. Generalized abdominal pain sometimes Para umbilical relieved by defecation, not radiating anywhere. Vomiting twice, medium amount, non-projectile, non-bloody, only food content. No history of fever, diarrhea, skin rashes, joint pain, and no history of bleeding tendency from elsewhere.

First admission was at 4 months of age because of, Fever for 1 day (38c), irritability, and black stool for 3 days. Moreover, he was on Iron for 1 week. Admitted as fever to r/o sepsis. CBC at that time showed WBC: 10.3, HB: 8.2 MCV: 80.4 MCH: 27.7 Platelets: 355. Chemistry: normal. Blood, Urine, and Stool C/S revealed No growth.

Received Ceftriaxone for 5 days and improved including melena and discharged home

2nd admission to another hospital **at 20 months of age because of** Fever (39c), bloody stool for 2 days, and vomiting 3 times of gastric content. **Admitted as a case of** bacterial infection, received antibiotics for 5 days, and improved.

The mother also mentioned **multiple visits to ER** with the same complaint: bloody stool and abdominal pain, currently this is the 3rd admission. Neonatal, developmental, nutritional, and social history all were unremarkable. On physical examination, his weight was 12 kg (50th centile) height was 91cm and his Head circumference was 51cm (both at 75th centile). He looked well as with good body build but was mildly pale, and all his vitals are normal. Abdomen revealed mild tenderness at the upper quadrants but no distention or organomegaly, others CNS, Chest, Skin, locomotor, and per rectum examination, all were normal. Laboratory studies revealed CBC WBC 8.0, Hg 9.9, Platelets 369,000, MCV 69, MCH 27, RDW 17, and ESR 21. Bone, renal, hepatic, and coagulation profiles all were normal. The plain abdominal x-ray and U/S were normal. CT scan with contrast was highly suggestive of Meckel's diverticulum. Meckel scan was confirmatory of Meckel's disease as it showed the diverticulum higher up in the small intestine as shown in the

picture. Histopathological study revealed Meckel's diverticulum with ectopic gastric tissues (Figure 1).

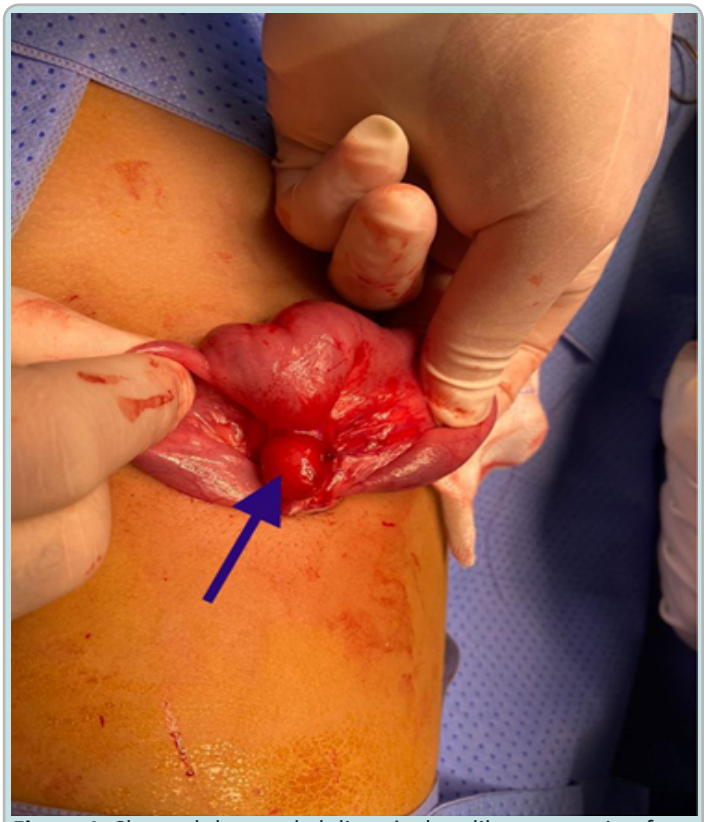

Figure 1: Showed the meckel diverticulum likes protrusion from intestine post-operative.

Diagnosis

Meckel Diverticulum

The patient was referred to a Pediatric surgeon who operated on this patient and perform resection of the diseased part of the intestine, the patient did very well post-operative and discharge home, seen afterward in the clinic where there was no more abdominal pain nor bleeding per rectum.

Discussion

Meckel diverticulum was first described in a paper published in 1809 by Johann Friedrich Meckel, who described this congenital abnormality as a remnant of the omphalomesenteric duct [1]. The incidence of Meckel diverticulum in the general population has been estimated at approximately 2%, but reports from autopsy and retrospective studies range from 0.14% to 4.5% [2,3]. Meckel diverticulum is more common in males than females, with the previously reported male-to-female ratio ranging from 2:1 to 4:1 [4,5]. In children, a large proportion of Meckel diverticulum cases occur in those younger than 2 years of age (almost 50%) [6].

The clinical manifestations of Meckel diverticulum are various in nature, with little specificity. This congenital abnormality has been reported to not only result in common complications, including ulceration, bleeding, intussusception, intestinal obstruction, and perforation but can also be associated with the development of some rare complications such as vesicodiverticular fistula and tumors. Bemelmans et al. [7] found that intestinal obstruction was the most common presentation in patients below the age of 10 years, and bleeding was commonly observed in patients below the age of 20 years. Park et al.[8] found that clinical presentation differed between older and younger patients, and the most common presentation in a child was obstruction, while bleeding in an adult. Bilirakis et al. [9] reported peritonitis to be the most common symptomatic presentation of Meckel diverticulum in children. Rattan et al. [10] showed intestinal obstruction to be the most common complication of this abnormality in their study. Patients who presented clinical features of peritonitis and intestinal obstruction were more likely to be preoperatively misdiagnosed. Some studies have shown that symptomatic Meckel diverticulum, defined as cases in which the surgeon believed that the diverticulum was the main contributing factor to preoperative diagnosis, was only observed in 4% to 6% of patients.

Preoperative diagnosis of Meckel diverticulum may be difficult. The diagnosis of this condition cannot be made with plain radiographs or in the US. CT scans have been found to be often nonspecific but occasionally helpful [11,12]. The most useful method for Meckel diverticulum detection has been identified as technetium-99m pertechnetate imaging, which relies upon the determination of technetium-99m uptake by the ectopic gastric mucosa. Data suggest that this method has a sensitivity of 80% to 90%, a specificity of 95%, and an accuracy of 90% in children [13].

Surgical resection played a central role in the management of symptomatic Meckel diverticulum. The traditional procedure is open diverticulectomy or segmental bowel resection and anastomosis, depending on the length of the Meckel diverticulum and the location of the ectopic mucosa. Common ectopic mucosa locations include the gastric and pancreatic tissues. Other less common locations include the colonic, duodenal, and biliary tissues [14,15]. In our case, postoperative histology revealed the presence of ectopic gastric mucosa, of the small intestine.

In recent years, laparoscopic surgery has also been recognized as a safe and minimally invasive surgical technique associated with short hospital stays and minimal complication rates [16]. Laparoscopy is not only a useful diagnostic method but also a therapeutic tool, especially in cases of bleeding Meckel diverticulum. It remains controversial whether all incidentally diagnosed Meckel diverticula should be respected. Some authors have promoted the removal of all asymptomatic Meckel diverticulum because of the high risk of subsequent complications and low risk associated with resection [17,18]. Some authors have advocated resection only in selected cases of Meckel diverticulum, such as those who are suspected of having ectopic gastric mucosa or forming adhesive bands [19]. In our case, laparoscopic-assisted diverticulectomy associated with resection and anastomosis was performed.

Conclusion

Meckel diverticulum is common in the general population up to 4% in some references, but the majority of them are asymptomatic. However, it carries a wide spectrum of presentations, starting from asymptomatic children to critically sick patients who present with acute peritonitis, obstruction, and perforation. Interestingly enough that Meckel disease commonly presents with obstruction of the small intestine in those below 10 years of age for the surgeon, While they commonly present with bleeding for the pediatrician. The most helpful tool for

investigation is the Meckel technetium-99 scan which carries 90% of accuracy. laparoscopic surgery has been recognized as a safe and minimally invasive surgical technique associated with short hospital stays and minimal complication rates.

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None.

Conflicts of Interests

Authors declare that there are no conflicts between others.

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