Meckel's diverticulum in pediatric age group: A diagnostic puzzle

Sir,

Meckel's diverticulum is a structural congenital anomaly present in the distal small intestine which can be found in 2% of normal population [1]. It is a vestigial remnant of embryonic vitelline duct also called as omphalomesenteric duct. It is a true diverticulum because it has got all three layers of mucosa, submucosa and muscularis propria in its wall. This may remain asymptomatic or become symptomatic due to its complications. Although, the diverticulum has not got much significance, but the diagnosis is a challenging task. It is twice more common in children less than 2 years of age. The case becomes atypical when it is not as per classical symptomatology as happened in the present case. The complication rate is 3-4 times more among males than females, and 74% meckel diverticulectomy were done in boys [2].

A 4-year-old male child was admitted with 10 days history of pain in the right lower abdomen. There was no history of trauma, fever or vomiting. There was no history of contact or any previous history of pulmonary or abdominal tuberculosis. On examination, the child was slightly sluggish in movements due to pain, but otherwise attentive to verbal responses. Cardiovascular, respiratory, and neurological systems were unremarkable. Per abdomen examination revealed tenderness in right iliac fossa without any local guarding.

On investigations, hemoglobin was 12.5 g/dL and total leukocyte count was 15,500/mm^3. Stool for occult blood was negative. Initial USG examination was inconclusive as there was a slight prominence of gut loops with some localized fluid like collection in right iliac fossa. The possibility of acute appendicitis, pancreatitis or diverticulitis was kept as differentials. Contrast-enhanced computerized tomography (CECT) abdomen was advised for further evaluation. CECT abdomen has shown 6 cm long blind fluid filled loop in the distal part of ileum with subtle mucosal enhancement (Fig. 1a and b) along with few sub centimetric mesenteric lymph nodes (Fig. 2). The working diagnosis of Meckel's diverticulum was made on the basis of CECT findings and clinical symptomatology. Diagnosis was confirmed by Technitium-99m pertechnetate scan called as Meckel scan.

The patient underwent explorative laparotomy for excision and repair. The diverticulum was located 22 cm proximal to the ileocecal junction. It was 5 cm long and 3 cm in diameter and arising from the anterior mesenteric border. It had a broad tip at the end which was attached to the umbilicus by a fibrous band. The diagnosis was subsequently confirmed by histopathological examination. This was a true diverticulum having all the three layers of mucosa, submucosa and muscularis propria with evidence of inflammation. The gastric mucosa was seen in the specimen without any heterotopic pancreatic rests.

Meckel's diverticulum is also called as diverticulum ilei. It may be noticed incidentally in radiological investigations or laparotomy done for other reasons. 4-16% cases present with a variety of symptoms such as abdominal pain, hematochezia or melena, intussusceptions, intestinal obstruction, volvulus, perforation or Littre hernia [1-3]. However, it usually presents with hematochezia in children and bleeding per rectum in

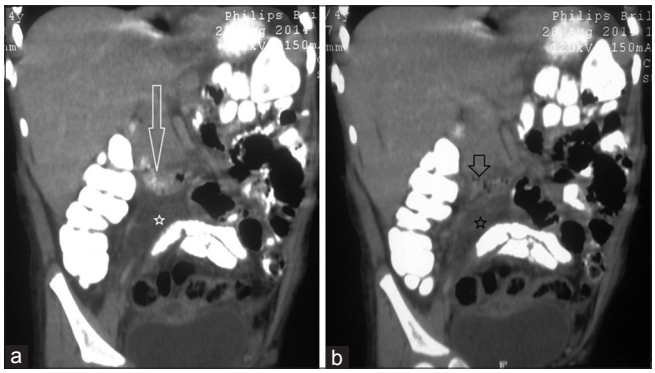

Figure 1: Contrast-enhanced computerized tomography abdomen reformatted coronal sections. (a) Blind fluid filled loop with fat stranding seen almost crossing midline on antimesenteric border (white star) with slightly displaced small bowel loops (white arrow). (b) Diverticulum seen partially (black star) with adjoining partially filled small bowel loops with fat strandings (black star)

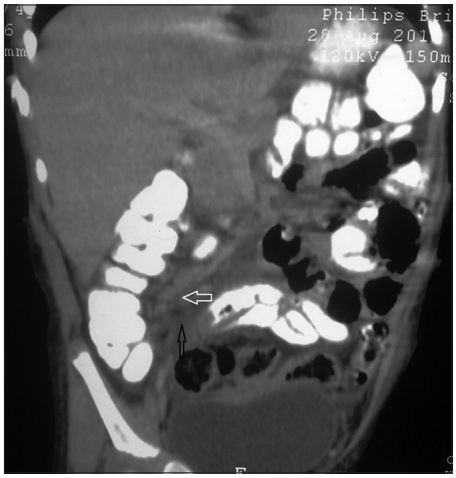

Figure 2: Contrast-enhanced computerized tomography abdomen reformatted coronal section shows adjoining region of diverticulum with sub centimetric mesenteric lymph nodes (white arrow) and fluid filled diverticulum (black arrow)

adults. Our present case presented with vague lower abdominal pain on right side confusing with appendicitis.

The painless rectal bleeding is common in children as compared to adults. The incidence of complications like diverticulitis is less common in this anomaly because of wide mouth and is usually seen in elder age group. A few cases of transformation to other benign or malignant tumor has also been noticed especially carcinoid tumor. This poses a great diagnostic dilemma in radiological equivocal findings as it was in our present case who has presented with only vague pain abdomen. The rule of 2 is applicable to this entity as follow: (1) 2% of the population (2) 2 feet proximal to ileocecal valve (3) 2 inches in long axis (4) 2 types of ectopic tissue - gastric and pancreatic (5) 2 years - age of presentation and (6) 2:1 - male:female ratio.

Ultrasonography and CECT are usually sufficient to make the diagnosis. In equivocal cases, radionucleotide scan is very sensitive in confirming the diagnosis and can detect up to 50% the cases having gastric or pancreatic rests [4]. Rectal bleeding requires a total battery of investigations to rule out other pathologies. Angiography can pick up the source and cause of brisk bleeding [5]. Small bowel resection along with the diverticulum is the treatment of choice. Secondary complications can be avoided after diverticulectomy [6]. The small part of the ileum is always included during surgical resection as this may be having active ulcerations. In children and infants, laparoscopic resection can be done successfully using endoscopic auto stapling device [7]. The role of excision of diverticulum in asymptomatic patients is still controversial. There is also minimum benefit of removal after 50 years of age [8].

To conclude, Meckel's diverticulum can present with abdominal pain without classical presentation. Radiological modalities narrow down the gamut of pathologies in differential diagnosis. CECT scan of abdomen scores in diagnosing this entity with quite confidence.

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