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Case Report

A diagnostic challenge in painless rectal bleeding in a 10-month-old infant: a case report

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ABSTRACT

Painless rectal bleeding in infants can occur due to various causes, including cow's milk protein allergy (CMPA), juvenile polyp, Meckel's diverticulum, angiodysplasia and internal hemorrhoids. Symptoms typically arise in the first or second year of life, with an average age of 2.5 years. Intermittent painless rectal bleeding is often caused by ulceration of the adjacent normal ileal mucosa and may be associated with iron deficiency anemia. We present the case of a 10-month-old female infant with complaints of painless rectal bleeding and iron deficiency anemia. The child had a history of cow's milk as a primary source of nutrition along with inadequate and improper complementary feeding practices despite advice. She had a similar episode of blood in the stool at the age of 6 months. Clinical examination revealed an anal fissure on the posterior wall. Initial Meckel's scan at 6 months was negative. The patient was advised to discontinue cow's milk due to suspected cow's milk protein allergy, following which the bleeding subsided. However, at the age of 10 months, the child again presented with bleeding per rectum. A repeat Meckel's scan demonstrated focal tracer uptake in the right iliac fossa, suggestive of ectopic gastric mucosa, consistent with Meckel's diverticulum. The child subsequently underwent Meckel's diverticulectomy.

Keywords: Meckel diverticulum, Cow's milk protein allergy, Painless rectal bleeding, Severe iron deficiency anemia

INTRODUCTION

Failure in obliteration of the vitelline or omphalomesenteric duct, that connects the yolk sac to the embryonic midgut by the seventh to eighth gestational week, results in various forms of vitelline duct anomalies.[1]

Partial or complete failure of involution of the omphalomesenteric duct result in various residual structures. A typical Meckel diverticulum is a true diverticulum containing all layers of the small intestinal wall. It has been conveniently characterised by the "rule of 2s", which explains the classic presentation of this congenital anomaly. It is found in approximately 2% of general population, are usually located 2 feet proximal to the ileocecal valve, are approximately 2 inches in length, can contain 2 types of ectopic tissue (pancreatic or gastric), generally presents before the age of 2 years, and are found twice as often in females.[2]

CASE REPORT

A six-month-old female infant was brought to the hospital with complaints of bleeding per rectum for two days, with a total of four episodes of fresh blood followed by melena. On per-rectal examination, a posterior midline fissure at the 6 o'clock position was noted. A Meckel's scan was performed, which showed no focal tracer uptake. The patient was managed conservatively and subsequently discharged with oral iron therapy.

At 10 months of age, the child was brought again by parents with a complaint of fever for four days, vomiting for three days, and two episodes of blood in stool for two days. The child was admitted, and investigations were performed. Haemoglobin was 3.2 g/dl, which further decreased to 2.9 g/dl. One packed cell volume (PCV) transfusion was given. Injection of vitamin K (5 mg) was also administered for three days. Despite advice, the

mother was still continuing cow's milk as the primary source of food and the complementary feeding was not proper. A repeat Meckel's scan was done in view of disproportionate clinical features of cow's milk allergy. The report of Meckel's scan dated 01 September 2025 showed focal tracer uptake in the right iliac fossa, suggestive of ectopic gastric mucosa, likely to represent Meckel's diverticulum. Ileocolonoscopy was also performed to rule out inflammatory bowel disease and polyps, and the results were negative.

Investigations

USG (abdomen-pelvis) dated 12 April 2025 revealed s/o multiple mesenteric lymphadenopathy, the largest measuring 5.5 mm, bowel loops appear normal in calibre, peristalsis, gaseous distension of large bowel loops noted.

USG abdomen-pelvis dated 20 August 2025 revealed s/o retroperitoneal and mesenteric reactive lymphadenopathy.

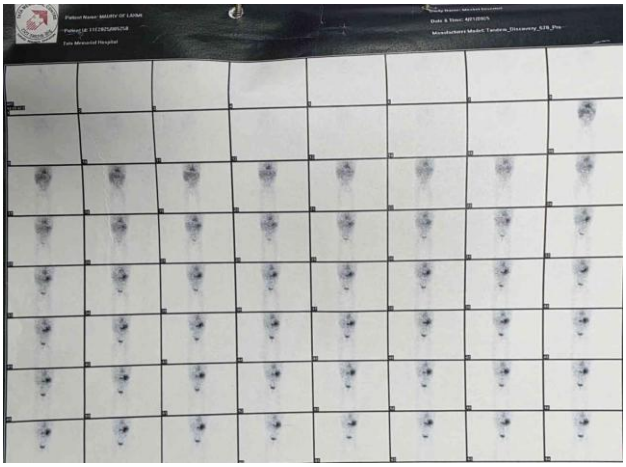

Figure 1: Meckel's scan (21 April 2025) - no scintigraphic evidence of heterotropic gastric mucosa noted in abdomen and pelvis.

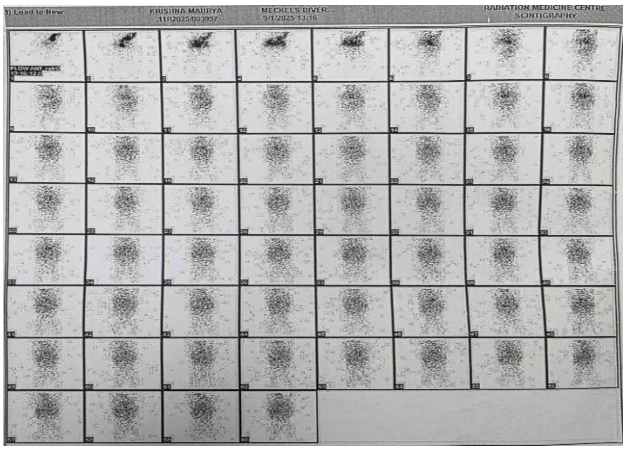

Figure 2: Meckel's scan - anterior planar scintigraphy view (01 September 2026)- shows focal tracer uptake in RIF, suggestive of ectopic gastric mucosa in the RIF region likely to represent Meckel's diverticulum.

Table 1: Investigations.

12 April 2025	19 August 2025	20 August 2025	22 August 2025
Hb-8 g/dl	Hb-3.2 g/dl	Hb-2.9 g/dl	Hb- 10.4* post PCV transfusion
TLC-10200	TLC-16490	TLC-15000	TLC-11940
N/L/E-38/51/3	N/L/E-45/46/4	N/L/E – 38/51/3	N/L/E – 36/53/3
Platelet-3.1L	Platelet-4.3L	Platelet-3.4L	Platelet-3.5L

Figure 3: X-ray chest-normal, X-ray erect abdomen and pelvis-shows minimal gaseous distension with non-obstructive bowel gas pattern.

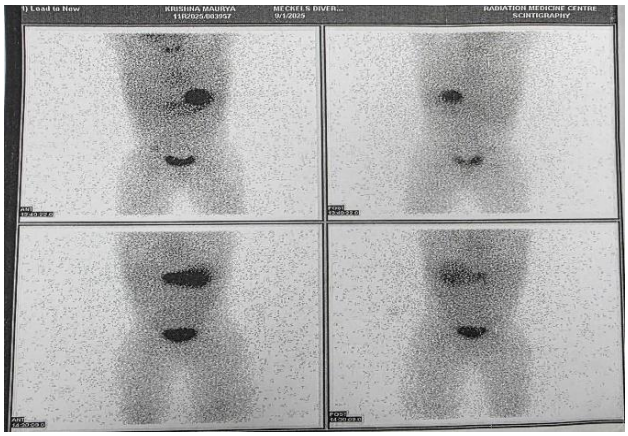

Figure 4: Meckel's scan-anterior planar scintigraphy view (01 September 2026) shows focal tracer uptake in RIF, suggestive of ectopic gastric mucosa in RIF region likely to represent Meckel's diverticulum.

DISCUSSION

The results of our study highlight the challenges faced when diagnosing Meckel's diverticulum. While most symptomatic pediatric patients present classically with painless rectal bleeding, others may present with a constellation of symptoms, laboratory results, endoscopy findings, and imaging findings.[3]

CMPA can trigger symptoms such as vomiting, diarrhoea, abdominal distension and pain, poor feeding, swallowing difficulties and changes in stool characteristics, which can vary from normal to watery stools or the presence of mucus or blood.[4]

Clinical manifestations of CMPA should be improved following strict avoidance of cow's milk without any intake of symptomatic medication, and they would recur upon the reintroduction of cow's milk. Elimination and reintroduction of cow's milk and its derivatives are essential for diagnosing CMA.[5,6]

Some patients experience severe bleeding, which can be life-threatening. In recent years, the Tc-99m scan is the main method for clinical diagnosis of MD.[7]

However, this imaging examination has certain limitations: patients must fast for 3 to 4 hours to achieve high sensitivity, patients without a history of gastrointestinal bleeding receive no benefits from the examination, and not all hospitals can routinely arrange this examination for emergency patients.[8-10]

Physical examination in a patient with Meckel's diverticulum is often nonspecific, and laboratory studies may reveal signs of volume depletion or anemia. Unfortunately, due to its relatively rare prevalence and nonspecific symptoms, other sources of abdominal pain and bleeding are often first considered in these patients, making it a diagnostic challenge. Furthermore, imaging studies such as an ultrasound, abdominal x-ray, and CT have limited diagnostic value in detecting Meckel's diverticulum.[11]

A false-negative result may occur if there is little or inactive gastric mucosa, if the Meckel's diverticulum is necrotic or ischemic, if there is rapid clearance of the Technetium-99m pertechnetate as observed with rapid active bleeding, or if there are poor preparation and positioning for the procedure. Therefore, to optimize the aspects of the study that are within the practitioner's control, the patient should be fasting 3-4 hours before the study, receive pretreatment with histamine H2-receptor antagonists, proton pump inhibitors, pentagastrin, or glucagon, and fully void the bladder.[12]

In our case, the child had multiple episodes of per rectal bleeding leading to severe iron deficiency anemia. The stool for occult blood was positive. The first Meckel's scan was negative, and the repeat Meckel's scan done after 3 months was positive. Our initial diagnosis was CMPA. The challenge is the diagnosis of the child in our case at the initial presentation, when the history is likely to be suggestive of CMPA and a negative initial Meckel's scan. The part contribution of CMPA and bleeding due to Meckel's diverticulum, in causing severe anemia in the child is difficult to ascertain, however we assume that coexistence of both the conditions likely contributed almost in equal proportion for the same.

CONCLUSION

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract in children under 2 years of age and commonly presents as painless rectal bleeding. This report emphasizes that the diagnosis of Meckel's diverticulum primarily relies on clinical and imaging findings. A repeat Meckel's scan may be required in cases with strong clinical suspicion despite a previous normal report, as the sensitivity is limited.

It may occasionally be confused with cow's milk protein allergy in infants due to overlapping clinical presentations, especially when the weaning diet is predominantly milk-based as observed in our case. Prompt initiation of appropriate treatment is essential to ensure favourable outcomes in affected children. The child in our case showed clinical improvement following elimination of cow's milk from the diet.

Disproportionate blood loss leading to severe iron deficiency anemia is due to multifactorial causes. Meckel's diverticulum commonly causes painless rectal bleeding. Cow's milk is deficient in iron and causes rectal bleeding due to cow's milk protein allergy, which further contributes to severe iron deficiency anemia.

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