# Right Lower Quadrant Pain with a Twist: Adult Meckel's Diverticulitis

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## Introduction

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, resulting from incomplete destruction of the vitelline duct and forming a true diverticulum of the distal ileum[1]. Typical presentation follows the "Rules of 2s": 2% of the population, 2 years old, 2 inches long, within 2 feet of the ileocecal valve, and may contain two types of ectopic tissue. Although often asymptomatic, it may present with complications such as bleeding, obstruction, or inflammation (diverticulitis), the latter of which can clinically mimic acute appendicitis, particularly in adults. Definitive management of complicated Meckel's diverticulitis requires surgical intervention such as diverticulectomy, wedge, and segmental resection[1].

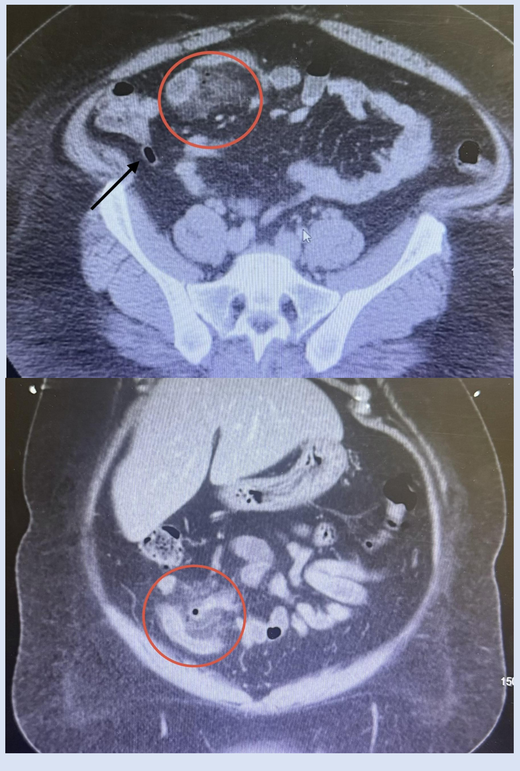

**Figure 1** is an axial CT Abdomen and Pelvis showing extensive mesenteric fat stranding in right-lower abdomen. Meckel's diverticulitis (circled) is suggested having indistinct walls, mild wall thickening and tiny locules of free air near its tip suggestive of perforation. Surrounding small bowel loops are fluid-filled which may be due to reactive ileus. Normal sized appendix (arrow). **Figure 2** is a coronal CT view showing Meckel's Diverticulum (circled).

## Case of Interest

**Presentation:** 43 year-old Caucasian female presented to the emergency department with sudden onset abdominal pain associated with nausea. She described the pain as sharp, constant, and 8/10 intensity. Her symptoms started the previous day with pain in the periumbilical region radiating to right lower quadrant.

**Review of Systems:** Positive for diarrhea. Negative for fever, vomiting, constipation, melena, hematochezia, and hematemesis.

**Past Medical and Surgical History:**

- Obstructive Sleep Apnea with CPAP, Hypertension, Tobacco Abuse
- Previous tubal ligation with left fallopian tube removal

**Exam and Vitals:**

- Alert, unremarkable cardiovascular exam. Abdomen severely tender to palpation of mid to right abdomen. Focal rebound and guarding. No diffuse peritonitis.
- Afebrile, Resp:12, HR:88, BP:137/84, O2:97% RA, BMI:46.4

**Pertinent Labs:**

- WBC 12.8, Hgb: 14.4, NE%: 72.4, NE#9.3, PLT: 297, Lactate: 1.2, T bili: 1.6, Glucose 123, BUN 13, Cr: 0.8, Na: 140, T protein: 8.1, AST: 23, ALT: 25, Anion gap: 7

**Imaging: See Figure 1 and 2**.

**Differential Diagnosis:**

- Acute Appendicitis
- Diverticulitis
- Colitis

## Surgical Evaluation

- Single incision diagnostic laparoscopy was performed the same day of presentation revealing inflamed diverticulitis consistent with Meckel's diverticulum at approximately 2 feet from the cecal valve. **See Figure 3**. There was no visible evidence of perforation or abscess. The diverticulum was circumferentially freed and elevated.
- Segmental small bowel resection was performed containing the Meckel's diverticulum and sent to pathology.
- Immediate post-operative management included clear liquid diet, IV Zosyn, Lovenox for DVT prophylaxis, pain medication, and anti-emetics as needed.

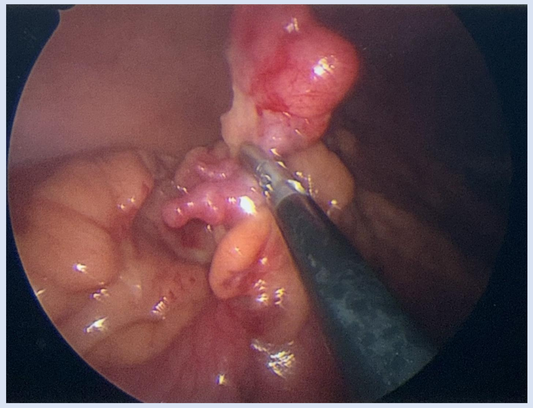

**Figure 3:** Intraoperative photo showing inflamed Meckel's diverticulum approximately 2 feet away from the ileocecal valve.

## Results and Disposition

- Minimal post-operative incisional abdominal pain and tenderness.
- On post-operative day one, the patient was passing flatus, advanced to regular diet as tolerated, and had a bowel movement. She was discharged with antibiotics, pain medication, and anti-emetics as needed.
- Pathology report confirmed Meckel's diverticulum with intramural abscess formation and serositis.
- Patient was contacted via phone almost two-weeks post-op and stated improvement.

## Osteopathic Pearls

- An osteopathic structural exam could have helped diagnostically showing tissue texture changes at T10-T12 and an anterior chapman's point between ribs 8–10 near the costochondral junction bilaterally.
- Osteopathic manipulative treatment techniques for general surgery include balanced ligamentous strain, counterstrain, soft tissue, muscle energy, and facilitated positional release[2].
- When OMT is combined with standard treatment, it can lead to positive outcomes including decreased length of hospital stay and significant pain relief[2].
- Of note in this case, post-operative bowel function was the limiting factor of discharge. OMT has the potential to decrease time to flatus after abdominal operations[3].

## Discussion

- Literature suggests adult Meckel's diverticulitis is often difficult and rare to diagnosis due to its complicated presentation and poor image interpretation[4].
- In this case, the patient presented with clinical symptoms highly suspicious for appendicitis, including migratory right lower quadrant pain, leukocytosis, and focal peritoneal signs.
- A normal-caliber appendix on CT should prompt careful evaluation for alternative sources of right lower quadrant inflammation.
- Early operative management prevents complications including perforation, abscess, and small bowel obstruction.
- Meckel's diverticulitis most commonly results from luminal obstruction of the diverticulum, leading to bacterial overgrowth, increased intraluminal pressure, mucosal ischemia, and subsequent inflammation, with potential progression to perforation if untreated.

## Teaching Points

- In adults, Meckel's diverticulitis mimics appendicitis due to shared visceral innervation (T10 dermatome → periumbilical pain migrating to RLQ).
- Diagnostic laparoscopy is valuable when clinical findings persist despite equivocal imaging.
- Segmental small bowel resection is preferred and leads to optimal outcomes when inflammation involves the diverticular base or perforation is suspected.

## Acknowledgements

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## References