

- The anus is generally a rare site for cancer; however, there has been an increased incidence in the past 30 to 40 years.
- Etiology is unknown for anal cancers. It is associated with a variety of chronic colorectal conditions. Most cases are non-Hispanic whites, with incidence higher in urban areas; may have an association with HIV; average age is 62.

ESOPHAGUS

The esophagus can be divided into two, three, or four divisions (Table 9-3)

Etiology

Direct causes unknown

Associated conditions:

- Chronic consumption of hot, highly seasoned foods
- Alcohol, tobacco
- Chemical exposure
- Short esophagus
- Tylosis (genetic disorder involving hyperkeratosis of palms and soles of the feet)
- Barrett disease

Clinical Presentation

Signs and Symptoms

- Dysphagia and weight loss most common
- Chest pain
- Odynophagia
- Hoarseness if laryngeal nerve compressed
- Superior vena cava syndrome
- Hematemesis

Histology

- Squamous cell found mostly in proximal and midesophagus
- Adenocarcinoma found in distal esophagus and gastroesophageal junction

- Three fourths of those diagnosed in the United States will have adenocarcinoma of the distal esophagus.

Workup

- History and physical
- Barium swallow under fluoroscopy
- Esophagoscopy with biopsy
- Ultrasound shows depth of invasion through organ layers
- CT of chest and abdomen
- CBC and liver function

Spread Patterns

- Rarely localized at the time of diagnosis
- High incidence of local and distant spread
 - Local → trachea, mediastinum, lung, pleura, aorta, heart
 - Distant → liver 53%, lung 35%, bone 11%, adrenals 8%, brain 4%
- Lymph node drainage (Figure 9-7) to cervical, supraclavicular, paraesophageal, celiac axis, and perigastric

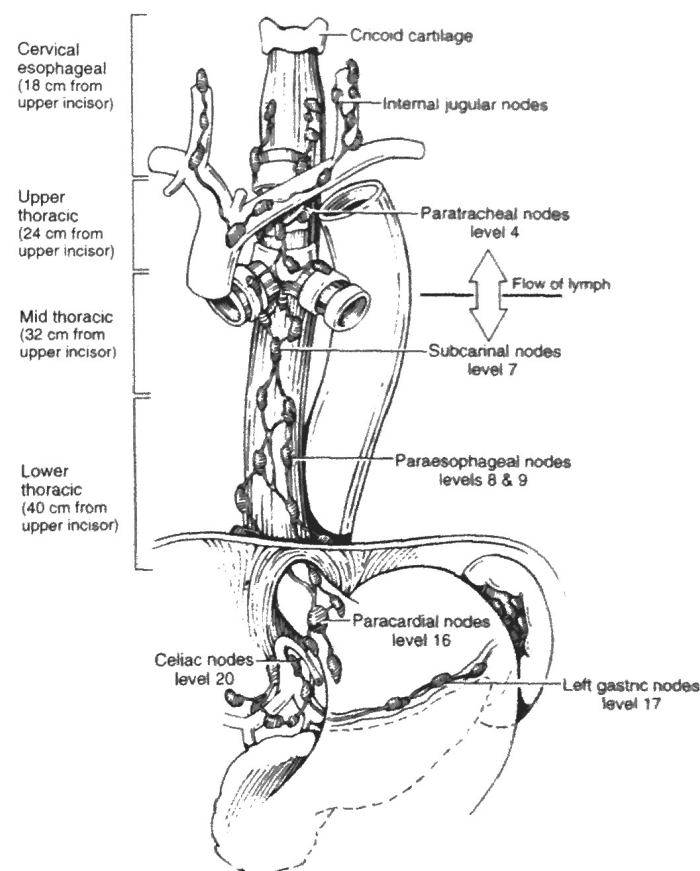


FIGURE 9-7 Esophagus with divisions and lymphatics.

TABLE 9-3 Divisions of the Esophagus

2 divisions	3 divisions	4 divisions
Cervical Thoracic	Upper 1/3 Middle 1/3 Lower 1/3	Cervical: C6-SSN Upper thoracic: SSN-carina Mid thoracic: carina-esophagogastric junction Lower thoracic: at the cardia

Staging

- AJCC staging system using TNM

Treatment

- Surgery is standard whenever possible with anastomosis (reconstruction).
- Complications from surgery include anastomosis leak, respiratory failure, motility disorders, and reflux.
- Local control and survival improves with radiation and concurrent chemotherapy.
- Upper esophagus lesions best managed with chemoradiation due to high mortality with surgery.
- Pre-op or post-op radiation dose to 45 to 50 Gy
- Radiation dose to 50 to 70 Gy depending on whether previous surgery or concurrent chemotherapy
- Radiation alone total dose 60 to 70 Gy
- Intraluminal HDR controversial
- Chemotherapy drugs may include 5-FU, cisplatin, bleomycin, methotrexate, mitomycin, ifosfamide, VP-16, and several others.
- Complications from chemotherapy depend on the combination of drugs.

Radiation Treatment Borders

- AP/PA treatment fields to include GTV, plus generous margin of about 5 cm above and below tumor plus regional lymph nodes to 40 Gy
- Remainder of dose given using obliques, opposed laterals, or AP and posterior obliques to spare spinal cord
- Field may be reduced after 45 Gy to decrease margin to 2.5 cm

Treatment Delivery

- After surgery, enteral nutrition may be necessary via feeding tubes.
- Nutritional support very important as nutritional status was likely marginal before the start of therapy. Offer the patient hyperalimentation products if still taking food orally.
- Take care not to dislodge feeding tubes when transferring/transporting patients.
- Patient may be positioned supine or prone; slight displacement of esophagus away from the thoracic spine in the prone position
- Arms should be raised to accommodate lateral or posterior oblique fields for spinal cord sparing.
- Prone position is accomplished with a prone pillow or Duncan mask with arms up around pillow or mask.

- Supine with both arms up on a wing board, alpha cradle, or vac lock system
- All treatment fields will need beam shaping to spare lung, heart, spinal cord
- Positioning aids such as prone pillow, Duncan mask, and wing board are billable as simple treatment devices; vac lock is complex.
- Daily delivery is complex due to field shaping and the use of modifiers such as wedges on oblique/lateral fields.
- May have special protocols, stay abreast of required documentation if participating in protocol
- Acute reaction to radiation is mainly dysphagia; onset at about 20 Gy
- Educate patient on starting a soft, bland diet for dysphagia; esophagitis cocktails
- Chemoradiation intensifies dysphagia and lowers onset dose
- Late complications from radiation therapy include perforation, hemorrhage from tumor dissolution, stricture, lung necrosis, and pneumonitis.

STOMACH

Sections of the stomach:

- Cardia
- Fundus
- Body
- Greater curvature
- Lesser curvature
- Pylorus

Etiology

- Diet (red meat, spices, fish, smoked foods, heavily salted)
- Coal mining
- Rubber working
- Asbestos exposure
- Gastric ulcers/polyps
- Alcohol/tobacco
- Poor nutrition
- Inadequate sanitation of consumables
- *Helicobacter pylori* infection (*H. pylori*)