



## Gastroesophageal Surgery Case

### A 76-Year-Old Woman with Stomach Cancer

JOHN MULLEN, MD

*Massachusetts General Hospital*

#### PRESENTATION OF CASE

A 76-year-old woman was seen in our multidisciplinary gastrointestinal oncology clinic for further management of an adenocarcinoma of the body of the stomach.

The patient presented to her primary care physician with a four-week history of intermittent chest pressure radiating to her back. Extensive evaluation for a cardiac source was unremarkable, including a normal stress test and abdominal ultrasound. She then developed epigastric abdominal pain, and given that she carried a history of prior *H. pylori* infection in 2003, there was concern that she might have a peptic ulcer. An upper endoscopy was obtained and showed a large ulcerated tumor in the body of the stomach (Figure 1). Pathological examination of biopsy specimens of the stomach ulcer showed moderately to poorly differentiated



**FIGURE 1.** Image from upper endoscopic examination demonstrating a large ulcerated tumor in the body of the stomach.

adenocarcinoma. Staging computed tomography (CT) scans of the chest, abdomen and pelvis only showed prominent lymph nodes adjacent to the lesser curvature of the stomach within the gastrohepatic ligament and no evidence of metastatic disease.

Upon evaluation at our cancer center, she reported intermittent upper abdominal discomfort that was worse without food but was typically relieved with eating. She denied any change in appetite or weight. She had no nausea, vomiting, early satiety or change in her bowel habits.

Her past medical history was notable for type II diabetes mellitus, hypertension, elevated lipids, gastroesophageal reflux disease (GERD), diverticulosis, endometriosis, kidney stones, anxiety and osteopenia. Her medications included atorvastatin, Inderal, lisinopril, metformin, omeprazole and Paxil. She had allergies to dyazide, morphine, intravenous contrast dye, aspirin and triamcinolone cream. She was a retired research assistant and was married with two children. She never smoked and did not drink alcohol. There was no family history of stomach cancer, but her older brother died of colon cancer metastatic to the liver and lung at the age of 90.

On examination, the weight was 182 pounds, the blood pressure 182/90 mm Hg, the pulse 90 beats per minute and the temperature 97.2 degrees Fahrenheit. There was mild epigastric tenderness without a palpable mass nor an enlarged liver. Results of a complete blood count, plasma levels



of electrolytes and tests of kidney and liver function were normal.

## DISCUSSION OF MANAGEMENT

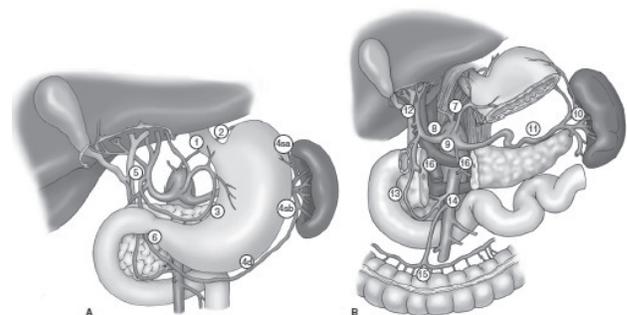
This patient has a stomach cancer that appears to be locoregionally advanced on imaging studies. The first decision regarding management is whether to resect it immediately or to administer preoperative chemotherapy, with or without preoperative radiation therapy.

### Treatment of Locoregionally Advanced Gastric Cancer

Although surgery is the mainstay of curative treatment for gastric cancer, even after complete resection, more than half of patients with locally advanced tumors recur, and fewer than 40% survive beyond three years<sup>1</sup>. Accordingly, investigators around the world have explored a variety of adjuvant and neoadjuvant multimodality treatment approaches to this disease. In North America, the standard approach has long been upfront surgery followed by adjuvant chemoradiotherapy, based on the findings of the Intergroup 0116 trial, which showed that postoperative 5-fluorouracil (5-FU)/leucovorin-based chemoradiation increases overall survival in comparison to surgery alone.<sup>2</sup> However, another standard of care for resectable gastric cancer in North America and Europe emerged with the publication of the MAGIC trial<sup>3</sup> a few years later and the FNCLCC/FFCD multicenter phase III trial<sup>4</sup> a few years after that. The MAGIC trial reported an improvement in overall survival with perioperative epirubicin, cisplatin and 5-FU (ECF) compared to surgery alone, and the FNCLCC/FFCD trial showed an improved R0 resection rate and survival with perioperative 5-FU and cisplatin.

Given this patient's advanced age and medical co-morbidities, it was decided by the multidisciplinary team of surgical oncology, medical oncology and radiation oncology that the safest approach would be upfront surgery followed by postoperative chemotherapy and radiation therapy. The patient was felt to be at high risk for complications from either ECF chemotherapy or even a milder regimen of 5-FU, leucovorin and oxaliplatin (FOLFOX) chemotherapy, and we did not want to preclude the most important component of her treatment for potential cure – that being a gastrectomy.

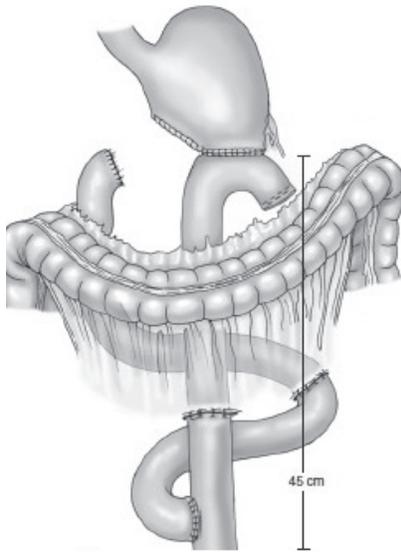
Accordingly, the patient was cleared for surgery by her cardiologist and primary care physician and was taken to the operating room for a subtotal gastrectomy and D2 lymphadenectomy. Since gastric cancer frequently spreads to the regional lymph nodes, and since at least 16 lymph nodes should be removed and examined by the pathologist for the most accurate staging of gastric cancer<sup>1</sup>, we routinely remove not only the lymph nodes immediately adjacent to the stomach (the so-called D1 lymph nodes, in stations 1-6), but we also remove the second tier of lymph nodes along the major blood vessels to the liver, stomach and spleen (the so-called D2 lymph nodes, in



**FIGURE 2.** Lymph node stations including (A) the perigastric, or D1, lymph nodes (stations 1 to 6), and (B) the regional, or D2 and D3, lymph nodes (stations 7-16).



stations 7-12) (Figures 2A and 2B)<sup>6</sup>. In fact, since 2006, we have been performing this technically demanding “D2 lymphadenectomy” with a low risk of complications and no deaths, and the median number of examined lymph nodes was 40, and more than 90% of patients had at least 16 lymph nodes examined<sup>5</sup>. In this patient’s particular operation, we removed approximately 80% of the stomach and reconstructed the gastrointestinal tract with a Roux-en-Y gastrojejunostomy (Figure 3)<sup>6</sup>. This procedure was accomplished through an open approach via an upper midline abdominal incision and was uncomplicated. Her postoperative course was unremarkable, and she was discharged to home on postoperative day number six, eating a soft diet composed of six small meals spaced evenly throughout the day.



**FIGURE 3.** Reconstruction by a retrocolic, Roux-en-Y gastrojejunostomy.

### Pathological Discussion and Role of Adjuvant Chemoradiation Therapy

Pathological examination showed a 4 cm tumor in the body of the stomach that was moderately to poorly differentiated and was staged as pT3

(tumor penetrates subserosa) and pN2 (3 nodes positive out of 31 nodes examined), or stage IIIA<sup>1</sup>. All margins were negative, and there was evidence of both perineural and lymphovascular invasion.

Based on the advanced nature of her cancer and the results of the Intergroup 0116 trial, which showed a survival advantage for adjuvant chemoradiation therapy, we treated her with eight cycles of FOLFOX chemotherapy followed by five weeks of 5-FU-based chemoradiation therapy to 45 Gray. She tolerated all of this therapy remarkably well and remains free of disease today. Her chance of long-term survival is on the order of 30%, and it is in large part because of the coordinated efforts of our team that specializes in gastric cancer that this patient made it through all stages of her treatment and thus has the best possible chance for a cure.

### REFERENCES

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