Endoscopic Management of Early Esophagogastric Cancer

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KEYWORDS

- Endoscopic mucosal resection (EMR) • Endoscopic submucosal dissection (ESD)
- Ablative therapies • Barrett esophagus • Esophageal cancer
- Early gastric cancer (EGC)

KEY POINTS

- Endoscopic management of early esophagogastric cancer is largely dependent on patient factors, the degree of tumour extent and level of medical expertise available.
- Endoscopic mucosal resection is a well-established therapeutic modality in the treatment of early esophageal cancer, early gastric cancer and Barrett esophagus with high-grade dysplasia.
- Ablative therapies are used independently or in combination with endoscopic mucosal resection in the treatment of Barrett esophagus, with or without dysplasia.
- Endoscopic submucosal dissection is superior to other endoscopic treatment modalities in achieving en-bloc or complete resection in tumours greater than 2 cm.
- Endoscopic submucosal dissection has similar outcomes to surgery with respect to the management of esophageal squamous cell carcinoma and early gastric cancer.

INTRODUCTION

Esophagogastric cancers remain some of the most difficult cancers to treat, accounting for approximately 16% of cancer-related mortality worldwide.[1] The emergence of advanced diagnostic techniques—including high-resolution, high-definition white light endoscopy; chromoendoscopy; and narrow band imaging—in addition to the

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implementation of screening programs in certain high-risk individuals has been largely responsible for the early detection of premalignant and malignant lesions.[2] Traditionally, the gold standard treatment of esophagogastric cancer has been surgery, even at the earliest stages of malignancy. These procedures, however, are associated with increased rates of treatment-related morbidity and mortality.[3] Over the past decade, minimally invasive endoscopic management has become a viable alternative to surgical treatment.[4] Ultimately, the mode of management is determined by local factors, including a patient's age, comorbidities, and personal preference as well as the level of available medical expertise.[2] This review discusses some of the major modes of endoscopic management pertaining to early esophageal and gastric cancer, including its techniques, indications and surrounding controversies.

EARLY ESOPHAGEAL CANCER

Esophageal cancer typically occurs in 2 histologic forms: squamous cell carcinoma and adenocarcinoma. Squamous cell carcinoma is the predominant form of esophageal cancer in Asia and much of the world. Its major risk factors include alcohol and tobacco abuse. Squamous cell carcinoma can develop anywhere in the esophagus but often occurs proximally. Adenocarcinoma is the leading type of esophageal cancer in most Western countries.[1] This is due to the high incidence of Barrett esophagus, a premalignant condition involving replacement of the squamous epithelium in the distal esophagus of any length with columnar epithelium with identifiable intestinal metaplasia on histopathologic assessment.[5]

Early esophageal cancers are classified as low-grade and high-grade intraepithelial neoplasia (dysplasia) and as adenocarcinoma contained within the mucosa. This definition is sometimes extended to include superficial submucosal involvement.[6] Endoscopic therapy has become an integral part of the multidisciplinary management of early esophageal cancer. These approaches include endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), radiofrequency ablation (RFA), photodynamic therapy (PDT), cryotherapy and argon plasma coagulation (APC).

Initial Assessment

The UK National Institute for Health and Care Excellence guidelines recommend that endoscopic procedures (1) need to be carefully considered in high-volume tertiary referral centers with access to a surgeon, (2) should be performed by appropriately trained staff, and (3) must be managed by a multidisciplinary team to optimize patient care. For the best outcomes, patients suitable for endoscopic therapy must be carefully selected to avoid inadequate treatment of advanced cancers. An important aspect of choosing an appropriate management strategy is the accurate assessment of disease extent. It is important to carefully assess the depth of invasion, tumor grade, and degree of lymphovascular invasion to determine the stage of esophageal cancer. Submucosal involvement is the most important prognostic determinant for early esophageal cancer because the presence of lymphatic vessels within the submucosa facilitates dissemination of malignant cells. Modalities, such as endoscopic ultrasound, and histopathologic examination through biopsy and EMR have been shown to accurately predict lymph node involvement.

Endoscopic Mucosal Resection In Early Esophageal Cancer

EMR was first described in 1973 as a novel treatment of colorectal polyps.[7] It has evolved into an effective diagnostic and treatment option for both early esophageal and gastric cancers. According to recently modified guidelines published by the