

IMAGING GAMUT

Detection of ectopic gastric mucosa in an intestinal duplication on a Meckel's scan

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Background A 3.5-year-old boy with a 7-month history of intermittent dysentery and abdominal pain, presented with acute dysentery with hematochezia for the last two days. He had four similar episodes over the last seven months. On physical examination, the child appeared pale and dehydrated and with generalized abdominal tenderness on palpation. Haematology showed a low haemoglobin level with leukocytosis. An abdominal ultrasound showed mild to moderate ascites but was otherwise normal. The patient was advised a Meckel's scan due to a strong clinical suspicion of the possibility of bleeding from an ectopic gastric mucosa in a Meckels's diverticulum.

Procedure Scanning was performed using a single-headed gamma camera (Infinia Hawkeye) equipped with a low-energy general-purpose collimator. Following an intravenous injection of 74 MBq of ^{99m}Tc-pertechnetate, a dynamic study (60 x 1-min frames) was acquired in the anterior projection. Additional static images were acquired in the anterior and lateral projections following completion of the dynamic study.

Findings The dynamic images revealed activity in the stomach together with a large irregular area of increased uptake in the left abdomen starting from five-minute postinjection. Subsequent images showed the area of abnormal activity extending across the mid abdomen with typical "worm-like" uptake pattern of the small intestine with a loop of gut extending inferolaterally towards the right iliac fossa. With time, the intensity of uptake was seen to increase in tandem with stomach activity (Figure 1).

Conclusion The scan findings were suggestive of ectopic gastric mucosa in the small gut. Laparotomy revealed 90 cm long tubular duplication of jejunum and ileum ending about 20 cm proximal to the ileocaecal junction (Figure 2). The terminal part of the duplication had a perforation that had been spontaneously sealed off by the omentum and the adjacent loops of gut. The lesion was excised together with 25-30 cm of the normal gut, adjacent to the perforation. Histopathology of the biopsy specimen showed gastric mucosa in the intestinal duplication (Figure 3). Meckel's scintigraphy was repeated after surgery, and the scan now appeared entirely normal showing only normal physiological uptake in the stomach (Figure 4).

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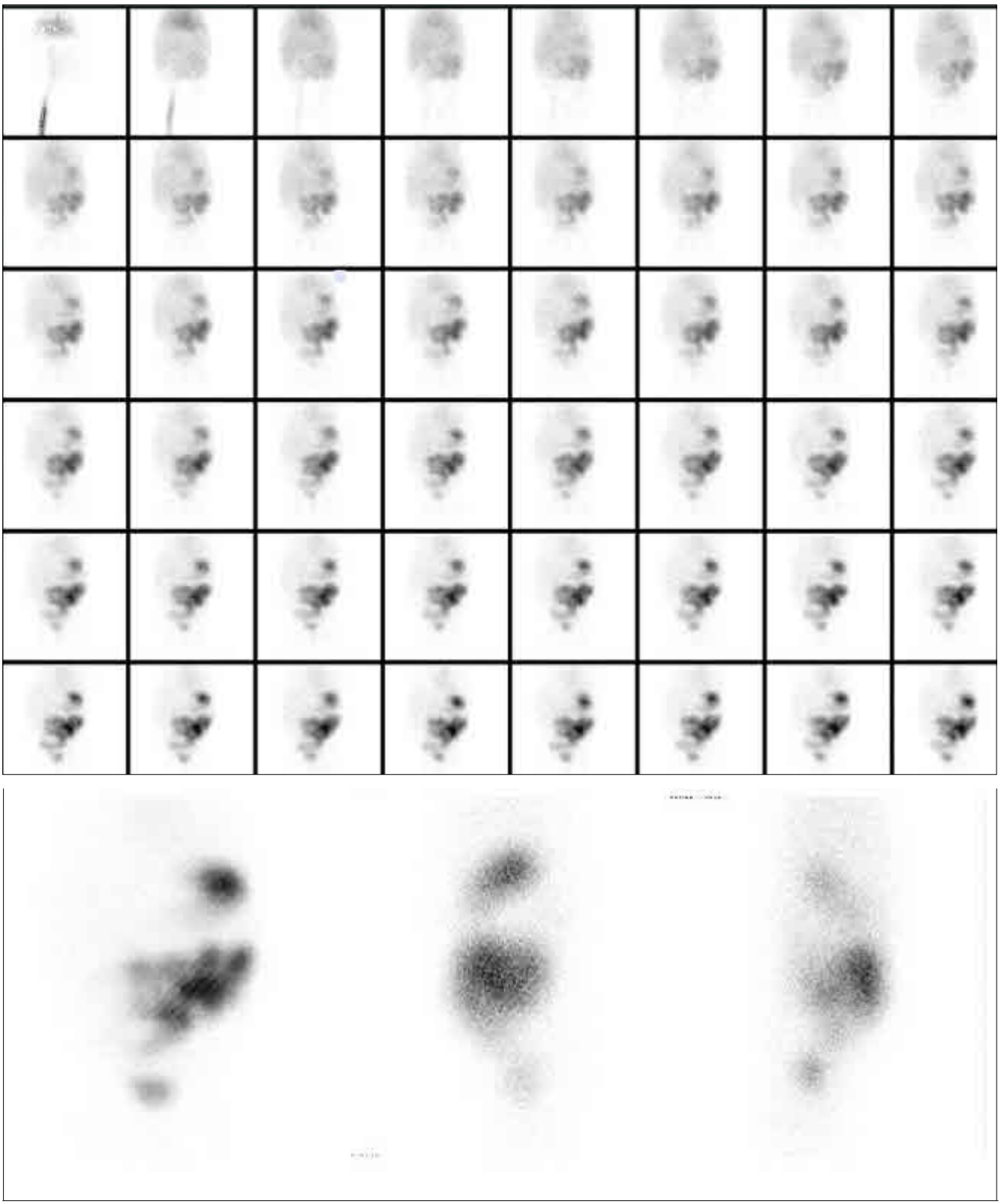

Figure 1 *(Top) Dynamic image sequence of the Meckel's scan and (Bottom) delayed static images in the anterior (left), left lateral (middle) and right lateral (right) projections*

Figure 2 *Laparotomy revealed 90 cm long tubular duplication of jejunum and ileum*

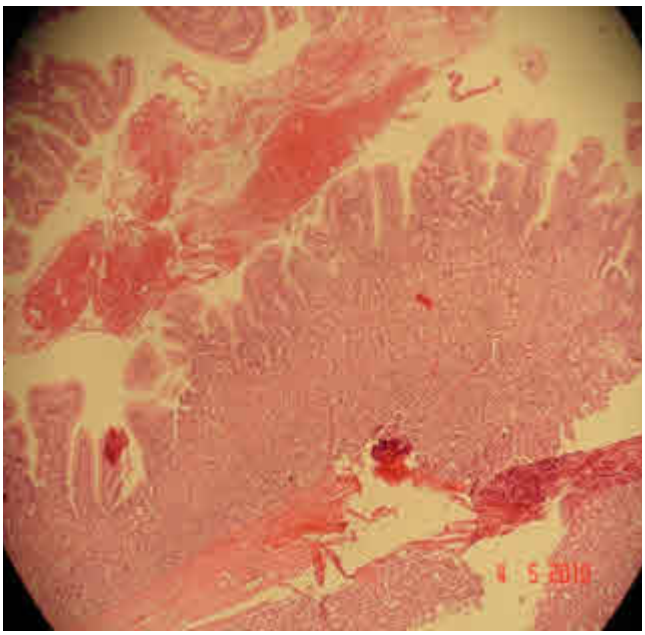

Figure 3 *Resected duplicated intestine showed columnar epithelium congruent with gastric mucosa*

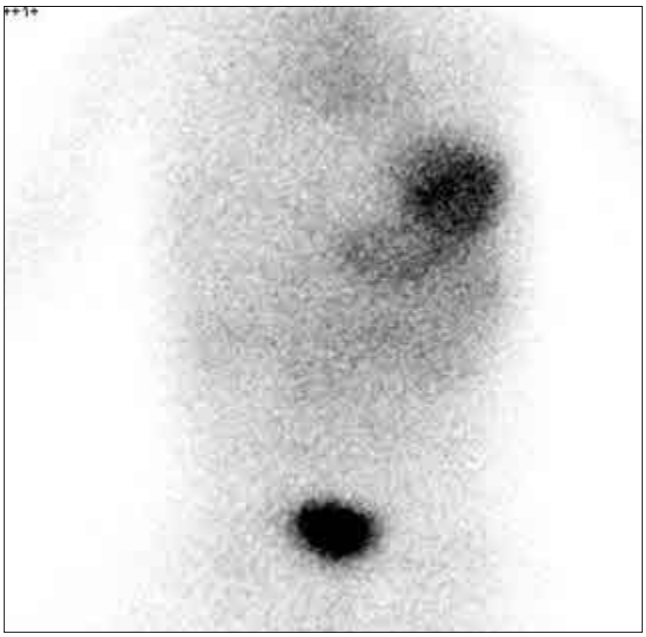

Figure 4 *Postoperative Meckel's scan image showing normal physiological distribution of the radiotracer with activity in the stomach*

Comments The diagnosis of intestinal duplication is difficult to make clinically because the wide range of symptoms and unspecific signs, may frequently simulate other diseases [1]. The most common symptoms are nausea and vomiting, and the most common sign is a palpable abdominal mass. Gastrointestinal duplications may present as intussusceptions or small bowel obstruction. Gastrointestinal hemorrhage may occur due to the presence of ectopic gastric mucosa within the duplication [2]. Plain X-rays are of limited use in the diagnosis of intestinal duplication. Conventional contrast radio- graphic examinations such as a barium meal follow through and enemas could be of value in tubular duplications. Ultrasound and MRI findings may be diagnostic and CT is useful in delineating surrounding structures. However, the Meckel's scan is unique in identifying the presence of heterotopic gastric mocosa in the Meckel's diverticulum, gastro-intestinal duplications and Barrett's oeso-phagus [3]. The usual scintigraphic appearance is a large, sometimes multilobulated, area of increased activity. Once the diagnosis is established, surgical excision is the treatment of choice resulting in a generally good outcome [4].

This congenital anomaly can occur anywhere along the alimentary tract [5]. However, ileal and ileocaecal duplications are the commonest of the gastrointestinal duplications [6]. This particular case is notable because of the existence of ectopic gastric mucosa both in the jejunum and ileum which is rare.

References:

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