Case study

Meckel's Diverticulum at Mesenteric location, A Rare Entity : Two Case reports

Abstract

A Meckel's Diverticulum is the most common congenital anomaly of the gastrointestinal tract. Meckel's Diverticulum is usually located at the antimesenteric border of the small intestinal and it is one of the cardinal finding of Meckel's Diverticulum. The Mesenteric location at unusual site of Meckel's Diverticulum is very rare findings.

The etiology of the anomaly of Mesenteric Meckel's Diverticulum was due to the persistence of a short vitelline artery that creates a Mesodiverticular band from mesentery to the tip the diverticulum, which diverts the diverticulum away from the antimesenteric border to Mesenteric location during the elongation and growing process. We come across such two cases of mesenteric Meckel's Diverticulum (MMD). After each and every case of appendectomy or laparotomy, we traced 2 feet of small and to over surprises, we noticed such rare and uncommon location of Mesenteric Meckel's Diverticulum, both cases were incidentally diagnosed.

Key words

Meckel's Diverticulum, Mesenteric location, resection and anastomosis.

Introduction

During fetal life, the yolk sac provides feeds to the developing gut through the omphalomesenteric duct, that usually obliterates between the 5^{th} -8^{th} weeks in 2% human, the omphalomesenteric duct persists forming on out pounding diverticulum called Meckel's Diverticulum, which is the most common congenital anomaly of the gastrointestinal tract. [1,2,3,4]

The classical location of Meckel's Diverticulum is at the antimesenteric border of the bowel. The location of Meckel's Diverticulum in the opposite mesenteric side is extremely rare [1,2,3,4,5]. From 1941 to December 2012 only 32 cases of mesenteric Meckel's Diverticulum reported in the literature [1,3,5].

Etiology of the anomaly was due to the 10% persistence of a short vitelline artery that creates a Mesodiverticular band from the mesentery to the tip of the Meckel's Diverticulum which diverts the diverticulum away from the antimesenteric border during the elongation and growing process. Short Mesodiverticular band extending from the mesentery to the tip of the Meckel's Diverticulum, acts as Hamstring action and pulling the Meckel's Diverticulum away from the antimesenteric border of small intestine, which is classically seen in our two cases [1,2,3,5].

The Mesenteric location of Meckel's Diverticulum may erode mesentery and rupture in to the mesenteric vasculature during the inflammatory process. Therefore, the surgical decision should be standard resection and anastomosis, even if the lesion is incidentally detected, during appendectomy or laparotomy.[1,2,3,4,5].

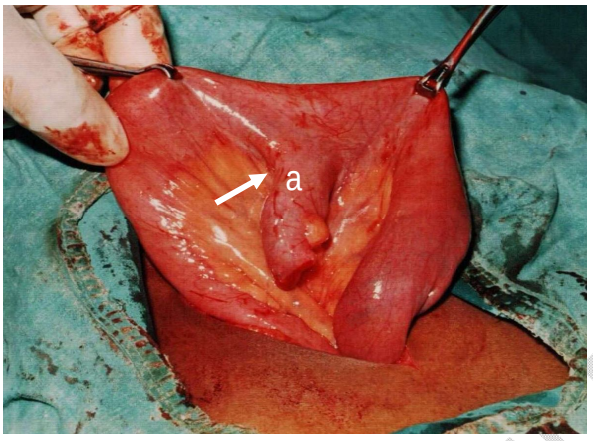
Two Case reports

Case I - Patient of 17 years' adolescent boy in the year 1995 and Case II- Patient 27-year adult male in the year 1997, were presented in our center. Complaints of pain in right lower abdomen, vomiting for 2 days. Abdominal examination revealed tenderness of McBurney's point. Haemotogical investigation show leukocytosis. Ultrasound of abdomen reveled probe tenderness in right iliac fossa considering the clinical and ultrasonography findings the diagnosis of Acuter appendicitis was made. In the year 1995-1997, that was era of open surgery, no laparoscopic surgery was started. So the abdomen was opened by McBurney's incision, exploration revealed Catarrhal inflamed appendix and

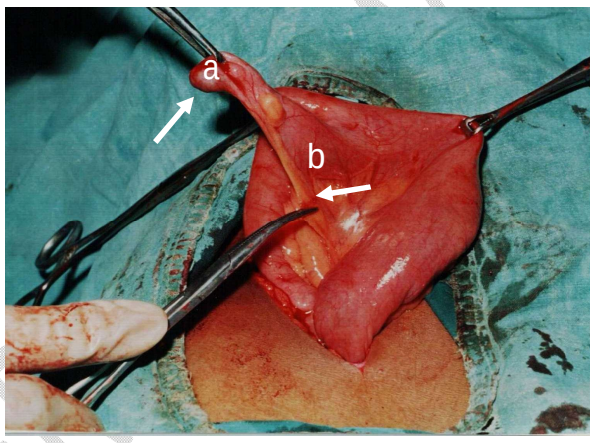
appendectomy was performed. Routinely, we search perioperative the Meckel's Diverticulum, traced the terminal 2 feet's of ileum proximal to ileo -caecal junction for Meckel's Diverticulum. To our surprise we find a diverticulum along with the Mesenteric border of the terminal ileum.

Case No. 1 - In adolescent boy was having Mesenteric Meckel's Diverticulum of size 4x2 cm in length (Figure A, B) and Case No. 2- in adult male patient having Mesenteric Meckel's Diverticulum of size 2x1 cm in length, shorts and stumpy Meckel's Diverticulum. (Figure C, D). In both patients there was persistence of very short vitelline artery that creates as Mesodiverticular band from the mesentery to the tip of the diverticulum, which diverts away from antimesenteric border to the root of mesentery. So it is a classical picture of Mesenteric Meckel's Diverticulum (MMD).

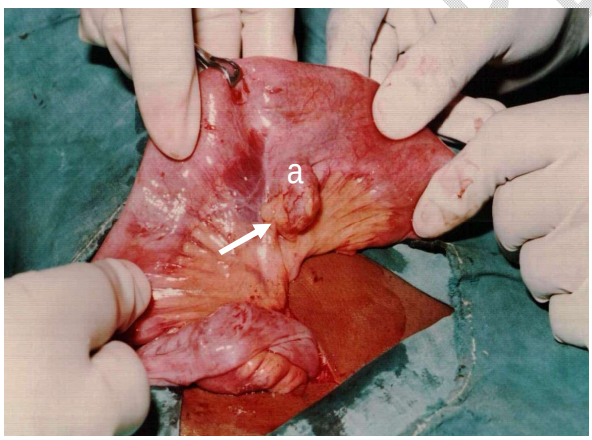
Therefore, even though it is an asymptomatic and incidentally detected Mesenteric Meckel's Diverticulum, the surgical decision should be standard resection and anastomosis was done. Post-operative both patient recovery was uneventful and patient discharge on 7th post-operative day.



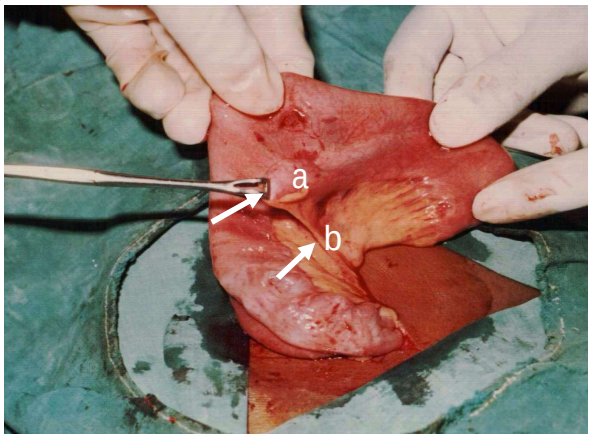
Case 1-A- Intra operative photograph
Showing a- Mesenteric location of MD of Size 4x2 cm



Case 1- B- Intra operative photograph
Showing a-Mesenteric MD
and b-Mesodiverticular band with vitelline artery



Case 2-C- Intra operative photograph
Showing a- Mesenteric location of MD of Size 2x1 cm
Short and stumpy MD



Case 2- D- Intra operative photograph
Showing a-Mesenteric MD
and b-Mesodiverticular band with vitelline artery

Meckel's Diverticulum Is most commonly located at antimesenteric border of ileum. Very few cases are reported Mesenteric Meckel's Diverticulum (MMD) in the English literature. Different theory's as proposed for mesenteric location of Meckel's Diverticulum are as follow.

a. Persistence of short vitelline artery which creates a Mesodiverticular band from mesentery to the tip of the diverticulum, thus diverting the diverticulum away from the antimesenteric border during the process of elongation and growing process a described by Sarioglu-Buke.

b. Adherence of vitelline duct to the ileal mesentery due to congenital or inflammatory adhesions [1,2,3,5,6].

The literature review from 1941 till now revealed 32 cases reports of mesenteric Meckel's Diverticulum. The case was distributed between 14 cases in the pediatric population and 18 cases of the adult population.

1. Chaffin, in 1941 first reported the unusual location of Meckel's Diverticulum at mesenteric border of the ileaum.
2. Donellan wl etal, described the congenital and inflammatory adhesions as etiology of mesenteric location of diverticulum.
3. In 2008, Sarigolu-Buke etal, had postulated mesenteric location of Meckel's Diverticulum to be due to the presence of very short vitelline artery which from a Mesodiverticular band, pulling the diverticulum towards the process of elongate and growing process. [1,2,3,5]

In our two cases of Mesenteric Meckel's Diverticulum both are detected incidentally having separate blood supply of vitelline artery. Persists forming a Mesodiverticular band, and pulling the diverticulum towards the mesenteric location of Meckel's Diverticulum. Laparoscopy is useful in both diagnosis and therapeutic treatment of mesenteric Meckel's Diverticulum [1,5].

Conclusion

Surgeons should look for Meckel's Diverticulum not only along antimesenteric border but also seen the mesenteric border to detect the unusual location of Mesenteric Meckel's Diverticulum. Mesenteric location of Meckel's Diverticulum is more alarming because it may erode the Mesentery and its vasculature during diverticulitis causing divesting complications. Incidentally defected lesions during appendectomy or laparotomy should be resection and anastomosis performed instead of simple wedge resection.

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