Esophageal Cancer Surgical Practice Guidelines

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The Society of Surgical Oncology surgical practice guidelines focus on the signs and symptoms of primary cancer, timely evaluation of the symptomatic patient, appropriate preoperative extent of disease evaluation, and the role of the surgeon in diagnosis and treatment. Separate sections on adjuvant therapy, follow-up programs, or management of recurrent cancer have been intentionally omitted. Where appropriate, perioperative adjuvant combined-modality therapy is discussed under surgical management. Each guideline is presented in minimal outline form as a delineation of therapeutic options.

Since the development of treatment protocols was not the specific aim of the Society, the extensive development cycle necessary to produce evidence-based practice guidelines did not apply. We used the broad clinical experience residing in the membership of the Society, under the direction of Alfred M. Cohen, MD, Chief, Colorectal Service, Memorial Sloan-Kettering Cancer Center, to produce guidelines that were not likely to result in significant controversy.

Following each guideline is a brief narrative highlighting and expanding on selected sections of the guideline document, with a few relevant references. The current staging system for the site and approximate 5-year survival data are also included. The Society does not suggest that these guidelines replace good medical judgment. That always comes first. We do believe that the family physician, as well as the health maintenance organization director, will appreciate the provision of these guidelines as a reference for better patient care.

Society of Surgical Oncology Practice Guidelines: Esophageal Cancer

Symptoms and Signs

Early-stage disease

- Asymptomatic--picked up on routine upper gastrointestinal endoscopy or other investigation
- Dysphagia, odynophagia, anemia, gastrointestinal bleeding

Advanced-stage disease

- Symptoms of locally advanced disease, eg, chest pain, upper abdominal pain, hoarseness or tracheo-esophageal fistula with aspiration pneumonia
- Symptoms of metastatic disease (neurologic, hepatic, bone)

Evaluation of the Symptomatic Patient

Diagnosis

- Barium swallow and upper gastrointestinal (GI) series
- CT scan
- Upper gastrointestinal endoscopy

Appropriate timeliness of surgical referral

- Prompt evaluation of patients as described above under "Symptoms and Signs"
Preoperative Evaluation for Extent of Disease

Routine

- Complete history and physical examination
- Chest x-ray
- Barium swallow and upper GI series
- CT scan--chest and upper abdomen (± neck)
- Routine blood chemistries

Further investigations (where indicated by above or optional)

- Endoscopic ultrasound
- Investigation for metastatic disease (bone scan, CT scan, laparoscopy)

Procedures

- Esophagoscopy plus upper GI endoscopy
- Bronchoscopy--for lesions above inferior pulmonary vein
- Laparoscopy and/or thoracoscopy when indicated--to rule out unresectable disease or widespread metastases

Role of the Surgeon in Management

Preoperative evaluation

- The surgeon is expected to completely evaluate the patient and analyze all testing that has been done or initiate such testing. This may include a bronchoscopy, esophagoscopy, laparoscopy, and thoracoscopy.
- Cardiorespiratory evaluation

Diagnostic procedures

- The surgeon must be adept at performing all invasive endoscopy procedures required for preoperative evaluation and clinical staging.

Surgical considerations

- The surgeon must be adept at performing partial and total esophagectomy utilizing the intra-abdominal, transthoracic, and cervical approaches, as necessary. Esophageal resection margins of at least 5 cm are the goal. The surgeon must be able to utilize the colon or small intestine, as well as the stomach, for esophageal replacement. The surgeon must be familiar with upper abdominal and mediastinal lymph node dissection.
- Palliative maneuvers to alleviate dysphagia may include: stent insertion, laser ablation, and esophageal bypass.

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Although carcinoma of the esophagus is a relatively uncommon malignancy, with an age-adjusted incidence of only 10 cases per 100,000 people in North America, the incidence of esophageal adenocarcinoma is rapidly increasing in patients with chronic reflux disease. This latter tumor is often associated with the development of columnar-lined epithelium (Barrett's esophagus). In some areas of the world, eg, northern China, northern Iran, and southern Africa, squamous cell carcinoma is very common, with an age-adjusted incidence as high as 150 cases per 100,000 males. Whereas adenocarcinoma of the esophagus seems to be related to acid-bile reflux disease, squamous cell carcinoma has been associated with Plummer-Vinson syndrome in Oriental and black males, as well as Scandinavian females. Heavy alcohol consumption and heavy tobacco intake have
been implicated as cocarcinogens for squamous cell carcinoma. Nutritional factors, such as high nitrosamine intake and vitamin deficiencies, also have been implicated in the production of squamous cell disease. Screening approaches (eg, esophageal cytology, biannual endoscopy) have been employed most frequently in high-risk geographic areas (mass screening) and in patients identified with columnar-lined epithelium (individual screening program). In such situations, screening has permitted earlier diagnosis and treatment.

**Staging**

The international TNM staging system has been used to clinically and pathologically stage disease, allowing for the determination of treatment options and ultimate prognosis (Table 1).

**Management**

The treatment of choice for early-stage carcinoma of the esophagus continues to be debated. Both surgery and radiotherapy can be used to effect a cure. In early-stage (stage I and II) disease, surgical treatment provides the best opportunity for local control. Radiotherapy combined with concurrent chemotherapy appears to be superior to radiotherapy alone in the nonsurgical management of this disease.

The goal of surgical treatment is to effect a complete resection and allow for early resumption of near-normal swallowing. The standard surgical excision includes a near-total esophagectomy, regional lymphadenectomy, and a high intrathoracic or cervical anastomosis. The conduit of choice in most instances is the stomach. There is renewed interest in radical two- and three-field lymphadenectomy, as well as wide en bloc resection of the primary tumor, in order to improve local control and ultimate survival.

Once tumors extend beyond the outer muscle wall or involve more than four regional lymph nodes, the chance of curative treatment by surgery is extremely poor. Preoperative clinical staging, therefore, is extremely important.

In patients with metastases extending beyond the regional lymph nodes, curative surgical treatment is rarely possible and is usually not indicated. In most such patients, only palliative therapy can be offered. Palliative maneuvers that can improve swallowing include: neodymium:yttrium aluminum garnet (Nd:Yag) laser destruction of obstructing tumors, insertion of endoesophageal stents, and, on occasion, esophageal exclusion and bypass.

Although the 5-year cure rate of all patients presenting with carcinoma of the esophagus does not exceed 5%, the prognosis for early-stage tumors is much more optimistic. Early-stage carcinoma of the esophagus (T1, N0) can be cured in up to 70% of patients. Approximately 40% of patients with stage II disease can be cured. More advanced disease decreases survival following surgical resection to 15% or less.

The role of preoperative (induction) or postoperative (adjuvant) chemotherapy or chemoradiation in the treatment of patients with esophageal cancer is still being investigated. Although reported trials suggest that postoperative chemotherapy and/or radiotherapy have very little impact on overall survival, encouraging phase II and III data suggest that induction chemotherapy or chemoradiation prior to surgery may improve survival. However, this requires confirmation in very large prospective, randomized trials.

In early in situ disease, the role of mucosectomy and argon beam laser destruction with photoexcitation is being investigated as a possible alternative to esophagectomy.

**References:**


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