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Meckel's diverticulum: Case series

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Abstract

Meckel's diverticulum is the most common congenital malformation of the gastrointestinal tract, and it represents a persistent remnant of the omphalomesenteric duct. Although it mostly remains silent, its infrequent occurrence is mirrored by the paucity of large series of data on it in the literature. We present series of 3 cases who presented at our hospital.

Conclusion: Knowledge of Meckel's diverticulum is important for surgeons to avoid complications during various abdominal surgeries. It is also important for radiologists while doing ultrasound examination and evaluating radiographs.

Keywords: Meckel's diverticulum, congenital, gastrointestinal tract

Introduction

Meckel's diverticulum has long been discussed in medical literature. Meckel's diverticulum was first mentioned by Fadricius Hildamus in 1598 ^[1]. It was named after the German anatomist Johann Friedrich Meckel, who described the embryological and pathological characteristics in an article published in 1809 ^[2]. MD is the most common congenital abnormality of the gastrointestinal tract, occurring in about 2% of the general population ^[3-5]. Meckel's diverticulum is a remnant of the omphalomesenteric duct, which is normally obliterated by the 5th to 8th week of gestation. It is a true diverticulum, containing all three layers of the bowel wall, and it arises from the antimesenteric border of the bowel. Only 2% of cases show symptoms, and is found twice as common in males than in females ^[6]. Most cases of Meckel's diverticulum are difficult to diagnose and are found incidentally during a surgical procedure for another reason. However, sometimes the presenting symptoms may guide the physician to suspect this pathology. The overall lifetime complication rate is approximately 4% ^[7]. The most common presentation is bleeding, followed by intestinal obstruction, diverticulitis, intussusception, neoplasm and perforation ^[8].

Case Reports

Case 1

25-year-old male patient came to casualty with RIF pain and vomiting for 1 day. Pain was colicky in nature, started around the umbilicus, and shifted to the right iliac fossa. There was no history of fever, diarrhea, or bleeding per rectum. On examination vitals were normal. Abdominal examination revealed distention with mild tenderness in right iliac fossa. Ultrasound examination suggested inflamed bowel without appendicitis therefore CT abdomen & Pelvis was done which was suggestive of Meckel's Diverticulum. After resuscitation and antibiotic administration patient was operated and exploratory laparotomy revealed inflamed Meckel's Diverticulum on the antimesenteric border approx. 2 feet proximal to the ileocecal valve size of approx. 7 cm (Fig. 1). Appendix was normal. Resection of the loop containing the MD with end-to-end anastomosis and appendectomy were performed.

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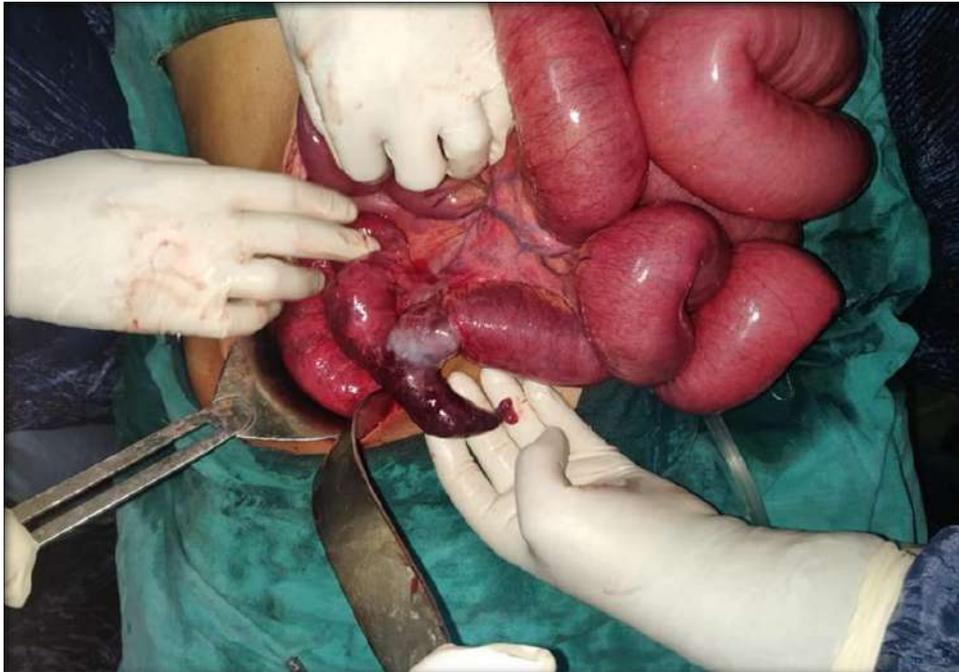


Fig 1: Meckel's Diverticulum

Case 2

30-year-old male patient came to casualty with RIF pain and vomiting for 3 day. Pain was colicky in nature, started around the epigastric region then shifted to umbilicus to the right iliac fossa. H/o fever was present with chills. No History of diarrhea, or bleeding per rectum. On examination vitals were normal. Abdominal examination revealed distention with mild tenderness in right iliac fossa. Ultrasound examination was

suggestive of free fluid with inflamed bowel. Patient was operated and exploratory laparotomy revealed inflamed Meckel's Diverticulum on the antimesenteric border approx. 1.5 feet proximal to the ileocecal valve size of approx. 3 cm (Fig. 2). Appendix was normal. Resection of the loop containing the MD with end-to-end anastomosis and appendectomy were performed.



Fig 2: Meckel's Diverticulum

Case 3

24-year-old male patient came to casualty with generalized abdominal pain and vomiting for 5 day. Pain was colicky in nature, started around the epigastric region then shifted to umbilicus to the right iliac fossa. H/o fever was present with chills. No History of diarrhea, or bleeding per rectum. On

examination vitals were normal. Abdominal examination revealed distention with mild tenderness in right iliac fossa. Ultrasound examination suggested free fluid. CT Scan suggested inflamed bowel. Patient was operated and exploratory laparotomy revealed inflamed Meckel's Diverticulum on the antimesenteric border approx. 1.5 feet proximal to the ileocecal

valve size of approx. 7 cm (Fig. 3). Appendix was normal. Resection of the loop containing the MD with end-to-end anastomosis and appendectomy were performed.

Discussion

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract [3-5, 11]. The incidence ranges between 1 and 2%, with a lifetime complication risk of 4-6% [8]. Meckel's diverticulum is a true diverticulum, usually found on the anti-mesenteric edge in the ileum [2, 12]. The majority of Meckel's diverticulum are asymptomatic and are incidentally discovered intraoperatively [13]. Perforation is reported to be a consequence of acute inflammation of Meckel's diverticulum, but the exact percentage of this pathology has not been reported. Perforated Meckel's diverticulum may present as acute abdomen and resemble acute appendicitis [14, 15]. It is either caused by irritation of foreign body, like fish bone [16, 17], bay leaf, chicken bone, needles and button battery [18-20], or following blunt abdominal trauma, which was first described by Park and Lucas in 1970 [21]. Neoplastic causes, like GIST or leiomyoma, have been also reported [22, 23].

Diagnosis of Meckel's diverticulum is notably difficult, as the symptoms and imaging features are non-specific [9, 24]. CT scan and Ultrasound are not diagnostic because they can't differentiate between a diverticulum and a loop of bowel [25]. Meckel-scan with ^{99m}Tc-pertechnetate may diagnose Meckel's diverticulum. It can detect the presence ectopic gastric mucosa in cases of complicated Meckel's diverticulum and can also identify the site of gastrointestinal bleeding. Its accuracy was reported to be around 90% in pediatric series, and only 46% in the adult group [26]. Less than 10% of symptomatic cases of Meckel's diverticulum are diagnosed preoperatively.

Conclusion

Knowledge of Meckel's diverticulum is important for surgeons to avoid complications during various abdominal surgeries. It is also important for radiologists while doing ultrasound examination and evaluating radiographs.

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