Novel treatment (new drug/intervention; established drug/procedure in new situation)

Multivisceral radical en bloc resection with spleen preservation in T4 gastric cancer

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Summary

Gastric cancers are the second most common cause of cancer death worldwide. In the majority of countries, gastric tumours are diagnosed at advanced stages. The authors present the case of a patient with a T4 gastric tumour who underwent a multivisceral en bloc resection (liver segmentectomy, total gastrectomy, partial pancreatectomy) and D2 lymphadenectomy with spleen preservation. The aim of this report was to confirm that, for T4 gastric tumours, radical resection can be performed without splenectomy with minimal morbidity, and this procedure can improve long-term survival.

BACKGROUND

The aim of this report was to confirm that, for T4 gastric tumours, radical resection can be performed without splenectomy with minimal morbidity, and this procedure can improve long-term survival.

CASE PRESENTATION

A 63-year-old man with appetite loss, general fatigue, progressive dysphagia and weight loss underwent upper gastrointestinal endoscopy, which revealed a Borrmann type 3 advanced gastric carcinoma of the small curvature (body and antrum). Biopsies showed signet-ring gastric undiffer-

entiated adenocarcinoma. CT showed extensive gastric cancer with no evidence of lymph node or metastatic spread (T3 N0 M0). After receiving almost 2 weeks of total parenteral nutrition (TPN), The patient was taken to the operating room for an exploratory laparotomy. Intraoperatively, The patient was found to have a large gastric mass involving the entire small curvature (body and antrum) with macroscopic invasion into the pancreatic body (figure 1) and the anterior segment of the left lobe (segment III) of the liver (figure 2). The tumour was resected by en bloc removal of the entire stomach (total gastrectomy), segment III of the liver, and the body and tail of the pancreas (partial

Figure 1 Large gastric mass involving the entire small curvature of the stomach (S) with macroscopic invasion (arrows) into the pancreatic body (Pb).

Figure 2 Large gastric mass involving the entire small curvature of the stomach (S) with macroscopic invasion (arrows) of the segment III of the liver (Ls).

pancreatectomy). We also performed D2 lymphadenectomy and preserved the spleen (figures 3 and 4). The margins were free of tumour on frozen and final pathologic exam. The tract was reconstructed with a Roux-en-Y oesophago-jejunostomy. Final histologic evaluation revealed a poorly differentiated adenocarcinoma of the stomach, invading into the pancreas and the liver segment, with 12 out of 72 lymph nodes involved (T4 N2 M0). The patient recovered soon after surgery with no major complications, aside from abdominal wall dehiscence requiring repeat closure on postoperative day 7. The total time of hospitalisation was 16 days, after which the patient was referred to the clinical oncology department.

INVESTIGATIONS

Upper gastrointestinal endoscopy revealed a Borrmann type 3 advanced gastric carcinoma of the small curvature (body and antrum). Biopsies showed signet-ring gastric undifferentiated adenocarcinoma. CT image showed extensive gastric cancer with no evidence of lymph node or metastatic spread (T3 N0 M0). Intraoperatively, the patient was found to have a large gastric mass involving the entire small curvature (body and antrum) with macroscopic invasion into the pancreatic body (figure 1) and the anterior segment of the left lobe (segment III) of the liver (figure 2).

DIFFERENTIAL DIAGNOSIS

T4 gastric cancer

TREATMENT

After receiving almost 2 weeks of TPN, he was taken to the operating room for an exploratory laparotomy. The tumour was resected by en bloc removing of the entire stomach (total gastrectomy), segment III of the liver, body and tail of the pancreas (partial pancreatectomy), with D2 lymphadenectomy (radical surgery), with spleen preservation (figures 3 and 4).

OUTCOME AND FOLLOW-UP

The patient soon recovered after surgery with no major complications besides requiring the closure of abdominal wall dehiscence in the 7th day postoperative. Total hospital stay for both surgical procedures was of 16 days. Patient was then referred again to clinical oncology department.

DISCUSSION

For patients with macroscopic T4 gastric cancer located in the middle or upper part of the stomach, total gastrectomy and aggressive resection of invaded adjacent organs with extended lymph node dissection (radical en bloc resection) should be performed to improve long-term outcome.^{1 2} The most common organs invaded macroscopically were the pancreas, mesocolon, liver, transverse colon, adrenal gland and spleen.³ Thus, evaluation of all information concerning tumour stage, location, histologic type, expected survival and quality of life after resection is of paramount importance for planning the extent of surgery. The therapeutic approach should be stratified according to the stage of disease. CT images improves the capability for distinguishing T3 from T4 gastric cancer and prediction of adjacent organ invasion, however, in such cases, the great difficulty is to confirm that. The improvement of this analysis would minimise unnecessary radical en bloc resection,^{2 3} noting that the extent of surgery should be planned on the preoperative staging and during dissection, analysing age and clinical conditions.⁴ The assessment of organ involvement in the preoperative staging is sometimes difficult, much due to peritumoural inflammation,⁵ reinforced by the fact that confirmation of invasion of serosa and involvement of organ is only possible after en bloc resection, in the final histologic examination.^{1 3} In any case, en bloc resection of an organ not confirmed later in final pathologic exam doesn't modify the survival of these patients. Moreover, neither number nor type of organ involvement are predictors of recurrence.³ The 5-year survival rate in patients with

Figures 3 En bloc removal of the entire stomach (S) by total gastrectomy, a part of segment III of the liver (Ls), omentum (O), and the body and tail of the pancreas (partial pancreatectomy) not showed cause is localised behind the stomach (S) in this picture.

Figure 4 After en bloc removal and D2 lymphadenectomy with spleen (SP) preservation, the picture shows: the celiac trunk (CT) with splenic (sa), hepatic (ha) and gastroduodenal arteries; the portal vein system (PVS) with portal vein (pv), splenic vein (sv), inferior mesenteric vein (imv) and superior mesenteric vein (smv); the cephalic pancreas (Pc).

advanced gastric tumour (stages III and IV) treated with radical surgery varies between 23% and 43%.^{6 7 10} The extent of lymphadenectomy is also directly related to survival, and D2 lymphadenectomy is the one that gives better results compared with D3–D4 and D1.^{9 10} The survival rate is slightly lower when there is pancreatic involvement and higher in patients not splenectomised.^{5 8} So, there is a trend in the preservation of the spleen by performing a D2 lymphadenectomy extending out to the hilum of the organ.⁸ Some authors recommend splenectomy only in the direct invasion of the body.^{3 4 10} There are few reports in the literature on liver invasion by contiguity, unlike the metastatic process, which is already well discussed and changes completely the staging and prognosis. The additional gastrectomy with resection of other organ can be performed with perioperative mortality less than 2%.³ Gastrectomy and resection of all the macroscopic and microscopic disease is the only potentially curative therapy in advanced stages.⁸ Patients who present with T4 gastric cancer will benefit from aggressive en bloc surgical resection, with minimal morbidity, and should not be considered unresectable, influenced by the preoperative imaging or echo-endoscopic evaluation, and mistaken findings during laparotomy.

Learning points

- ▶ T4 gastric tumours should not be considered unresectable, and patients with this type of malignancy will benefit from aggressive resection of affected adjacent organs with extended lymph node dissection. This radical operation can improve long-term outcome with minimal morbidity. Additionally, the spleen should be preserved in patients without direct tumour invasion, because splenectomy increases the incidence of postoperative morbidity. Furthermore, splenectomy does not improve the survival of patients who undergo curative resection for gastric cancer.

Competing interests None.

Patient consent Obtained.

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