### **Case Report**

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# Rare presentation on Meckels diverticulum on the mesenteric border forming a mass

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#### **ABSTRACT**

Meckel's diverticulum (MD) is a diagnostic and surgical challenge. Majority of Meckel's diverticulae are silent and are discovered incidentally intraoperatively. Mostly, they are located at antimesentric border of distal ileum. Herein, we present a case a mesenteric sided MD 44 cm from ileocecal junction that had formed a mass, without obstructing the lumen of ileum. A segmental resection was done with adequate margin and ileum was reanastomosed. Histopathology of the specimen confirmed chronic inflammation of MD. Post-operative period was uneventful, and the patient was discharged in a stable condition.

Keywords: Meckel's diverticulum, Mesenteric border, Uncommon location

#### INTRODUCTION

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract seen in children affecting 2% of the general population. The usual location is on the antimesenteric border of the distal ileum, usually within about 60-100 cm of the ileocecal valve. MD is a congenital blind pouch in the small bowel resulting from an incomplete obliteration of the vitellointestinal duct during the 5-8 weeks of gestation. It was first described in 1809 by Johann Friederick Meckel. MD occurs with equal frequency in both sexes but predominantly occur in males.2 Mesenteric-sided MD was first reported in 1941 by Chaffin.3 Afterward, few cases have been reported in literature without preoperative documentation.<sup>4</sup> Here, we present a case of mesenteric sided MD 44 cm from ileocecal junction, as opposed to the usual, forming a nonobstructing mass.

#### **CASE REPORT**

A 25-year-old otherwise healthy man reported to the emergency room with the chief complaints of dull aching pain in right iliac region for the past 15 days and fever for 1 week. The pain had aggravated in the past 3 days. There was no history of vomiting, diarrhea, swelling or abdominal distension or shifting of pain. On examination, the general condition was good; pulse was 84/min, normotensive. Per abdomen examination revealed tenderness and localized guarding in right iliac fossa region. There was no rebound tenderness. No lump was palpable. Laboratory investigations showed a total leukocyte count of  $10,800/\mu L$  and rest investigations were within normal limit. Ultrasonographic examination of the abdomen revealed a mass originating from a small bowel but with no signs of acute appendicitis. A decision to explore the patient was taken. Pt was explored by a right infraumbilical paramedian

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incision. On exploration, there was no peritoneal collection, appendix appeared healthy. However on tracing the bowel, a wide based MD was found 44 cm from ileocecal junction that had formed a mass, but was not obstructing the lumen of ileum (Figure 1). The diverticulum was unusually arising from the mesenteric end. A segmental resection was done with adequate margin and ileum was reanastomosed. The biopsy of the specimen confirmed chronic inflammation of MD with no heterotopic tissue (Figure 2). Post-operative period was uneventful, and the patient was discharged on 6th day.

#### DISCUSSION

Uncommonally MD is seen on the mesenteric border of the ileum, so being called mesenteric MD. MD attached to the mesenteric border is a distinct variant of the MD and has been considered a forgotten entity. Sarioglu-Buke et al.<sup>4</sup> offered the possible embryological explanation that the etiology of the anomaly was due to the persistence of a short



Figure 1: Gross specimen of Meckel's diverticulum wedged into the mesenteric border of the ileum.

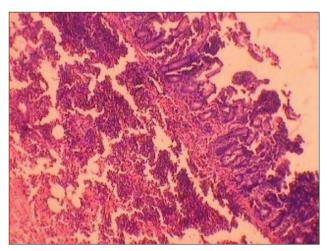


Figure 2: H and E sections from the diverticulum show lining similar to small intestine, with presence of villi and a moderate to dense lymphoplasmacytic infiltrate in lamina propria and extending into muscularis. All layers of the small bowel are present (×40).

vitelline artery that creates a mesodiverticular band from the mesentery to the tip of the diverticulum, which diverts the diverticulum away from the antimesenteric border during the elongation and growing process. Another explanation is that the vitellosintestinal duct would simply adhere to the ileal mesentery. The main differential diagnosis of MD is intestinal duplication cyst. The most distinguished difference between an MD in the mesenteric location and ileal duplication is the fact that the former is a remnant to the omphalo mesenteric canal. This case proves that MD attached to the mesentery is a distinct variant of MD. Another area of distinction is with ectopic gastric mucosa. However, ectopic gastric or pancreatic mucosa can be found in both MD and intestinal duplication cysts.

In our case, the MD located at the mesenteric junction of the ileum. A possibility is the persistence of a very short vitelline artery that creates a mesodiverticular band from the mesentery to the tip of the diverticulum, which diverts the diverticulum away from the antimesenteric border during rapid growth. As a rule ileal duplications share the wall and the blood supply of the ileum and the MD its own artery. However, this is still not sufficient for a differential diagnosis because the vitelline artery is present in about 10% of cases. The anomaly presented could have been due to a short vitelline artery that disappeared without leaving a remnant or to an intrauterine adhesion between the mesentery of the ileum and the omphalomesenteric canal. Thus, during the elongation and growing process, the "stuck" diverticulum might have diverted from the antimesenteric border of the ileum.

Though MD are silent they may cause severe hemorrhage, intussusception, diverticulitis, perforation, peptic ulceration and intestinal obstruction. Most common complication in adults is small bowel obstruction followed by second most in children.<sup>6</sup> Malignancies may also occur but are found in only 0.5-4.9% of patients with complications of MD. Sarcomas are most common neoplasms, followed by carcinoids and adenocarcinomas.<sup>7</sup>

Abdominal ultrasound and computed tomography are valuable radiological investigations in MD patients without the classical history of painless hemorrhage. The utility of Tc99m-pertechnetate scintigraphy in the diagnosis of ectopic gastric mucosa is well-established, particularly in the case of MD, despite substantial variation in the reported sensitivity. Laparoscopy is useful in both diagnosis and treatment.

#### **CONCLUSION**

Although the treatment of a symptomatic diverticulum is straightforward, the removal of asymptomatic wide based MD detected incidentally during laparotomy is still controversial. This rare location deserves more attention and is more alarming than a usual antimesenteric location because it may erode mesentery and rupture into the mesenteric vasculature during the inflammatory process. Therefore, all MD are not to be resected we suggest that the

surgical decision should be standard resection even if this lesion is incidentally detected during laparotomy.<sup>10</sup>

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#### REFERENCES

- 1. Yahchouchy EK, Marano AF, Etienne JC, Fingerhut AL. Meckel's diverticulum. J Am Coll Surg. 2001;192(5):658-62.
- Jones O, McC Mortenson, Neil JMC. The small and large intestines. In: Russell RCG, Williams NS, Bulstrode CJK, editors. Bailey & Love's Short Practice of Surgery. 24th Edition. London: Arnold; 2004: 1159.
- 3. Hollinshead WH. The jejunum, ileum and colon. In: Hollinshead WH, editor. Anatomy for Surgeons. 2<sup>nd</sup> Edition, Volume. 2. New York: Harper and Row; 1971: 471-5.
- 4. Sarioglu-Buke A, Corduk N, Koltuksuz U, Karabul M, Savran B, Bagci S. An uncommon variant of Meckel's diverticulum. Can J Surg. 2008;51(2):E46-7.

- 5. Uppal K, Tubbs RS, Matusz P, Shaffer K, Loukas M. Meckel's diverticulum: A review. Clin Anat. 2011;24(4):416-22.
- 6. Palepu S. Axial volvulus of a giant Meckel's diverticulum. Abdom Surg. 2007.
- DiGiacomo JC, Cottone FJ. Surgical treatment of Meckel's diverticulum. South Med J. 1993;86:671-5.
- 8. Thurley PD, Halliday KE, Somers JM, Al-Daraji WI, Ilyas M, Broderick NJ. Radiological features of Meckel's diverticulum and its complications. Clin Radiol. 2009;64(2):109-18.
- 9. Chan KW. Perforation of Meckel's diverticulum caused by a chicken bone: A case report. J Med Case Rep. 2009;3:48.
- Cullen JJ, Kelly KA, Moir CR, Hodge DO, Zinsmeister AR, Melton LJ 3<sup>rd</sup>. Surgical management of Meckel's diverticulum. An epidemiologic, population-based study. Ann Surg. 1994;220(4):564-8.

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