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Case Report

Obstructive Meckel's diverticulum in a renal transplant recipient: a case report and intraoperative enteroscopy findings

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ABSTRACT

Meckel's diverticulum, the most common congenital anomaly of the gastrointestinal tract, is often asymptomatic but may lead to bleeding, obstruction, or inflammation. In renal transplant recipients, immunosuppression and overlapping symptoms can obscure diagnosis. We present a 37-year-old male renal transplant recipient with chronic obscure gastrointestinal bleeding, anemia, and diarrhea. His complex medical history included end-stage renal disease due to vesicoureteral reflux, multiple immunosuppressive therapies, and prior transplant rejection episodes. Initial endoscopic studies revealed nonspecific findings. Capsule endoscopy identified a submucosal lesion suggestive of Meckel's diverticulum, and imaging showed mural thickening and graft atrophy. Surgical exploration with intraoperative enteroscopy confirmed a 2.5 cm Meckel's diverticulum 50 cm from the ileocecal valve, alongside lymphangiectasias and arteriovenous malformations. Segmental small bowel resection with side-to-side enteroenteric anastomosis was performed. The patient recovered uneventfully. Histopathology demonstrated chronic inflammation and recent hemorrhage, with no evidence of malignancy. Meckel's diverticulum, though rare in adults, should be considered in transplant recipients presenting with obscure gastrointestinal bleeding. Capsule endoscopy and intraoperative enteroscopy proved invaluable for diagnosis. Surgical resection remains the treatment of choice in symptomatic cases. Multidisciplinary management is essential in immunosuppressed patients with complex gastrointestinal symptoms.

Keywords: Meckel's diverticulum, Renal transplant, Obscure gastrointestinal bleeding, Intraoperative enteroscopy, Capsule endoscopy, Lymphangiectasia, Arteriovenous malformations

INTRODUCTION

Meckel's diverticulum is a congenital anomaly of the gastrointestinal tract, resulting from the incomplete obliteration of the omphalomesenteric duct during embryonic development. It is typically located on the antimesenteric border of the ileum, within 100 cm of the ileocecal valve, and is the most common congenital anomaly of the gastrointestinal tract, with a prevalence of 1-3% in the general population.[1,2] While often asymptomatic, it can lead to complications such as bleeding, obstruction, and diverticulitis, particularly when ectopic gastric mucosa is present, which can cause ulceration and bleeding.[3]

CASE REPORT

A 37-year-old male from Allende, Nuevo León, with a history of end-stage renal disease secondary to vesicoureteral reflux diagnosed in early childhood, presented with chronic gastrointestinal symptoms including intermittent melena and diarrhea beginning in 2022. The patient had undergone bilateral ureteral reimplantation at age 5 and received a cadaveric renal transplant at age 13, with a history of two graft rejection

episodes treated with high-dose steroids. His immunosuppressive regimen was modified over time due to nephrotoxicity and proteinuria, with eventual discontinuation of sirolimus and mycophenolic acid. In late 2022, the patient underwent upper and lower endoscopies due to persistent gastrointestinal bleeding; colonoscopy revealed hematochezia in the terminal ileum without active bleeding, and upper endoscopy showed small esophageal varices, acute gastropathy, and bulboduodenitis. Capsule endoscopy in April 2023 demonstrated extensive duodenal and jejunal lymphangiectasias, multiple nodular white ileal lesions (1-2 mm), and a large submucosal lesion in the distal ileum measuring 15 mm, causing approximately 75% luminal obstruction with adjacent prestenotic mucosal edema, suggestive of Meckel's diverticulum. A non-contrast thoracoabdominal CT scan confirmed mural thickening of the stomach and atrophic changes in the renal graft. The patient was hospitalized in May 2023 for worsening anemia, dehydration, and signs of graft dysfunction. Following multidisciplinary evaluation, he underwent diagnostic laparoscopy, exploratory laparotomy, intraoperative enteroscopy, segmental small bowel resection, and side-to-side enteroenteric anastomosis on May 8, 2023. Intraoperative findings included a Meckel's diverticulum 50 cm from the ileocecal valve measuring 2.5 cm, lymphangiectasias 160 cm from a fixed loop, and a whitish mucosal lesion at 130 cm. Enteroscopy through an enterotomy 120 cm from the ligament of Treitz revealed additional jejunal lymphangiectasia, arteriovenous malformations in the distal ileum (2-3 mm), and a flat, pale mucosal lesion measuring 7×2 mm. A double-lumen defect compatible with Meckel's diverticulum was visualized without active bleeding. The postoperative course was uneventful, and the patient was discharged in stable condition. Histopathology of the resected segment confirmed chronic inflammation, recent hemorrhage, mucosal edema, and absence of neoplasia (0/4 lymph nodes). Biopsy of the ileum revealed similar findings, and gastrointestinal lymphoma was ruled out. Final diagnosis was symptomatic Meckel's diverticulum with associated lymphangiectasia and AVMs contributing to obscure gastrointestinal bleeding in a renal transplant recipient.

Figure 1: Intestinal segment with the presence of Meckel's diverticulum.

Figure 2: Surgical piece with presence of Meckel diverticulum.

DISCUSSION

Meckel's diverticulum is recognized as the most common congenital anomaly of the gastrointestinal tract, with a prevalence of 1-3% in the general population.[1] Its clinical manifestations range from asymptomatic findings to severe complications, including gastrointestinal bleeding, inflammation, and obstruction. Although typically diagnosed in pediatric populations, adult presentations are often more insidious and easily misdiagnosed, especially in the context of comorbid conditions.[2]

In adults, gastrointestinal bleeding from Meckel's diverticulum may be occult or obscure, commonly requiring high diagnostic suspicion and specialized imaging. This is particularly relevant in immunocompromised patients, such as renal transplant recipients, in whom the clinical picture is further complicated by atypical presentations, polypharmacy, and overlapping vascular pathologies.[3] Previous studies have reported delayed diagnosis in such populations due to the nonspecific nature of symptoms and a higher prevalence of alternative bleeding sources.[4]

In this case, the patient's background of renal transplantation and chronic kidney disease heightened the diagnostic complexity. Conventional diagnostic approaches-including upper and lower endoscopy-are often insufficient to detect small bowel lesions like Meckel's diverticulum.[5] Hence, the combined use of capsule endoscopy and intraoperative enteroscopy was crucial. Capsule endoscopy has shown sensitivity rates of up to 85% in detecting small bowel bleeding sources, while intraoperative enteroscopy remains a reliable tool in refractory cases where other modalities fail.[6]

Compared to previous reports, this case reaffirms the diagnostic value of intraoperative enteroscopy, particularly in obscure gastrointestinal bleeding when

multiple lesions are suspected or when capsule endoscopy reveals inconclusive findings.[7] This aligns with studies highlighting its role in real-time lesion localization, biopsy, or therapeutic decision-making.[8]

The therapeutic approach in symptomatic Meckel's diverticulum remains surgical. Segmental small bowel resection with primary anastomosis is considered the gold standard, especially in complicated cases involving hemorrhage or obstruction.[1,9] Histopathologic examination often reveals ectopic gastric or pancreatic mucosa, which contributes to mucosal ulceration and bleeding. In this case, although the presence of lymphangiectasia and arteriovenous malformations introduced diagnostic ambiguity, surgical pathology confirmed Meckel's diverticulum as the primary source, consistent with its known bleeding potential.[2]

Notably, intestinal lymphangiectasia has been associated with protein-losing enteropathy, while arteriovenous malformations-particularly in CKD patients-can independently contribute to bleeding.[10] However, their contribution in this case was deemed secondary, which aligns with literature emphasizing Meckel's as a dominant etiology when confirmed histologically.

This case supports prior literature advocating for a multimodal diagnostic strategy in patients with unexplained gastrointestinal bleeding and underlying systemic diseases. It also reinforces that surgical resection, guided by precise intraoperative localization, remains the definitive management in symptomatic cases. Moreover, it highlights the continued relevance of intraoperative enteroscopy, especially in immunosuppressed or diagnostically challenging patients.

CONCLUSION

Meckel's diverticulum should be considered in transplant patients with obscure gastrointestinal bleeding. This case highlights the utility of capsule endoscopy and intraoperative enteroscopy in diagnosis and the effectiveness of surgical resection. Multidisciplinary evaluation is essential in managing complex cases in immunosuppressed populations.

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REFERENCES

1. Spottswood SE, Pfluger T, Bartold SP, David B, Nanci B, Dominique D, et al. SNMMI and EANM Practice Guideline for Meckel Diverticulum Scintigraphy 2.0. J Nuclear Med Technol. 2014;42(3):163-9.
2. Levy AD, Hobbs CM. From the Archives of the AFIP. Meckel Diverticulum: Radiologic Features with Pathologic Correlation. Radiographics: A Review Publication of the Radiological Society of North America, Inc. 2004;24(2):565-87.
3. Hansen CC, Søreide K. Systematic Review of Epidemiology, Presentation, and Management of Meckel's Diverticulum in the 21st Century. Medicine. 2018;97(35):e12154.
4. Longo WE, Vernava AM. Clinical Implications of Jejunoileal Diverticular Disease. Diseases of the Colon and Rectum. 1992;35(4):381-8.
5. Uppal K, Shane Tubbs R, Matusz P, Shaffer K, Loukas M. Meckel's diverticulum: a review. Clin Anatomy. 2011;24(4):416-22.
6. Ludwig K, De Bartolo D, Salerno A, Ingravallo G, Cazzato G, Giacometti C, et al. Congenital anomalies of the tubular gastrointestinal tract. Pathologica, 2022;114(1):40.
7. Kuru S. Meckel's diverticulum: clinical features, diagnosis and management. Revista Espanola de Enfermedades Digestivas. 2018;110(11):726-32.
8. West AB, Mitchell KA. Vascular disorders of the GI tract. Surgical pathology of the GI tract, liver, biliary tract and pancreas. Elsevier, Philadelphia. 2009;185.
9. El-Zimaity H, Riddell RH. Inflammatory disorders of the stomach. Morson and Dawson's Gastrointestinal Pathology, 4th edi, Blackwell Science. 2013;110-161.
10. Zhang L. Drug-induced injury, vascular, congenital, and miscellaneous disorders. Surgical Pathol Non-neoplastic Gastrointestinal Diseases. Springer International Publishing. 2019;333-69.

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