Management of Gastric Tumor Perforation with Conservative Treatment during Neoadjuvant Chemotherapy

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ABSTRACT

Perioperative chemotherapy provides advantage for gastric cancer patients in terms of survival. A 56-year male with a diagnosis of locally advanced gastric carcinoma presented with complaints of acute abdominal pain; and was diagnosed as gastric tumor perforation during neoadjuvant therapy. Gastric perforation may occur during neoadjuvant chemotherapy for gastric cancer. While the treatment of choice for these perforations was surgery in the past, it is now shifting towards a minimally invasive or non-invasive approach. We used the minimally invasive treatment approach with nasogastric drainage, intravenous antibiotics and proton pump inhibitors, which was effective in the treatment of perforation. Althrough, conservative treatment approach may be an effective management option in selected patients with gastric cancer perforation.

Key Words: *Gastric cancer, Neoadjuvant chemotherapy, Perforation.*

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INTRODUCTION

Perioperative chemotherapy is considered to be one of the standards of care for T2 to 4 or N+ gastric cancer.[1] Oncological treatments, instituted in the perioperative period, provide survival benefits in gastric cancer patients.[2-4]

Gastric tumor perforation is a rare complication with fatal outcome occurring in less than 1% of all gastric cancer patients.[5] Although the rate of perforation in patients receiving chemotherapy is 1.1%, which is the same rate as in surgical series of patients presenting with perforation,[6] perforations that occur during chemotherapy are life-threatening because of immunosuppression and delay of definitive surgical treatment.

In the literature, there are only a few cases of gastric tumor perforation during neoadjuvant therapy treated by conservative approach.[7] Herein, we report a case of spontaneous gastric tumor perforation that occurred during neoadjuvant chemotherapy with oxaliplatin, 5-fluorouracil/leucovorin and epirubicin, which was successfully managed by conservative treatment.

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CASE REPORT

A 56-year-old male diagnosed as a case of locally advanced gastric carcinoma developed epigastric pain during neoadjuvant therapy. The medical oncology specialist prescribed proton pump inhibitor. Patient was referred to our clinic for surgical opinion and treatment. In the history, upper gastrointestinal endoscopy revealed antral mass; and biopsy was taken. Histopathological study showed adenocarcinoma. Thoracoabdominal computerised tomography reported serosal invasion with peri-gastric lymph nodes. Patient was diagnosed as a locally advanced gastric cancer in clinical stage cT4aN1M0, cStage 3; and neoadjuvant chemotherapy was planned. PET/CT scan with F18-fluorodeoxyglucose (FDG) was performed for neoadjuvant therapy planning, which showed suspicious metastasis in peri-gastric lymph nodes. Patient was started on chemotherapy and received 5-fluorouracil, oxaliplatin, pirucin hydrochloride, and leucovorin combined infusion therapy for five days.

During the first course of chemotherapy, he developed sudden epigastric pain. Physical examination revealed blood pressure of 130/70 mmHg, heart rate 74 beats/min, respiratory rate 28 breaths/min, and the body temperature of 36.4°C. He was not anemic. Abdomen was flat and there was a mild epigastric tenderness. Laboratory investigations showed white blood cells to be 3,970/µl, hemoglobin, 12.5 g/dl, platelets 140×10^3/µl, C-reactive protein (CRP) 200.87 mg/l, and procalcitonin 1.68 ng/ml. Liver function tests, electrolytes and bilirubin levels were normal and there was no abnormality in coagulation parameters. Sub-diaphragmatic air was detected on posteroanterior

chest X-ray. Abdominal CT depicted free intraperitoneal air (Figure 1), and patient was diagnosed to have developed gastric tumor perforation.

Conservative treatment was planned, based on mild clinical findings and good physical condition of the patient. Nasogastric tube was placed, and he was kept nil orally till the symptoms disappeared. He was started on intravenous proton pump inhibitors and antibiotic therapy (ceftriaxone 1g, bd). On the 3rd day of conservative treatment, nasogastric tube was removed and patient started oral feeding. At the end of one week, he was discharged with normal physical examination, laboratory and radiological results. Ten days later, the patient was referred to the Oncology Department for further chemotherapy.

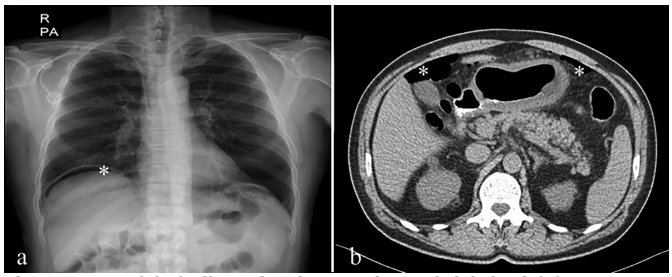

Figure 1: Asterisks indicate free intraperitoneal air in both (a) Posteroanterior chest X-ray and (b) Computed tomography (CT) images.

DISCUSSION

Gastric tumor perforations are rare complications occurring in less than 1% of all gastric cancer patients.[5] They may occur spontaneously or during chemotherapy for gastric cancer. There are many strategies for management for this complication. The treatment of perforated gastric cancer is difficult. The treatment should be according to the presence or absence of peritonitis and patient's physical condition. In the past, perforated gastric cancer was treated by curative or palliative resection. Emergency surgery and gastrectomy was the most common form of treatment for gastric tumor perforations.[7] Patient's physical condition is primarily the most important predictive factor for the treatment choice. The emergency radical surgery must be questioned because of high mortality rate insufficient lymphadenectomy, and intermitting chemotherapy.[7] Moreover, non-curative or palliative gastrectomy, which impairs survival, should be avoided.[7] Under poor general condition with peritonitis, only simple closure with omental patch should be considered as a first-stage surgical treatment.

Although the traditional treatment of gastric tumor perforation was open surgery, it is now shifting towards a minimally invasive or non-invasive approach. If suitable, planning of conservative treatment for these patients, allows the patient to complete the neoadjuvant therapy and prevent the chemotherapy-induced comorbidities, such as immunosuppression during definitive surgical therapy.

Gastric tumor perforation can be managed conservatively in patients with stable clinical condition and without any sign of generalised peritonitis. Minimally invasive treatment approach with nasogastric drainage, intravenous antibiotics and proton pump inhibitors, is an effective treatment modality in selected patients under neoadjuvant chemotherapy.

PATIENT'S CONSENT:

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

EB, SO, EC, OG, MM: Conception and design, data acquisition and analysis, interpretation, drafting, critical revision, final approval.

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