

highest uptake and correlated with the left submandibular region, contralateral to the primary lesion on the right cheek.

### Discussion

Before the advent of sentinel-node dissection, patients with intermediate-thickness melanoma were managed primarily by wide local excision and regional lymphadenectomy. In the head and neck region, this often entailed either radical neck dissection or modified radical neck dissection. With lesions of the scalp, management of the lymph nodes was particularly difficult because of the known ambiguity of the lymphatic drainage pathways. Lesions on the forehead, however, and especially those of the anterior part of the face, have well-defined lymphatic drainage to the ipsilateral nodes. The drainage is initially to the parotid or buccal nodes, then the superfi-

cial cervical or submandibular nodes, continuing down the ipsilateral cervical chain.

Local recurrence rates for lesions on the head and neck vary from 2% to as high as 13% after prophylactic (modified) radical neck dissection.<sup>1</sup> The unpredictable nature of melanoma likely contributes to these figures. Our patient demonstrates that primary contralateral drainage is probably a factor in the failure rate of ipsilateral lymphadenectomy. One series had a 2.9% rate of contralateral recurrence after wide excision of facial lesions and ipsilateral neck dissection.<sup>2</sup> Sentinel lymph-node identification has become the standard of care in melanoma. Figures vary slightly, but the combination of lymphoscintigraphy with technetium and isosulfan blue identify the sentinel node in well over 90% of cases. Its applicability in carcinoma of the breast has led to its investigation in several other

cancers including colon cancer, thyroid cancer and gynecologic malignant disease. With sentinel lymph-node identification being one of the most captivating topics of recent times, this finding as a possible explanation for some of our past failures is just one more reason for our fascination.

**Competing interests:** None declared.

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## Gastrocolic fistula secondary to right gastroepiploic–coronary artery bypass

F. Donald Clark, BSc, MD

**G**astrocolic fistula (GCF) generally occurs secondary to chronic peptic ulcer disease.<sup>1</sup> It can be classified as primary or secondary, that is, occurring spontaneously or after operative gastric resection. The patient described here had a GCF occurring as a remote postoperative complication of coronary artery bypass grafting with right gastroepiploic artery.

### Case report

A 69-year-old man, a long-term smoker and alcoholic, had a suspected incom-

plete small-bowel obstruction refractory to an initial course of appropriate non-surgical therapy. He had presented to the primary care hospital 2 days earlier with a 5-day history of progressive nausea and feculent vomiting with diarrhea, but he had no abdominal pain.

The patient's medical history included 3 previously documented myocardial infarctions leading to 5-vessel coronary artery bypass 1 year earlier. The right gastroepiploic artery was used as a coronary artery bypass graft. The postoperative course was uncomplicated.

On initial examination, the patient

was afebrile and vital signs were stable. He appeared emaciated. His abdomen was moderately distended but soft and nontender. The only evident surgical scar was the epigastric extension of the mid-line sternotomy incision.

The leukocyte count and hemoglobin level were normal, as were serum electrolyte levels, urea and creatinine values and liver function test results. The serum prealbumin level was low (0.09 g/L). Chest radiography revealed chronic obstructive lung disease. On abdominal radiography there were no obvious intestinal air fluid levels or distended loops.

*From the Valley Regional Hospital, Kentville, NS*

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**Correspondence to:** Dr. F. Donald Clark, Valley Professional Centre, 70 Exhibition St., Ste. 205, Kentville NS B4N 4K9; fax 902 678-1080; fdc@xcountry.tv



**FIG. 1. Water-soluble single-contrast enema shows a gastocolic fistula. Colonic contrast is present in the duodenum and upper jejunum, and there is no obvious colonic diverticulosis.**

Parenteral nutrition was begun. A water-soluble single-contrast enema revealed an obvious GCF, without evidence of colonic diverticulosis (Fig. 1). Upper gastrointestinal endoscopy showed an inflammatory mass along the greater curvature of the stomach, at the level of the antrum. Biopsy specimens obtained endoscopically demonstrated acute on chronic inflammation, with the presence of both gastric and colonic mucosa.

The patient received 3 weeks of parenteral nutrition before surgery, which resulted in marked improvement in his nutritional status.

At surgery, a prominent pulsatile vessel was discovered, arising from the distal greater curvature, proceeding upward through the membranous part of the diaphragm. Old braided suture material was seen along the greater curvature, where there were dense adhesions to the transverse colon and greater omentum. A fistula between the gastric and colonic lumina was found within these adhesions. The involved segment of the stomach was excised. A full-thickness disc of transverse colon was excised in continuity with the gastric specimen. The colonic defect was closed transversely in 2 layers. Pathological examination revealed only acute and chronic inflammation.

## Discussion

GCFs are not common. Although the first reported GCF was associated with gastrointestinal malignant disease, currently the most common etiology is benign peptic ulcer disease.<sup>2</sup> Bec, in 1897,<sup>3</sup> reported the first GCF associated with a gastric ulcer. In 1920, Firth,<sup>4</sup> reported the first case in the English language literature of a primary GCF arising from a benign gastric ulcer. Soybel and colleagues<sup>5</sup> reviewed 108 cases of GCF in the English literature, which arose as complications of benign gastric ulceration.

A GCF can arise spontaneously or after previous gastric surgery, typically as a result of marginal ulceration after gastrojejunostomy for peptic ulcer disease. Tavenort and colleagues<sup>1</sup> reported that the benign and primary GCF was the most common presentation.

Other reported causes of GCF include inflammatory bowel disease, especially Crohn's colitis (resulting in a "colono-gastric" fistula),<sup>6</sup> colonic diverticulosis, colon carcinoma, Hodgkin's lymphoma, trauma, percutaneous endoscopic gastrostomy insertion, pancreatic abscess, tuberculosis and syphilis. GCF occurs more commonly in women, and between 50 and 60 years of age.

Typically, a patient with GCF presents with malnutrition, abdominal pain, nausea and vomiting, and diarrhea,<sup>7</sup> and complains of fecal halitosis, foul eructations and feculent vomitus. The diarrhea is described as cold and acidic, due to the rapid passage of gastric content and secretions into the colon. Furthermore, bacterial colonization of the stomach and gastric acid irritate the colon and are thought to exacerbate the diarrhea.

GCF is best detected radiologically by barium enema, which confirms the diagnosis in 90%–100% of cases; a barium meal may miss the diagnosis in 30%–70% of cases. Upper and lower gastrointestinal endoscopy is prudent preoperatively to rule out underlying malignant disease as a cause. The contribution of CT to the diagnosis is debatable, but it may be of value in preoperative planning.

With the development of parenteral nutrition and improvements in preoperative bowel preparation, en bloc resection of stomach and colon with primary anas-

tomosis, and omental interposition, is recommended. The extent of gastric resection is based on the underlying cause of the GCF. There has been anecdotal success with conservative management, including endoscopic injection of the fistula tract with fibrin sealant, especially when peptic ulcer disease is found to be the underlying cause of the GCF.

This report adds yet another presentation of a GCF — as a postoperative complication after in-situ harvest of a gastroepiploic artery for coronary artery bypass grafting. Presumably, the cause is injury to the distal greater curvature of the stomach, due either to intraoperative trauma or, less likely, to resultant postoperative ischemia. This occurrence emphasizes the importance of determining the anatomic origins of previously constructed coronary artery bypass grafts before proceeding with subsequent upper abdominal surgery in such patients.

**Competing interests:** None declared.

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