Ablative mucosectomy is the procedure of choice to prevent Barrett's cancer

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Barrett's oesophagus is important given the increased risk for oesophageal adenocarcinoma. However, the annual incidence rate for oesophageal adenocarcinoma is low (0.5–1%)¹ and the majority of patients with Barrett's oesophagus are undiagnosed in the population.² Therefore, in order to reduce the population morbidity and mortality of oesophageal cancer, any cancer preventive strategy needs to be cost effective and acceptable to a large number of patients at relatively low risk.

The current management guidelines for Barrett's oesophagus advocate symptomatic treatment with acid suppressants and regular surveillance.³ Surveillance is labourious and expensive and has not been shown to alter the natural history of the condition. Hence alternatives such as mucosal ablative therapy have been advocated on the basis of small case series that show initial promise (for example, see Morris and colleagues⁴).

Mucosal ablation using either photodynamic therapy or thermoablation techniques are becoming well established for the treatment of high grade dysplasia and intramucosal carcinoma in Barrett's oesophagus, particularly when the patient is not fit for an oesophagectomy.^{5–6} However, the role of these ablative therapies as a cancer preventive strategy in patients without high grade dysplasia is more controversial.

In a recent US survey, only 15% of respondents agreed that ablation lowers the risk of adenocarcinoma. However, despite this, 25% of respondents had used ablation at baseline, and this increased to 36% in the follow up survey.⁷

Partial or complete endoscopic reversal of Barrett's oesophagus can be achieved with ablation therapies. However, the rate of complete squamous re-epithelialisation varies from no change in the extent of Barrett's epithelium⁸ to almost complete obliteration of surface glandular mucosa.^{9–10}

The key clinical question remains whether all of the specialised intestinal metaplasia can be eradicated from the oesophagus so that the cancer risk can be eliminated without the requirement for continued surveillance. The evidence suggests that even if complete squamous re-epithelialisation occurs, persistent buried glands remain a problem. This pertains to patients with and without dysplasia undergoing ablation with a variety of techniques.^{6–10–11} In a detailed histopathological study of treated Barrett's oesophagus, residual glandular mucosa was a common finding indicating the need for continued surveillance with sufficiently deep biopsies.¹² The malignant potential of buried glands is highlighted by a recent case report of a 68 year old patient who presented originally without dyspla-

sia. This patient developed an intramucosal adenocarcinoma 18 months after apparent squamous re-epithelialisation had been achieved using argon plasma coagulation and high dose omeprazole.¹³ The continued risk of carcinoma following ablative therapy is not surprising given the persistence of genetic mutations even after histological improvement in dysplasia.¹⁴

As well as the requirement for continued surveillance, the evidence also suggests that acid suppression is probably required in order to maintain the neosquamous epithelium.¹⁵ Although one study found no significant relationship between acid exposure and success of ablation therapy, the authors still concluded that "it is reasonable to assume that Barrett's is more likely to recur if adequate acid suppression is not achieved".¹⁶ In addition, there is some evidence to suggest that after complete reversal of Barrett's mucosa, patients are as sensitive to acid as symptomatic patients with erosive oesophagitis.¹⁷

Complication rates (dilatation, perforation and haemorrhage, and chest pain) vary significantly between different ablative techniques. Even if the complication rate is low, for example one stricture and one admission for chest pain in a multicentre study of 58 patients having thermal ablative therapy, the treatment itself requires considerable commitment on the part of the patient. Patients require high dose acid suppressants and up to six treatment sessions followed by regular surveillance.¹⁰ The treatment cost and quality of life related to any decrease in cancer risk needs to be fully evaluated for these patients, especially given their low incidence of adenocarcinoma in the first place.

In the future, chemoprevention strategies using powerful acid suppressants,¹⁸ cyclooxygenase inhibitors,^{19–20} or newer inhibitors of cell signalling pathways may be more cost effective and patient friendly cancer prevention strategies. Ablative therapies can then be reserved for the subset of patients with the highest cancer risk, as determined by biological or genetic markers.

At the current time there is little evidence to justify the treatment of patients with non-dysplastic Barrett's outside the context of a clinical trial. In a technology driven world we need a greater understanding of the cellular determinants of the oesophageal phenotype in order to develop a more scientific approach to cancer prevention in these patients.

Conflict of interest: RC Fitzgerald gives occasional lectures for the manufacturers of proton pump inhibitors. RC Fitzgerald also holds an honorary clinical appointment at the UK National Medical Laser centre at UCL and is involved in the referral and treatment of patients with high grade dysplasia for photodynamic therapy.

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