

Dyspepsia Meckeli

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ABSTRACT: A 40-year-old male was seen for evaluation of minor gastrointestinal bleeding. The patient had received an H₂ blocker as an outpatient for suspicion of duodenal ulcer disease. At endoscopy no lesion was seen and H₂ blockers were discontinued. The patient developed acute abdomen and at surgery a perforated Meckel's diverticulum was found. *Can J Gastroenterol* 1990;4(4):157-159

Key Words: H₂ blockers, Meckel's diverticulum

Dyspepsie du diverticule de Meckel

RESUME: Un patient âgé de 40 ans et souffrant de saignements gastriques légers a été examiné. Soupçonnant un ulcère gastroduodénal, le médecin a prescrit un anti-H₂ sans hospitaliser le sujet. L'endoscopie n'ayant décelé aucune lésion, le traitement par anti-H₂ a été interrompu. Le patient a développé un syndrome abdominal aigu et l'intervention chirurgicale a révélé un diverticule de Meckel perforé.

A 40-YEAR-OLD MALE PRESENTED with a one year history of periumbilical crampy discomfort. The pain began 30 to 60 mins after eating and disappeared 2 to 3 h later. There were no other precipitating or modifying factors and the patient had no other gastrointestinal complaints. He was not on any medications, nor did he smoke or drink alcohol; he had a positive family history of duodenal ulcer disease. Outpatient investigations included a normal complete blood count and upper gastrointestinal series with small bowel follow through. Small bowel enema and stool testing for occult

blood were not performed. The patient's physical examination was normal and no treatment was prescribed.

Two weeks prior to admission he had melena, one stool daily for two days and was placed on oral ranitidine 150 mg bid. The patient noted a rapid and marked improvement in his abdominal pain. Ten days later ranitidine was discontinued when esophagogastroduodenoscopy was normal. The patient's abdominal pain returned within 24 h and steadily increased in intensity for three days until his arrival at the emergency department. On arrival he had

generalized, severe, constant abdominal pain and clinical signs of peritonitis. He was taken to surgery when a Meckel's diverticulum lined with gastric mucosa and a perforated ileal ulcer was found (Figures 1,2).

DISCUSSION

An unusual diverticulum of the small intestine was first described by Hildanus in 1598 (1) and was considered to be due to increased intestinal pressure. This most common congenital anomaly of the gastrointestinal tract is due to failure of obliteration of the omphalomesenteric duct connecting yolk sack to intestinal tract at five to seven weeks of gestation. Johann Friedrich Meckel established the condition on a sound embryological and anatomic basis in writings between 1808 and 1820 (2). He was incorrect, however, in predicting a 25% complication rate; the actual figures are 0.03 to 0.96% per year with a life long risk of approximately 4% (3).

The clinical diagnosis of symptomatic Meckel's diverticulum can be difficult as illustrated by this case. Some physicians feel that this is a disease of childhood and are not aware of the difference in adult presentation. Symptomatic Meckel's diverticulum in adults has a male to female ratio of 1.8 to 1.0 and the risk is greatest in the 16 to 25 year age group (mean 39, range 16 to 87) (4). In children, rectal bleeding and obstruction are the most common complications, while 30 to 50% of adults experience inflammation, 33 to

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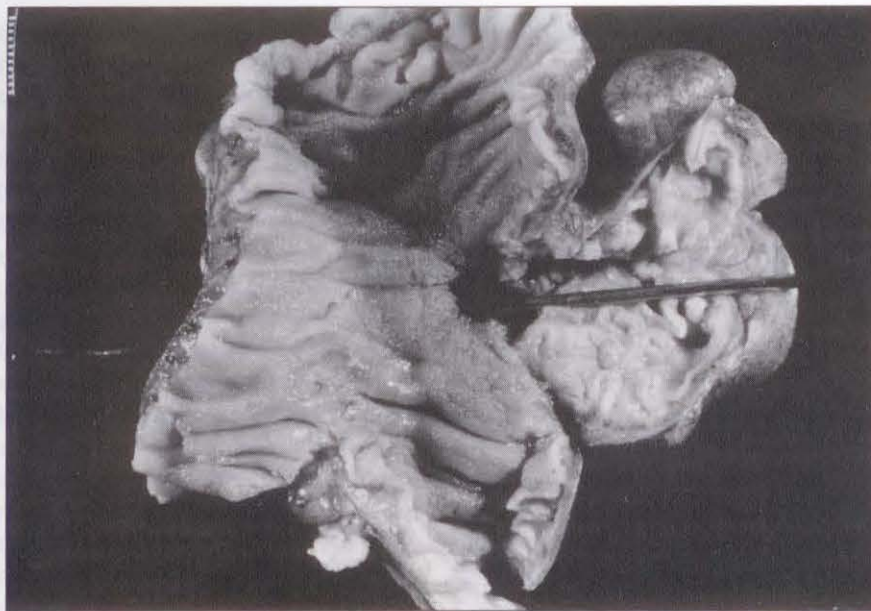


Figure 1) Gross appearance of perforated ileal ulcer



Figure 2) Microscopic appearance of perforated ileal ulcer (x4.5)

36% obstruction, 19% perforation and 10 to 19% bleeding.

Any young adult with significant gastrointestinal bleeding and a negative endoscopic evaluation should be investigated for a possible Meckel's diverticulum. Patients with inflammation are likely to be diagnosed as appendicitis and managed surgically at an early stage.

A computer search of the world literature to 1989 revealed only five case reports of H₂ blocker therapy in Meckel's diverticulum and several

noteworthy features were found (Table 1). Bleeding from a Meckel's diverticulum is rare above age 30 years (4) and the present patient was significantly older than the others treated. One-half of the patients had postprandial pain, and five of six had obvious rectal bleeding. Upper intestinal series performed in four cases were falsely negative but two small bowel enemas were positive for Meckel's diverticulum. Four Meckel's scans were reported in three patients with two positive and two negative results.

A question raised by the present case concerns the diagnostic and therapeutic value of H₂ blockers in symptomatic Meckel's diverticulum. In the five cases where detail was provided, all mentioned rapid improvement in abdominal pain with institution of H₂ blockade. In all three cases in which the H₂ blocker was discontinued the pain returned. The data suggest that abdominal pain which responds to H₂ blockers in the absence of evidence of upper intestinal disease should prompt an investigation for Meckel's diverticulum.

A therapeutic role for H₂ blockers has been advocated by some (5-7), while others noted rebleeding and perforation during treatment (8,9). The fact that H₂ blockers were ineffective for reducing bleeding from duodenal ulcers plus the fact that such bleeding resolved spontaneously in 80% of cases is important; however, it is not possible to draw any therapeutic conclusion from this small group of patients.

The present patient had gastric tissue present in his Meckel's diverticulum which has been correlated with the presence and nature of symptoms in this condition. Depending upon the thoroughness of the search, ectopic tissue is present in 25 to 72% of symptomatic patients (10,11). In one large series only 16% of patients with ectopic tissue were asymptomatic (4). Tissue types include gastric (60%), pancreatic (16%) and mixed (22%) (10,11); 92 to 100% of Meckel's diverticula complicated by bleeding are associated with heterotopic tissue (4,10). Efforts have been made to correlate the presence of gastric mucosa with the likelihood of bleeding. Parietal cells present in gastric mucosa have been demonstrated to secrete acid, and islets of Langerhans are present in pancreatic rests (10).

What avenues are available to the clinician for diagnosing Meckel's diverticulum? Upper gastrointestinal series are insensitive because the wide mouth of the diverticulum empties well and holds only a small amount of residual barium (12). A number of authors feel that enteroclysis is the most reliable method for preoperative

TABLE 1
Clinical features of six cases of Meckel's diverticulum treated with H₂ blockers

Age	Sex	Symptom	Sign	Treatment	Outcome
27	M	Abdominal pain	Bloody stool	Cimetidine 300 mg orally qid for 3 months	Surgery for rebleeding after therapy
40	M	Peri-umbilical cramps, postprandial	Melena	Ranitidine 150 mg bid for 10 days	Urgent surgery, perforation after therapy
23	M	Sharp, infra-umbilical postprandial pain	—	Cimetidine 300 mg orally every 6 h for 5 days	Semi-elective surgery
26	F	Peri-umbilical pain	Maroon stool	Cimetidine ? dose orally for 7 days	Semi-elective surgery
25	M	Nonspecific post-prandial pain	Maroon stool	Cimetidine 300 mg orally every 6 h for 2 days	Urgent surgery, bleeding
12	M	Nonspecific pain	Melena and fresh blood rectally	Cimetidine 100 mg orally every 6 h for 3 months	Perforated after therapy, surgery

diagnosis of Meckel's diverticulum (12-15). The barium injected under pressure highlights any constricting lesion and the regulatory effects of the gastric and pyloric areas are bypassed readily by the enteroclysis catheter.

⁹⁹Tcchnetium pertechnetate has an affinity for mucus-producing and parietal cells, and the tracer is concentrated by the ectopic gastric mucosa. Cimetidine does not interfere with uptake but reduces luminal excretion fourfold in the dog model. It is optimally delivered 24 h before imaging (16). Another agent used to increase the sensitivity of a Meckel's scan is penta-

gastrin. In mice, a 65% increase in uptake is noted with pentagastrin, and some radiologists prefer the increase in scan sensitivity despite a theoretical risk of increased bleeding (17). In a large series of 954 cases, of which 700 were children, sensitivity for ectopic gastric mucosa was 85%. In adults with surgically confirmed Meckel's diverticulum a sensitivity of 62.5% was reported (18). If bleeding is present, angiography warrants serious consideration (19). A prudent course would involve more than one modality being used before exclusion of the diagnosis.

In conclusion, awareness of high risk groups, the various modes of presentation and the differences between pediatric and adult presentation are important in diagnosing symptomatic Meckel's diverticulum. Use of an H₂ blocker may offer a helpful diagnostic clue but data do not support its role in treatment. A small bowel enema and a ⁹⁹tchnetium Meckel's scan are of significant value in preoperative diagnosis. Finally, histologic information has deepened the understanding of this most frequent congenital anomaly of the intestinal tract.

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