

Surgical Considerations in the Management of Gastric Adenocarcinoma



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KEYWORDS

• Gastric cancer • Gastrectomy • Reconstruction • Lymphadenectomy • Margins

KEY POINTS

- Complete surgical resection of the tumor and regional lymph nodes remains the only potentially curative modality for gastric adenocarcinoma; this may require a total or distal gastrectomy depending on the type, location, and extent of the tumor.
- Roux-en-Y reconstruction has the theoretic advantage of avoiding alkaline (bile) reflux gastritis and/or esophagitis and may be preferred to Billroth II reconstruction.
- Routine use of feeding jejunostomy tubes and external drains is not supported by the existing literature but is encouraged in select situations where less than optimal anastomotic healing is expected.
- A pylorus-preserving Billroth I distal (central) gastrectomy has recently emerged as an option for early T1N0 middle-third gastric cancers as an effort to improve long-term postgastrectomy functional outcomes.
- Based on the recently published 15-year follow-up of the Dutch D1 versus D2 lymphadenectomy trial, a distal pancreas-preserving and spleen-preserving D2 lymphadenectomy should be considered standard practice during resection of gastric adenocarcinoma.
- Although surgeons should strive to achieve negative margins during gastric cancer resection, confirmed by intraoperative frozen section, conversion of an R1 frozen section margin to R0 by extending the resection intraoperatively does not seem to yield long-term outcomes comparable to an upfront R0 resection.
- REGATTA (a phase III, randomized controlled trial) demonstrated no added survival benefit from palliative D1 gastrectomy for gastric cancer patients with a single site of metastasis receiving systemic chemotherapy.

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TOTAL, DISTAL, AND CENTRAL GASTRECTOMY (OPEN APPROACH WITH RECONSTRUCTION)

Although chemotherapy has made significant progress over the past decade in the management of locally advanced or metastatic gastric adenocarcinoma, complete surgical resection of the primary tumor and regional lymph nodes remains the cornerstone of therapy for localized disease. This can be accomplished through a total or partial gastric resection, depending on the location, extent, and histology of the tumor.

Total Gastrectomy

Indications and contraindications

Total gastrectomy is commonly indicated for gastric adenocarcinoma involving the entire or proximal stomach.¹ Total gastrectomy might also be necessary for patients with signet ring cell gastric carcinoma due to the commonly encountered diffuse submucosal spread and difficulty in obtaining negative margins with a subtotal gastrectomy² or in patients with hereditary diffuse gastric cancer (CDH1 mutation carriers), who typically exhibit a multifocal pattern of involvement throughout the entire organ.³ Total gastrectomy should not be recommended, however, in situations where wide (4–6 cm) negative margins can be achieved with a partial gastrectomy, because the partial gastrectomy has a significantly improved safety and long-term functional outcome profile, especially in patients with advanced age, malnutrition, and extensive comorbidities.

Resection

For the vast majority of patients where a total gastrectomy is contemplated, an upper midline laparotomy (from the xiphoid process to the umbilicus) with the patient in the supine position provides adequate exposure. If the operation is performed for a bulky cardia or fundus tumor with extension along the proximal esophagus, a left thoracoabdominal incision (starting as an anterolateral 7th intercostal space left thoracotomy and terminating as an upper midline laparotomy through the left costal cartilage) with the patient in the right semilateral decubitus position provides the best exposure for dissection of the distal thoracic esophagus above the diaphragm up to the level of the inferior pulmonary ligament. A double-lumen endotracheal tube is necessary in this situation.

A thorough exploration of the abdomen should be performed to exclude any sites of radiographically occult metastasis in the liver or peritoneum. This step should preferably be performed through a diagnostic laparoscopy, especially in the case of a locally advanced tumor. Particular attention should be paid toward any potential tumor infiltration into the hepatoduodenal ligament or the root of the mesentery, both of which preclude the likelihood of a curative resection. Otherwise, a total gastrectomy should be carried out through the following operative steps:

- The left triangular ligament of the liver should be divided, and the left lateral section of the liver should be retracted superiorly and to the right to expose the gastroesophageal junction.
- The greater omentum should be detached from the transverse colon and its epiploic appendages using electrocautery.
- If technically feasible, the anterior layer of the transverse mesocolon should be dissected from the mesocolic vessels (**Fig. 1**) all the way to the peritoneum overlying the anterior pancreas. These 2 structures comprise the omental bursa and should be resected with a radical gastrectomy, provided the integrity of the mesocolon and the pancreas can be preserved.

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