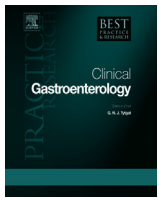
Best Practice & Research Clinical Gastroenterology 29 (2015) 179–191

Contents lists available at ScienceDirect

Best Practice & Research Clinical Gastroenterology



14

Preoperative evaluation of oesophageal adenocarcinoma

Lauren G. Khanna, MD, MS [a, *],
Frank G. Gress, MD, Professor of Medicine [b, 1]

[a] *Division of Digestive & Liver Diseases, Columbia University Medical Center, 630 West 168th Street, New York, NY 10032, USA*
[b] *Division of Digestive & Liver Diseases, Columbia University Medical Center, 161 Fort Washington Avenue, Herbert Irving Pavilion 13, New York, NY 10032, USA*

Keywords:
Oesophageal cancer
Staging
Adenocarcinoma
Endoscopic ultrasound
Miniprobe
Endoscopic mucosal resection
Computed tomography
Positron emission tomography

A B S T R A C T

The preoperative evaluation of oesophageal adenocarcinoma involves endoscopic ultrasound (EUS), computed tomography (CT), and positron emission tomography (PET). With routine Barrett's oesophagus surveillance, superficial cancers are often identified. EUS, CT and PET have a limited role in the staging of superficial tumours. Standard EUS has limited accuracy, but high frequency ultrasound miniprobes are valuable for assessing tumour stage in superficial tumours. However, the best method for determining depth of invasion, and thereby stage of disease, is endoscopic mucosal resection. In contrast, in advanced oesophageal cancers, a multi-modality approach is crucial. Accurate tumour staging is very important since the treatment of advanced cancers involves a combination of chemotherapy, radiation, and surgery. EUS is very useful for staging of the tumour and nodes. High frequency ultrasound miniprobes provide the ability to perform staging when the lesion is obstructing the oesophageal lumen. CT and PET provide valuable information regarding node and metastasis staging.

* Corresponding author. Tel.: +1 215 880 8763; fax: +1 212 305 1081.
E-mail addresses: lg2455@columbia.edu (L.G. Khanna), fgg2109@columbia.edu (F.G. Gress).
[1] Tel.: +1 646 317 0492; fax: +1 212 305 1081.

http://dx.doi.org/10.1016/j.bpg.2014.12.005
1521-6918/

Introduction

Each year there are over 450,000 new cases and over 400,000 deaths from oesophageal cancer worldwide, making it the eighth most common cancer and the sixth most common cause of cancer-related mortality [1]. It is estimated that in 2014 there will be 18,170 new diagnoses of oesophageal cancer and 15,450 related deaths in the United States [2]. Over 90 percent of oesophageal cancers are either adenocarcinoma or squamous cell carcinoma (SCC). Whereas SCC is the most common type of oesophageal cancer worldwide, the incidence of SCC has decreased in Western countries. However, the incidence of oesophageal adenocarcinoma has increased over the past few decades [3,4].

Some risk factors are associated with an increased risk of both SCC and adenocarcinoma, such as tobacco and medical radiation to the mediastinum. The risk of oesophageal cancer increases with both the duration of tobacco use and the quantity of cigarettes smoked. Other risk factors for oesophageal adenocarcinoma include gastro-oesophageal reflux disease, obesity, and Barrett's oesophagus. In Barrett's oesophagus, the estimated annual rate of neoplastic transformation is 0.5% per year [5–8].

At the time of presentation, almost half of patients have locally advanced or metastatic disease. Because of this rapid spread and late presentation, there is poor five year survival, 17.5% overall and just 3.8% for those with metastatic disease [2]. Disease stage is associated with survival in patients with localized tumours that are potentially resectable. This is especially true in patients with tumours that are limited to the mucosa or submucosa (T1), as they have a high rate of cure from endoscopic or surgical treatment [9]. In an attempt to improve outcomes for those patients with locally advanced disease, these patients are increasingly being recommended neoadjuvant chemoradiotherapy [10,11]. However, even with aggressive multimodality treatment, patients with tumours that have invaded through the oesophageal wall (T3), or who have positive nodes, have poor long-term survival. Additionally, surgery for oesophageal cancer has high morbidity and mortality.

Accurate preoperative determination of disease stage is therefore essential in order to establish the appropriate treatment options for each patient, including endoscopic resection, surgery, chemotherapy, radiation, or palliative care.

Oesophageal cancer diagnosis

Approximately three-quarters of patients with oesophageal adenocarcinoma have symptomatic dysphagia at the time of diagnosis. Some patients are found to have adenocarcinoma while undergoing surveillance of Barrett's oesophagus. At least 75% of patients diagnosed with oesophageal cancer have tumours of the distal oesophagus [12]. Oesophageal cancer is usually identified initially by barium swallow or endoscopy. Endoscopic biopsy then permits the determination of both histologic type of the tumour – adenocarcinoma, squamous cell, or rarer tumour types – and tumour grade – well differentiated, moderately differentiated, poorly differentiated, or undifferentiated.

Oesophageal cancer staging

Oesophageal cancer staging is important to establish prognosis and select an appropriate course of treatment. The staging of oesophageal cancer is determined by the tumour, node, metastasis, histological grade (TNMG) classification designated by the 7th edition of the American Joint Committee on Cancer (AJCC) published in 2010 (Table 1). Information is needed from multiple diagnostic modalities – including endoscopy with biopsy, endoscopic ultrasound (EUS), computed tomography (CT), and positron emission tomography (PET) – in order to determine the T, N, M, and G status.

Of note, the most recent TNM staging system published in 2010 significantly changed the importance of celiac node involvement. Prior to this classification, if a malignant celiac area lymph node was identified in a patient with a primary tumour located in the upper or middle thoracic oesophagus, the patient was staged to have M1a metastatic disease and thereby considered unresectable. With the new iteration of the staging system, any peri-oesophageal lymph node - from the cervical nodes to the celiac nodes – is now redefined as a regional lymph node. Therefore, patients with celiac lymph node involvement are now considered to have regional node disease instead of metastatic disease [13].