Cureus
Part of SPRINGER NATURE

Open Access Case Report

Incidental Double Meckel's Diverticulum in Wilms Tumor Patient

Shelley Warner [1], Michele Markley [2]

1. General Surgery, Broward Health Medical Center, Fort Lauderdale, USA 2. Pediatric Surgery, Broward Health Medical Center, Fort Lauderdale, USA

Corresponding author: Shelley Warner, shelleywarner2@gmail.com

Review began 09/30/2026
Review ended 11/07/2026
Published 11/11/2026

© **Copyright** 2026
Warner et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.119506

Abstract

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract; however, a double MD is rare. We describe two incidentally identified Meckel's diverticula in a 13-year-old girl undergoing treatment for Wilms tumor. The patient presented with abdominal pain and constipation. Imaging showed a large left renal mass and a solitary pulmonary lesion suspicious for metastasis. At exploratory laparotomy, the tumor involved the left kidney and colonic mesentery, with peritoneal implants and enlarged lymph nodes. Two antimesenteric ileal outpouchings consistent with Meckel's diverticula were identified. Because the diverticula were asymptomatic and definitive tumor resection was deferred, they were left in place pending subsequent surgery. Biopsies confirmed Wilms tumor, and chemotherapy was initiated. Five months later, after a favorable response to chemotherapy, the patient underwent left colectomy and radical left nephrectomy with lymph node sampling. The diverticula, approximately 60 cm proximal to the ileocecal valve and 5 cm apart, were resected with a segment of ileum. Histopathology confirmed two true diverticula without heterotopic mucosa. Her postoperative course was uncomplicated. This case adds to the limited pediatric literature on double Meckel's diverticula and illustrates how an incidental finding can be managed in stages during complex oncologic surgery. A previously reported child had a single MD and Wilms tumor; to our knowledge, their coexistence with double diverticula has not been reported.

Categories: General Surgery, Pediatric Surgery, Pediatrics
Keywords: congenital anomaly, double meckels, meckel's diverticulum, remnant omphalomesenteric duct, wilms tumor

Introduction

Meckel's diverticulum (MD) results from incomplete obliteration of the omphalomesenteric (vitelline) duct. It is present in approximately 1-3% of the population, but most affected individuals remain asymptomatic [1,2]. Complications include gastrointestinal bleeding, diverticulitis, perforation, intussusception, and small-bowel obstruction. Heterotopic gastric mucosa can cause ulceration and bleeding [2,3]. Whether to resect an incidentally discovered, asymptomatic MD remains debated; contemporary reviews emphasize weighing the risk of future complications against the morbidity of resection in the individual patient [4-6].

Double MD consists of two distinct diverticula and is exceptionally rare. Pediatric reports include cases associated with congenital pouch colon as well as presentations involving obstruction, bleeding, and intussusception [7-13]. A recent adult report likewise emphasized the need to inspect for an additional lesion after finding one diverticulum [14]. We describe an incidental double MD in a 13-year-old girl undergoing staged surgery for Wilms tumor. The case illustrates both the diagnostic value of bowel inspection and the need to consider the timing of incidental bowel resection in the context of the primary operation.

Case Presentation

A 13-year-old girl with a history of constipation presented with new-onset abdominal pain and a 6-day history of inability to pass stool. On examination, she was well-appearing with a large, firm, mildly tender mass occupying her left abdomen. An abdominal radiograph showed a left-sided space-occupying lesion. Computed tomography (CT) demonstrated a large mass arising from the left kidney (Figure *1*). Due to the extent of the mass and its compression of surrounding structures, a magnetic resonance imaging (MRI) was also performed to better delineate the anatomy; the MRI showed a well-circumscribed 25 cm left renal tumor without renal vein extension, most consistent with Wilms tumor (Figure *2*). Chest CT demonstrated a solitary right pulmonary lesion suspected to be metastatic. After multidisciplinary discussion, the patient underwent exploratory laparotomy, during which the mass was found to occupy the left abdomen from the diaphragm to the pelvis and extend through the left colonic mesentery. Peritoneal implants and enlarged colomesenteric lymph nodes were present. Selected lymph nodes and tumor implants were biopsied, and definitive resection was deferred to allow for neoadjuvant chemotherapy in an effort to avoid colon resection. Inspection of the bowel revealed two antimesenteric distal ileal outpouchings consistent with Meckel's diverticula. Given the extensive tumor burden, the absence of diverticular complications, and the plan for a second operation, the diverticula were left in place. Biopsy confirmed blastemal-predominant

Wilms tumor with no evidence of anaplasia. She underwent port placement and received chemotherapy, with evidence of tumor response. Five months later, she returned for definitive surgery. Although tumor burden had substantially decreased, the tumor was still invading the left colon mesentery, so an en bloc left colectomy and radical left nephrectomy with lymph node sampling were performed. The diverticula were identified approximately 60 cm proximal to the ileocecal valve, separated by approximately 5 cm (Figure *3*). One was long and thin; the other was short and broad-based. The ileal segment containing both diverticula was resected en bloc, followed by a single-layer end-to-end anastomosis using polydioxanone suture. Recovery was uncomplicated, and she was discharged one week after surgery. Histopathologic examination confirmed two true diverticula without heterotopic mucosa. The longer diverticulum measured 3.1 × 1.5 × 1.0 cm, and the shorter measured 2.3 × 1.8 × 1.5 cm (Figure *4*).

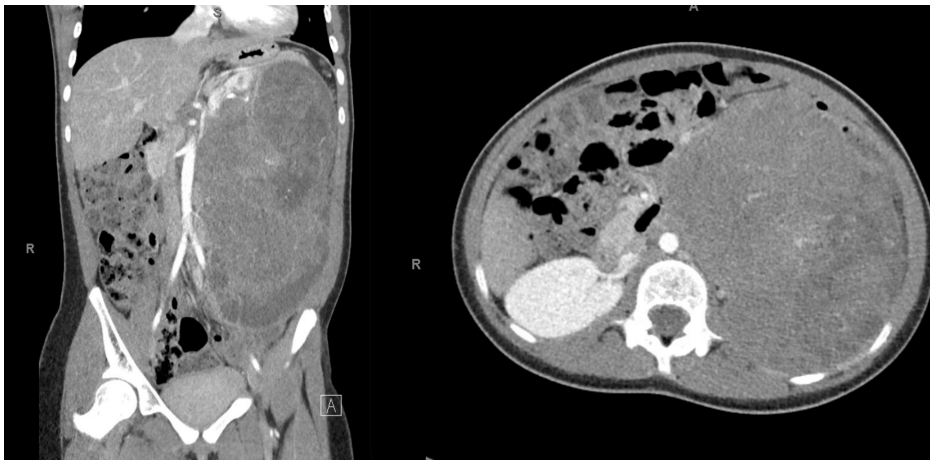


FIGURE 1: CT images of a large left-sided abdominal mass originating from the left kidney

CT: computed tomography

Left picture (sagittal) with extension of the tumor through the left hemiabdomen without crossing the midline. Right picture (axial) demonstrating a large left-sided retroperitoneal mass with mass effect on bowel

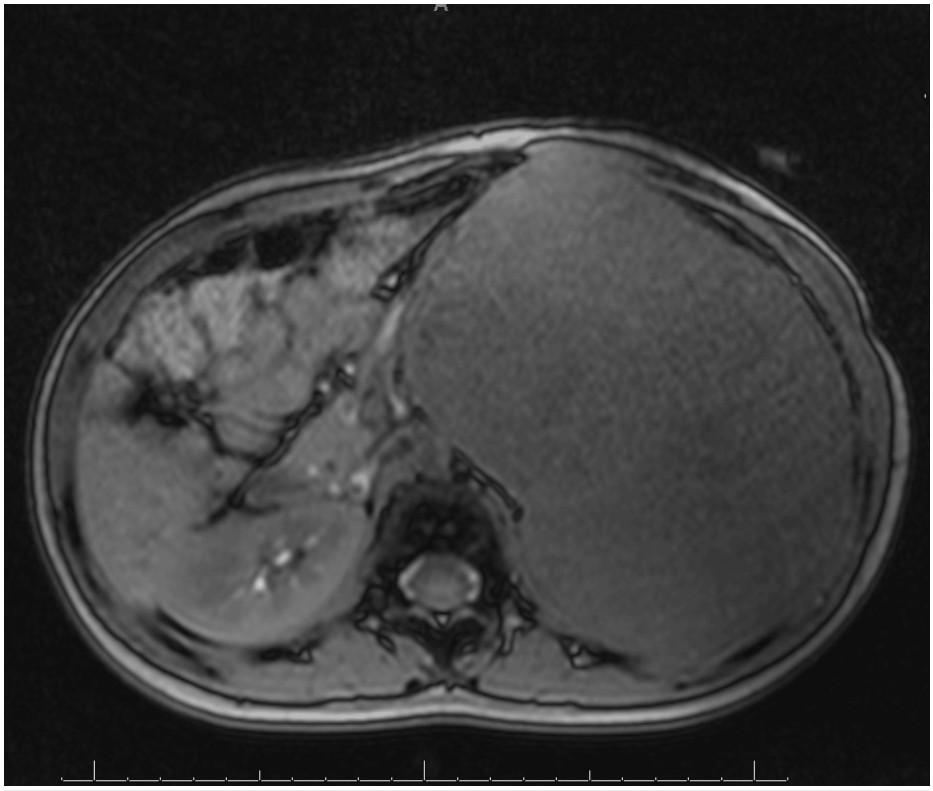


FIGURE 2: MRI of a large, 25 cm, well-circumscribed left renal tumor without renal vein extension

MRI: magnetic resonance imaging

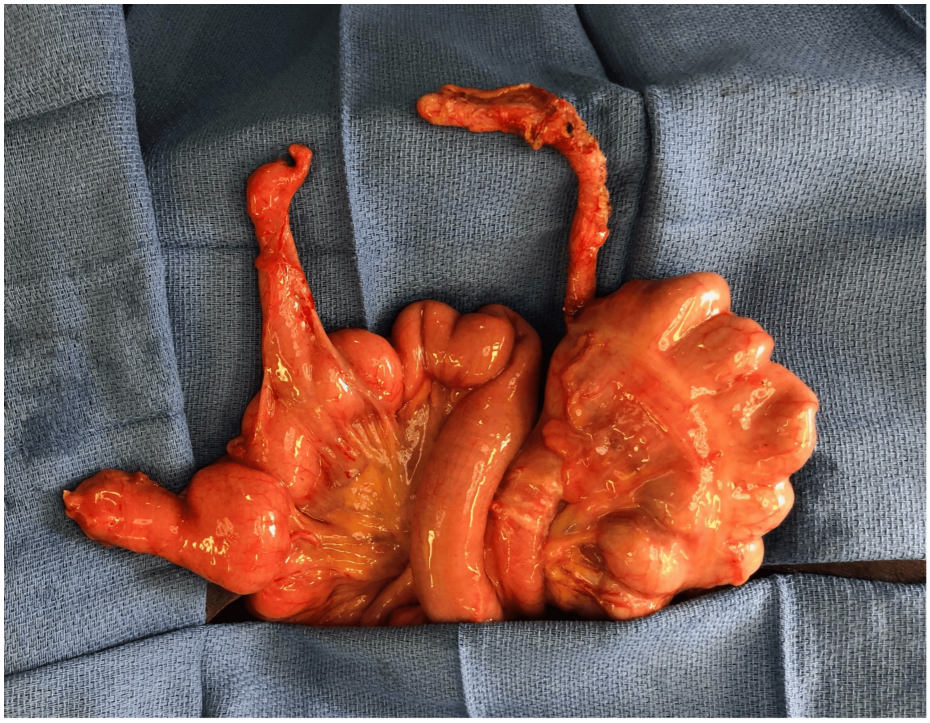


FIGURE 3: Short, broad-based Meckel's (left), longer, thin diverticulum (middle), and about 50-60 cm distal is the appendix and base of the cecum (right)



FIGURE 4: Two Meckel's diverticula approximately 5 cm apart on one ileal segment. The proximal diverticulum is short and broad-based (2.3 cm x 1.8 cm x 1.5 cm); the distal diverticulum is longer and thinner (3.1 cm x 1.5 cm x 1 cm)

Discussion

Enteric duplication is a separate congenital anomaly that may occur in the ileum. Duplications are generally located on the mesenteric side of the bowel and have a smooth-muscle wall and gastrointestinal epithelial lining [15,16]. The antimesenteric position of both lesions in this patient, together with histologic confirmation that each contained the full thickness of the bowel wall, supports the diagnosis of two Meckel's diverticula rather than enteric duplication.

The pathogenesis of double MD is unknown. Incomplete obliteration of duplicated omphalomesenteric ducts has been proposed, but this mechanism has not been established [10]. Pediatric reports describe cases associated with congenital pouch colon and anorectal or cloacal anomalies, as well as presentations with obstruction, inflammation, bleeding, recurrent pain, and, recently, intussusception in a two-month-old infant [7,9-13]. These reports show that a second diverticulum may be found during the evaluation or treatment of another condition.

The two diverticula in several published cases differ in size and shape [7-10,14]. Our patient similarly had one long, thin diverticulum and one short, broad-based diverticulum. This recurring observation is descriptive; it does not establish a shared embryologic mechanism. A recent adult case, in which a second diverticulum was found after further exploration, reinforces the practical value of inspecting the adjacent ileum when an MD is identified [14].

Resection of an incidental, asymptomatic MD remains an individualized decision. A 2024 systematic review found evidence favoring resection overall while acknowledging that operative circumstances and patient factors affect the balance of benefit and harm [6]. At the initial operation in this patient, extensive tumor burden prompted biopsy and deferral of definitive oncologic resection. The diverticula were asymptomatic, so additional bowel surgery was deferred as well. Both lesions were removed during the planned definitive operation five months later, without a reported postoperative complication. This sequence illustrates how the timing of incidental resection can be coordinated with the primary surgical plan; a single case cannot establish the safest approach for other patients.

Wilms tumor is the most common malignant renal tumor of childhood and usually presents before age five [17-19]. This patient presented at age 13 with extensive abdominal disease and a pulmonary lesion suspected to be metastatic. A previously reported infant with Wilms tumor had a single MD associated with a patent vitellointestinal duct; both lesions were resected at the same operation [20]. Our case also demonstrates the coexistence of Wilms tumor and an MD. The present case differs in the presence of two separate diverticula and in the staged approach to their management.

Conclusions

Our patient had a late presentation of a Wilms tumor and was found to have a rare incidental double MD. No causal or syndromic relationship between double MD and Wilms tumor has been established. Their coexistence in this patient may be coincidental. The clinical contribution of this case is the recognition of a second ileal diverticulum during complex oncologic surgery and the documented decision to defer incidental resection until definitive tumor surgery. Because the literature consists largely of individual case reports, further cases would be needed to assess whether this combination has any broader association.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Shelley Warner, Michele Markley

Acquisition, analysis, or interpretation of data: Shelley Warner, Michele Markley

Drafting of the manuscript: Shelley Warner, Michele Markley

Critical review of the manuscript for important intellectual content: Shelley Warner, Michele Markley

Supervision: Michele Markley

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have

declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Uppal K, Tubbs RS, Matusz P, Shaffer K, Loukas M: Meckel's diverticulum: a review. Clin Anat. 2011, 24:416-22. 10.1002/ca.21094
2. Malik AA, Wani KA, Khaja AR: Meckel's diverticulum-Revisited. Saudi J Gastroenterol. 2010, 16:3-7. 10.4103/1319-3767.58760
3. Hansen CC, Søreide K: Systematic review of epidemiology, presentation, and management of Meckel's diverticulum in the 21st century. Medicine (Baltimore). 2018, 97:e12154. 10.1097/MD.0000000000012154
4. Lindeman RJ, Søreide K: The many faces of Meckel's diverticulum: update on management in incidental and symptomatic patients. Curr Gastroenterol Rep. 2020, 22:3. 10.1007/s11894-019-0742-1
5. Żyluk A: Management of incidentally discovered unaffected Meckel's diverticulum-a review. Pol Przegl Chir. 2019, 91:41-6. 10.5604/01.3001.0013.3400
6. Yagnik VD, Garg P, Dawka S: Should an incidental Meckel diverticulum be resected? A systematic review. Clin Exp Gastroenterol. 2024, 17:147-55. 10.2147/CEG.S460053
7. Alkhamisy A, Kazzaz R, Ghanem R, Kayali AA, Morjan M: A double Meckel's diverticulum in a 5-year-old girl. J Pediatr Surg Case Rep. 2022, 82:102308. 10.1016/j.epsc.2022.102308
8. Emre A, Akbulut S, Yilmaz M, Kanlioz M, Aydin BE: Double Meckel's diverticulum presenting as acute appendicitis: a case report and literature review. J Emerg Med. 2013, 44:e321-4. 10.1016/j.jemermed.2012.11.001
9. Martínez Gómez M, López Saiz A, Ferrer González JP, Pin Arboledas G: Meckel's double diverticulum. About a case (Article in Spanish). An Pediatr (Engl Ed). 2021, 94:268-9. 10.1016/j.anpedi.2020.06.012
10. Mathur P, Gupta R, Simlot A, Goyal RB: Congenital pouch colon with double Meckel's diverticulae. J Neonatal Surg. 2013, 2:48.
11. Shinde NK, Jhanwar P, Pant N, Choudhury SR, Chadha R: Congenital pouch colon with double Meckel's diverticulum in a patient with persistent cloaca. J Neonatal Surg. 2015, 4:10.
12. Yang JG, Ma DQ, Hao RR, Li CL, Zou LF: Detection of double Meckel diverticulum by Meckel scan. Clin Nucl Med. 2008, 33:729-30. 10.1097/RLU.0b013e318184bf45
13. Alfonso NG, Beltrán Chitiva JR, Valero JJ, Patiño Calderón EF, Trujillo Ceballos ÁA, Cadavid Restrepo CA: Intussusception secondary to a double Meckel's diverticulum in a 2-month-old infant: a case report. J Pediatr Surg Case Rep. 2025, 121:103052. 10.1016/j.epsc.2025.103052
14. Okumura K, Matsumoto K, Masuki Y, et al.: A case report of double Meckel's diverticulum with a mobile cecum. BMC Surg. 2026, 26:327. 10.1186/s12893-026-03694-6
15. Morris G, Kennedy A Jr: Small bowel congenital anomalies: a review and update. Surg Clin North Am. 2022, 102:821-35. 10.1016/j.suc.2022.07.012
16. Stern LE, Warner BW: Gastrointestinal duplications. Semin Pediatr Surg. 2000, 9:135-40. 10.1053/spsu.2000.7565
17. Hohenstein P, Pritchard-Jones K, Charlton J: The yin and yang of kidney development and Wilms' tumors. Genes Dev. 2015, 29:467-82. 10.1101/gad.256396.114
18. Chiou SS: Malignant renal tumors in childhood. Pediatr Neonatol. 2014, 55:159-60. 10.1016/j.pedneo.2014.01.003
19. Mansfield SA, Lamb MG, Stanek JR, Arnold MA, Ranalli M, Aldrink JH: Renal tumors in children and young adults older than 5 years of age. J Pediatr Hematol Oncol. 2020, 42:287-91. 10.1097/MPH.0000000000001593
20. Hegde SG, Menon P, Narasimha Rao KL, Nada R: Unusual presentation of Wilms' tumor as umbilical granuloma. Indian J Med Paediatr Oncol. 2018, 39:413-4. 10.4103/ijmpo.ijmpo_245_17