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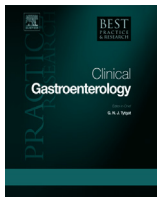

13

Endoscopic therapy for Barrett's oesophagus

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A B S T R A C T

Barrett's oesophagus (BO) is thought to progress through the development of dysplasia (low grade and high grade) to oesophageal adenocarcinoma, a lethal cancer with poor survival. The overall goal of endoscopic therapy of BO is to eliminate metaplastic and dysplastic epithelium, to prevent and/or reduce the risk of progression to OAC. Endoscopic therapy techniques can be divided into two broad complementary techniques: tissue acquiring (endoscopic mucosal resection and endoscopic submucosal dissection) and ablative. Endoscopic therapy has been established as safe and effective for the subjects with intra-mucosal cancer (IMC), high-grade dysplasia (HGD) and more recently in treating low-grade dysplasia (LGD). Challenges to endoscopic therapy are being recognized, such as incomplete response and recurrence. While eradication of intestinal metaplasia is the immediate goal of endoscopic therapy, surveillance must continue after complete elimination of intestinal metaplasia, to detect and treat recurrences.

Introduction

Barrett's oesophagus(BO) is the strongest risk factor for and precursor of most oesophageal adenocarcinomas (OAC). OAC is a lethal malignancy, with rapidly rising incidence, at a rate faster than that of most other solid malignancies [1]. The overall goal of endoscopic therapy of BO is to treat the

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metaplastic and/or dysplastic precursor tissue to prevent and/or reduce the risk of progression to OAC. Endoscopic therapy aims to replace BO mucosa with neo-squamous epithelium to reduce neoplastic risk. Durable elimination of dysplasia and metaplasia are the immediate goals of endoscopic therapy, with reduction in cancer risk being the long term goal. Over the past decade, endoscopic therapy for BO related dysplasia and neoplasia has been established as a safe and effective modality to reduce OAC incidence in BO [2–5]. Outcomes of endoscopic therapy appear to be comparable to those following surgery in the medium term [6,7]. In this article, we aim to outline data on the methods, indications, effectiveness of endoscopic therapy in BO. We will also summarize some of the potential challenges during and following endotherapy for BO.

Methods of endoscopic therapy

There are two broad categories of endoscopic therapy (1) Tissue acquiring techniques, which include endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) and (2) Ablative techniques, which include thermal techniques (radiofrequency ablation, multipolar electrocoagulation, argon plasma coagulation), cryotherapy and photochemical techniques (photodynamic therapy).

Tissue-acquiring techniques

These techniques provide tissue for accurate histologic diagnosis and staging. This is achieved by providing larger tissue specimens containing both mucosa and submucosa for histopathologic analysis (Fig. 1). Indeed, the diagnosis of dysplasia and neoplasia in EMR specimens by pathologists is substantially improved, compared to superficial biopsies [8,9]. This has been shown to result in the upstaging in the degree of dysplasia in a substantial proportion of subjects (20–30%) referred for endoscopic therapy of BO related dysplasia [10,11]. In addition, these techniques allow accurate staging of early neoplasia by demonstrating the precise depth of invasion (mucosa, lamina propria, muscularis mucosa or submucosa), allowing determination of margins of resection (lateral and deep) and histological variables such as lymphovascular invasion and the degree of differentiation, which have crucial implications on appropriate choice of treatment and outcomes [12].

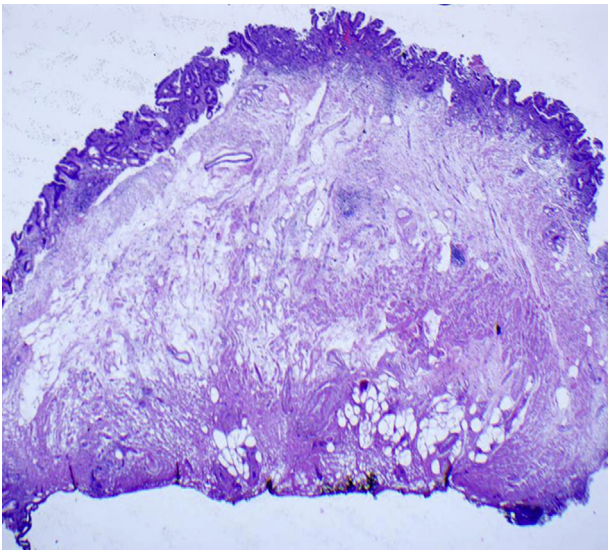

Fig. 1. Endoscopic mucosal resection specimen showing mucosa, lamina propria, muscularis mucosa and submucosa.