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Eradication of stage IV gastric cancer: case report

Abstract

Background

Gastric cancer has a low overall survival rate worldwide, and surgery remains the only intent to cure option at the early stages of the disease. HER-2 positive cancers may have a survival advantage. We present a patient with stage IV gastric cancer HER-2 positive responsive to Herceptin, free of detectable disease two years after surgery.

Patient Presentation

Seventy years old Caucasian male complained of left-sided chest pain. Upon evaluation, he was diagnosed with HER-2 positive adenocarcinoma of the stomach at the pylorus with two liver metastases. Near complete response was observed with Herceptin and cis-platinum based chemotherapy followed by 80% distal gastrectomy and liver resection with uneventful recovery. Two years follow up reported a patient living a normal life with undetectable disease.

Conclusion

Multimodality targeted therapy may accomplish twenty-four months cure of advanced malignant gastric disease.

Keywords

Gastric cancer, surgical resection, HER-2 positive, chemotherapy, adenocarcinoma

Introduction

Gastric cancer is a rapidly lethal disease if not treated. It shows global geographical variation. It is one of the leading malignant causes of death, with peak mortality rates in parts of Asia, Eastern Europe, and South America.[1] Countries with higher incidence rates that had implemented nationwide routine endoscopic screenings for early diagnosis, such as Japan and Korea[2] have seen improved survival rates.[3] Established risk factors for gastric cancer include sex (male ratio 2:1), older age, *Helicobacter pylori* infection, metabolic syndrome, atrophic gastritis, partial gastrectomy, diet high in sodium and low in fruits and vegetables, and a genetic load.[4] Proximal cardiac tumors are typically associated with obesity, perhaps due to a higher incidence of gastroesophageal reflux in this population with its known metaplastic changes.[5] Patients are typically asymptomatic until they reach a late stage when they may present with nausea, vomiting, dysphagia, dyspepsia, and weight loss.[1]

Upper endoscopy is not only the most reliable method for histological diagnosis, but it also enhances local evaluation of the extent of disease and the use of imaging completes the clinical staging. Genetic testing for the proto-oncogene human epidermal growth factor receptor 2 (HER-2) is indicated as Herceptin could be an adjunct to standard chemotherapy.[6] Multimodality treatment options include chemotherapy, targeted therapy, and surgical resection.[7] Nowadays, patients who present with metastatic gastric cancer are often treated with systemic therapy with cisplatin-5-fluorouracil based or capecitabine chemotherapy over surgery, as overall survival rates are low.[8] Better peri-operative care and refined advanced surgical techniques have made liver resection a safe procedure, especially when performed by experienced surgeons. In selected patients with good chemo-response, surgical resection of liver-limited metastases has

shown to improve five-year survival rates.[9] We present a case of a patient with stage IV gastric cancer with good response to Herceptin-platinum-based chemotherapy and subsequent surgery, who remains cancer-free after twenty-seven months of follow up.

Case Presentation

A seventy years old male presented with a left-sided and posterior chest pain. A follow-up CT, after being treated for left lower lobe pneumonia, showed two liver lesions (Figure 1A). The endoscopic pyloric biopsy from a T3 mass showed moderate to poorly differentiated HER-2 positive adenocarcinoma with morphology identical to the liver biopsy (Figure 2). Staging was

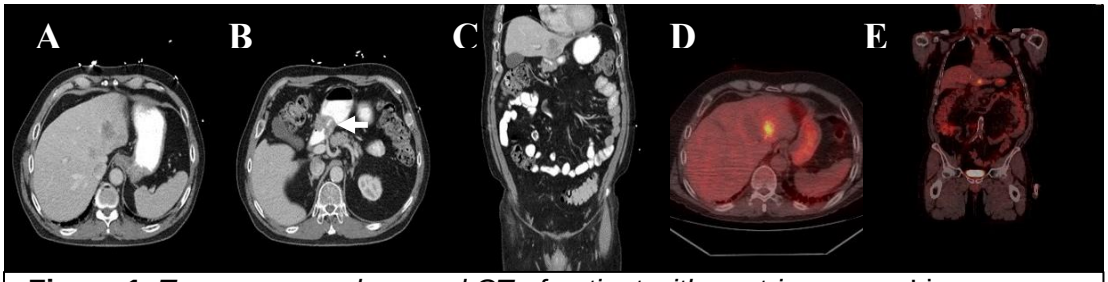

Figure 1. *Transverse and coronal CT of patient with gastric cancer.* Liver metastases are shown in segments 2 of the liver (in A and C) while a thick apple core like lesion is noted in the pyloric region of the stomach. Cancerous lesion can be appreciated in left lobe of liver and lower portion of stomach (arrow in B). The findings at CT scan were corroborated at PET scan with no additional lesions.

completed by a PET scan that only showed avid lesions at the stomach and liver sites (Figure 1, D&E). The tumor board decided to start the patient on chemotherapy. Capecitabine was prescribed at a 100mg/m^2 PO BID/2 weeks. During the second and third cycles of treatment, it was reduced by 50%, then increased to 750mg/m^2 during the fourth cycle. A dosage of 80mg/m^2 of cisplatin IV was given to be 80% cancer-free for the fourth cycle. Oxaliplatin was given concomitantly but was stopped after the third cycle as it was not tolerated. Herceptin at the initial dose of 8mg/kg IV was administered on day 1 and then reduced to 6mg/kg every twenty-one days. Fourteen months after presentation, the patient was re-staged. CT scans, PET and EUS showed a near complete response of the gastric mass and >50% reduction in the size of the liver metastases. After tumor board agreement, the patient underwent an exploratory laparotomy with 80% distal gastrectomy with BII reconstruction as Roux-Y, omentectomy, cholecystectomy and liver left lobectomy. The patient recovered uneventfully and was discharged on day five after surgery. At twenty-four months, the patient is working full time, tolerating normal diet with stable weight. CEA and CA19.9 as well as CT scan showed evidence of no recurrence but a small late in occurrence incisional hernia (Figure 3).

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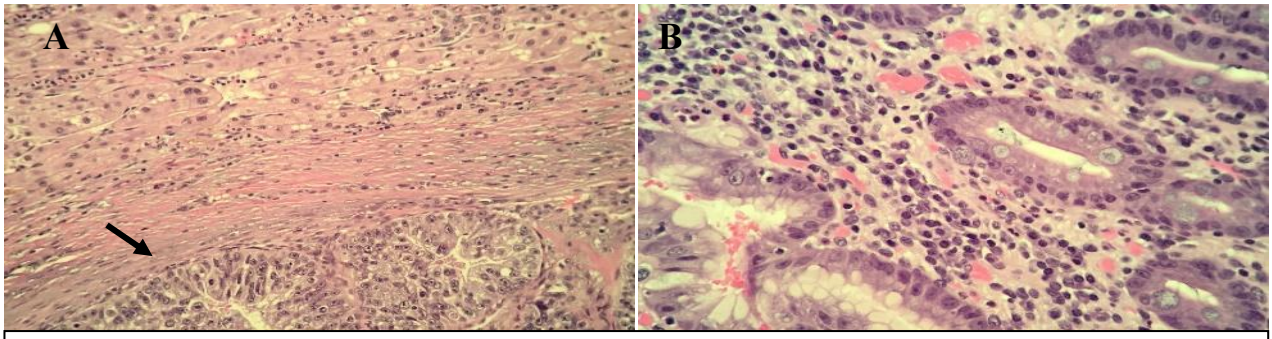

Figure 2. *Sections of liver parenchyma (A) and stomach (B) from percutaneous and endocospic biopsies.* Liver tissue showed inflamed benign hepatic parenchyma and adenocarcinoma (bottom, H&E stain; 200x magnification. The stomach showed chronic active gastritis and intestinal metaplasia of gastric epithelium (H&E stain; 400x magnification).

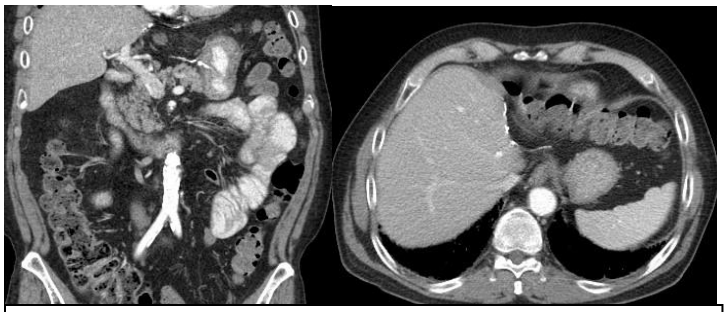

Figure 3. *CT scan of the abdomen follow up.* Patient's transverse and coronal images 24 months post-surgery with no signs of disease recurrence.

Discussion

Despite an overall decrease in incidence and mortality in the United States,[10] gastric cancer is still one of the most lethal malignancies worldwide. According to the World Health Organization, despite being the sixth most prevalent (1.03 million cases), gastric cancer is the third leading malignant cause of death worldwide (783,000 deaths).[11] The only strategy that has shown to increase overall patient survival is the implementation of screening policies for early detection of malignancy. We present a case of stage IV gastric cancer treated in a multimodality fashion. Orditura et al cited a three-year survival rate of 80.1% vs 70.1% in patients with gastric cancers who underwent surgery and chemotherapy vs those who only underwent surgery, respectively.[8] A five-year survival analysis also favored the use of adjuvant chemotherapy to only surgery (72.6% vs 61.4%, respectively).[8] In a study with 1035 patients, Bang et al showed a three-year disease-free survival rate of 74% with chemotherapy and surgery and 56% with surgery alone.[9.] Our approach included preoperative adjuvant/target therapy and surgery. The patient is alive and free of disease twenty-seven months after surgery. This case may have implications for future strategies where multimodality therapies may include neo and adjuvant systemic therapies targeting individual mutations to increase patient survival.

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