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Massive gastrointestinal bleeding in a child in a case of Mekel Diverticulum

KEYWORDS: Meckel's diverticulum , gastrointestinal bleed, technetium scan.

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ABSTRACT Gastrointestinal bleeding in infants and children can be alarming for parents and caregivers alike. In most cases, the cause is benign,and the course self-limited. However ,in patients with significant bleed, an aggressive diagnostic approach is warranted. Meckel's diverticulum may cause painless but massive gastrointestinal bleeding, hence requires a high index of suspicion. Here, we discuss the dilemma in diagnosing a child with massive gastrointestinal bleed.

Introduction

Meckel's diverticulum is the most common congenital malformation of the GIT due to persistent of congenital vitellointestinal duct[1].Although with the widespread use of technetium pertechnate scan and diagnostic laparoscopic approach ,the rates of preoperative diagnosis have improved. We report this case due to its clinical diversity, diagnostic difficulty and management controversies.

Case report

An eight month old male was brought with chief complaints of having massive bleed from rectum and passage of black coloured stools for 2days.There was no history of feed intolerance, vomiting, pain abdomen, abdominal distension, irritability, painful defecation, bleeding from any other site, or significant past or family history. On examination, patient's general condition was fair,vitals-HR-120/min, pulse volume good,temp.-99F,BP-100/60mmhg, CRT<2sec, SpO2-100% in room air.General physical examination revealed, pallor ,oral mucosa normal, no petechie, purura, lymphadenopathy, or bony tenderness.CVS revealed, slight tachycardia, regular heart rhythm, his lungs were clear to auscultation, abdomen is mildly distended, with no significant organomegaly, or signs of peritonitis, perforation, lump,or polyp in perrectal examination. Patient was managed with iv fluids, iv antibiotics, and packed cell transfusion along with pediatric surgery consultation.

First line investigations revealed, Hb-6gm/dl,TLC-12000 / cumm, platelets- 1.6lac, LFT,KFT,Coagulogram, stool routine microscopy all were normal;USG abdomen, Xray abdomen-normal. After obtaining above normal results, second line investigations were sent.Upper G.I endoscopy along with colonoscopy which did not reveal any abnormality. Therefore, technetium pertechnate scan was done,which was suggestive of Meckel's diverticulum.

Patient underwent an emergent laparotomy in which portion of ileum was resected, containing ulcerated appendage with ileo-ileal reanastomosis .Postoperatively, patient's course during the hospital stay, remained uneventful and discharged successfully. On followup, patient did not reveal any overt or occult bleed.

Clinical intraoperative photographs of Meckel's diverticulum (Figure1) .Histopathology report obtained,confirms the diagnosis of Meckel's diverticulum.

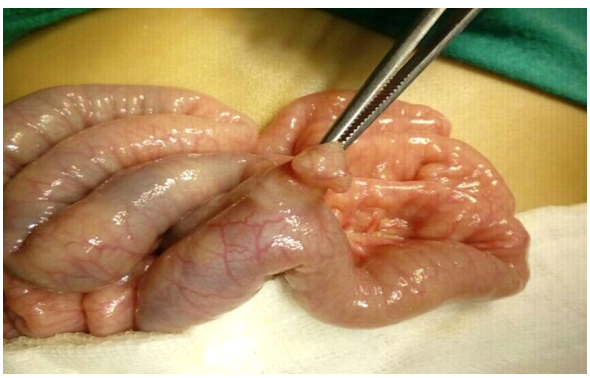

FIG.1 Meckel's diverticulum

Discussion :

Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract with a prevalence of 1–2% of the population(1). It results from incomplete involution of the most proximal portion of vitelline or omphalomesenteric duct, during week 5 to 7 of fetal development. It is usually located on the antimesenteric border of the ileum within approximately 20– 60 cm of the ileocecal valve. Typically, it is short and wide mouthed, on average 2.9 cm long and 1.9 cm wide(2).It is a true diverticulum containing all the layers of the intestinal wall. In up to 50% of the cases it also involves ectopic tissue such as gastric mucosa and/or pancreatic tissue. Ectopic tissue is more frequently found in symptomatic cases, most of them in scholar age(3).The majority are clinically silent and are incidentally identified during surgery or autopsies .The lifetime risk of complications reported as being 4%–40% .The complications include hemorrhage (25–50%), inflammation (13–30%) and intestinal obstruction(16%)(4) .Painless gastrointestinal bleeding is a common symptom of Meckel diverticulum in children younger than 5 years of age as was seen in our patent. It occurs without any apparent cause, at any age, and the intensity of bleeding depends on the size of the eroded

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vessels. Usually, MD bleeding emerges spontaneously, it may persist from a few hours to a few days, and it ends up just as it emerged, appearing at irregular time periods. When larger vessels are eroded, the hemorrhage is intense; the blood eliminated through defecation is red, threatening the patient's life through hemorrhagic shock. Some other times, hemorrhage can occur as a hemoperitoneum following the MD perforation. Other causes of lower gastrointestinal bleeding in children include polyps, clotting disorders, arteriovenous malformations, and Crohn disease which were ruled out through investigations.

The findings of abdominal ultrasound, X-ray, and CT are most often nonspecific in these cases unless the patients have intestinal obstruction or intussusceptions as seen in our patients.The advent of Technetium-99m pertechnetate scintigraphy has greatly facilitated the diagnosis of MD. The diagnostic accuracy of Technetium-99m pertechnetate scintigraphy, detecting ectopic gastric mucosa in MD, is higher than 90% in infants(5). It is a well-established diagnostic technique used in the evaluation of children with lower gastrointestinal tract bleeding to enable detection of HGM in Meckel diverticulum (6). The 99mTc per- technetate is taken up and secreted by the tubular glands of the gastric mucosa. The likelihood of the presence of HGM in surgically resected Meckel diverticula is dependent on the clinical presentation. HGM is found in approximately 50% of symptomatic patients with Meckel diverticulum who have gastrointestinal bleeding, obstruction, diverticulitis, or umbilical abnormalities. Intravenously injected pertechnetate accumulates in the gastric mucosa, thyroid gland, salivary glands, and choroid plexus, and some of the pertechnetate is excreted by the kidneys(7). A normal abdominal 99mTc pertechnetate study should not show any focal tracer accumulation other than that seen in the stomach and urinary tract. A positive study will show a focal area of uptake that appears simultaneously with the stomach and increases in signal intensity over time. Focal hyperemia or inflammation may mimic HGM on a pertechnetate scan.

There is no doubt that a symptomatic MD should be surgically resected. However, the clinical management of incidentally discovered, asymptomatic MD remains controversial. The decision is contingent on two factors: the lifetime risk of complications from diverticulum versus the complications associated with resection surgery. The high-risk factors of MD complications are thickened or narrow-based diverticulum, length greater than 2 cm, detection of an abnormal feature inside the diverticulum, younger patients , male patients(8).

Conclusion:

In a patient with painless lower GI bleed with normal physical examination a differential diagnosis of MD should be always kept in mind and after ruling out causes such as polyps, clotting disorders, arteriovenous malformations, and Crohn disease through CBC, clotting studies, USG , Upper and Lower GI study Technetium-99m pertechnetate scintigraphy should be done at the earliest. MD has various presentations and can be easily misdiagnosed. It is necessary to maintain a high index of suspicion in the paediatric age group.

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