Cancer of the esophagus

The main symptom of cancer of the esophagus is dysphagia leading to the performance of an endoscopic examination. This will visualize the lesion in the majority of cases and allow the biopsies to be taken for histological analysis.

In a few cases, endoscopy will need to be complemented by other investigations, and it is here that CT or MRI have a role to play.

Indications for CT and MRI

The positive diagnosis of the lesion is only rarely made by one or other of these examinations. The only noteworthy example is the presence of a submucosal lesion which may be missed endoscopically or when endoscopy is normal, and other investigations, namely x-ray upper GI under pressure, pH test, and esophageal manometry are negative. Rarely there may be the accidental detection of a lesion during an examination performed for another pathology, for example mediastinal, spinal, cardiopulmonary, hematological or infectious.

The value of these investigations resides primarily in the assessment of the local extent of an endoscopically insuperable lesion (wall involvement), and the presence of lymph node involvement and distant spread (thoracic and high subdiaphragmatic) which helps choose the appropriate treatment. In addition, these investigations can be used to determine the relationships of the tumor with certain critical organs (important prior to radiotherapy) and to monitor progress following treatment.

CT

CT has an important role in the treatment decision by its ability to appreciate the tumor volume (fig. 25.1), to look for a second localization already suggested or demonstrated by the endoscopy, to assess tracheobronchial (fig. 25.1), subdiaphragmatic and lymphatic (fig. 25.2) spread. CT can also:

- demonstrate any contraindications: involvement of the celiac (figs 25.2 & 25.3), supraclavicular nodes or massive mediastinal lymphadenopathy, tracheobronchial invasion, and invasion of unresectable structures;
- plan the surgical technique depending on the relationships of the tumor by evaluating spread preoperatively:
  - to the vital organs (pericardium, trachea, aorta),
  - to lymph nodes (mediastinal, supraclavicular and celiac) (figs 25.2 & 25.3),
  - to the upper esophagus which is often poorly assessed intra-operatively; however, the assessment of the middle and lower thirds of the esophagus is less contributory. According to the series in the literature, attempted curative surgery is possible in 20-45% of esophageal cancers;
- plan the position of treatment volumes and determine anatomical relationships of the critical organs (spinal cord, heart, and lungs; superior pole of the left
Fig. 25.1 a, b. Cancer of the esophagus on CT. a Cancer of the upper third of the esophagus on post-contrast CT: an extensive lesion (large arrows) associated with inseparable locoregional lymphadenopathy, an eccentric esophageal lumen and endoluminal spread into the right postero-lateral aspect of the trachea (small arrow); b cancer of the esophagus on post-contrast CT: concentric thickening predominantly anteriorly (small arrows) with stenosis of the esophageal lumen without any sign of peri-esophageal spread.

Fig. 25.2 a, b. Lymph node spread from esophageal cancer. a Celiac lymph node involvement affecting the nodes on the lesser curvature within the lesser omentum (small arrows). In addition, there is infiltration into the peritoneum appearing as irregular thickening of the intraperitoneal fat with peri-hepato-splenic ascites; b subcarinal lymphadenopathy (arrows) from esophageal cancer arising in the upper third (not visible on this section).