Barrett's oesophagus
Does it matter?

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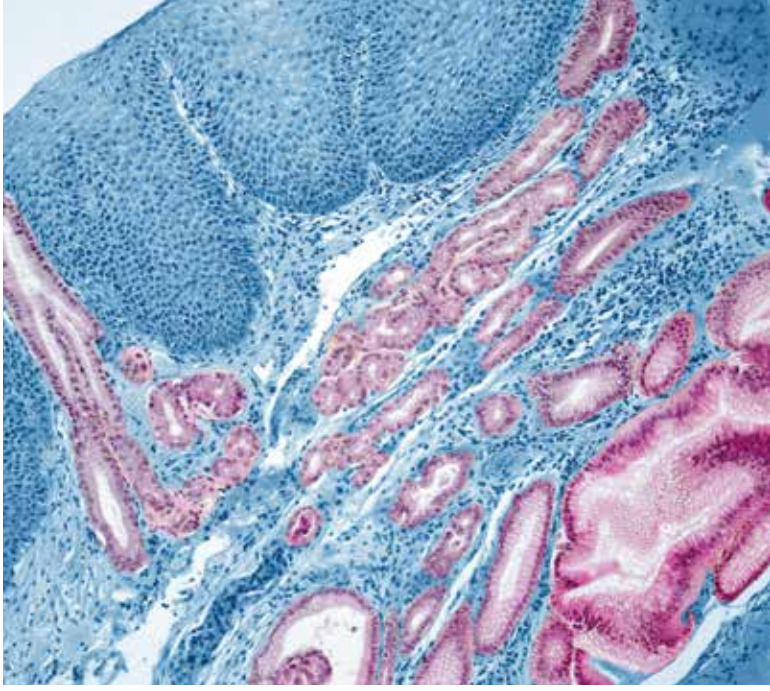

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Most patients with heartburn do not have Barrett's oesophagus and many of those who do will never develop cancer. Risk factors must be considered when deciding who and how often to screen for Barrett's oesophagus.

Remember

- Barrett's oesophagus is a premalignant condition characterised by the replacement of normal stratified squamous epithelium of the oesophagus with metaplastic columnar epithelium.
- Although it predisposes patients to oesophageal adenocarcinoma, in whom the frequency has increased sevenfold in the past four decades, most patients with Barrett's oesophagus will never develop cancer.
- The prevalence of Barrett's oesophagus varies by geography and ethnicity. Although there are no Australian-based population studies, in other western countries the prevalence rate is thought to be less than 5%.[1]
- Risk factors for the development of Barrett's oesophagus include gastro-oesophageal reflux disease (GORD), advanced age, male sex, caucasian ethnicity, central adiposity and tobacco use.
- Diagnosis of Barrett's oesophagus requires accurate endoscopic recognition of salmon pink-coloured mucosa extending above the gastro-oesophageal junction into the distal tubular oesophagus (Figure 1), and confirmation of intestinal metaplasia on histology (columnar epithelium with goblet cells).
- Histologically, a diagnosis of dysplasia implies neoplastic transformation of epithelial cells, and warrants a shorter surveillance interval. Dysplasia is graded as indefinite, low grade or high grade, to stratify the risk of the patient developing adenocarcinoma.
- Both patient factors (i.e. age, sex and smoking status) and endoscopic factors (i.e. length of Barrett's segment) are associated with increased risk of progression to neoplasia.
- The annual incidence of progression from nondysplastic Barrett's oesophagus to high-grade dysplasia or oesophageal cancer is low, with recent European-based population studies reporting incidence rates of 1.2 to 3.0 per 1000 patient years.[2]
- Therefore, although the risk of oesophageal cancer in patients with Barrett's oesophagus is increased by 30-fold above the general population, the absolute risk remains low.

Assessment

- Screening the general population of patients with heartburn for Barrett's oesophagus is not recommended. Most patients with heartburn do not have Barrett's oesophagus, and 40% of patients with oesophageal carcinoma have no history of heartburn. Less than 10% of patients with oesophageal

MedicineToday 2015; 16(10): 49-51

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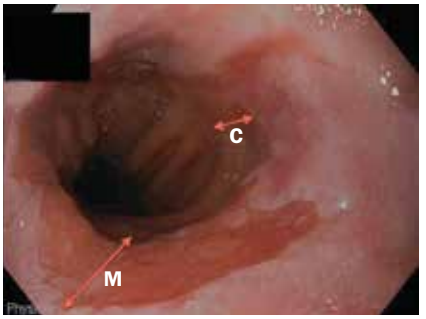

Figure 1. Barrett's oesophagus demonstrating most proximal circumferential (C) and maximal (M) extent.

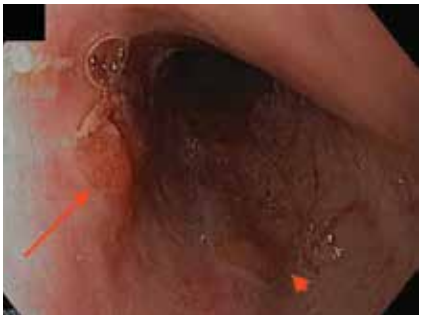

Figure 2. Barrett's oesophagus with a nodular (arrow) and depressed (arrowhead) component at the proximal margin. Histology confirmed the presence of early adenocarcinoma.

carcinoma have a previous diagnosis of Barrett's oesophagus.

- Currently, a screening gastroscopy is recommended for patients with multiple risk factors for Barrett's oesophagus. A one-off screening of 50-year-old men with GORD has been suggested as a potentially cost-effective strategy.
- The Prague C & M criteria is a validated and widely adopted system to standardise endoscopic description and record the proximal circumferential (C) and maximal (M) extent of metaplasia in centimetres (Figure 1).[3]
- Areas of intestinal metaplasia and dysplasia can be patchy and detection of these areas is prone to sampling error. A standardised biopsy protocol of four quadrants every 2 cm is currently the accepted practice, with further targeted biopsies at areas that appear irregular (Figure 2).
- Chromoendoscopy, endoscopic digital enhancements and newer high-magnification techniques such as confocal laser endomicroscopy can complement the assessment of Barrett's oesophagus by providing more accurate identification of subtle mucosal abnormalities and targeted biopsy. However, these techniques have not been shown to be superior to standard biopsy protocol.

TABLE. RECOMMENDED SURVEILLANCE INTERVALS FOR BARRETT'S OESOPHAGUS[4]

Dysplasia	Surveillance interval
No dysplasia, short (<3 cm) segment	3 to 5 years
No dysplasia, long (>3 cm) segment	2 to 3 years
Low-grade dysplasia	6 months, with 1 cm biopsy intervals
Indefinite for dysplasia	6 months, with 1 cm biopsy intervals

Management

- A proton pump inhibitor (PPI) once daily is recommended for the management of reflux symptoms and to heal reflux oesophagitis. Evidence is currently lacking to support the use of PPIs for regression or prevention of progression to carcinoma.
- Observational studies have suggested that other medications such as cyclo-oxygenase (COX) inhibitors and statins may lower rates of progression to carcinoma, but there is currently not enough evidence to support their routine use.
- Evidence of prior *Helicobacter pylori* infection has been inversely correlated to the risk of developing Barrett's oesophagus. Although symptoms of reflux and dyspepsia can overlap, *H. pylori* testing and eradication should be reserved for the management of patients with dyspepsia and not reflux. Meta-analyses have found both positive and negative associations of *H. pylori* eradication with symptoms of GORD and erosive reflux disease. Currently, there is insufficient evidence to recommend against *H. pylori* eradication if otherwise appropriate for the individual.
- Australian clinical practice guidelines have been published recently and include recommended endoscopic surveillance intervals (Table).[4]
- Although not all cases of high-grade dysplasia progress to invasive malignancy, due to recent technical advances and the relative low morbidity associated with endoscopic therapy, endoscopic intervention rather than surveillance is now recommended for patients with high-grade dysplasia.
- Endoscopic treatment options for patients with high-grade dysplasia include resection (endoscopic mucosal resection [EMR] or endoscopic submucosal dissection [ESD]) and ablation techniques.
- EMR has the benefit of allowing histological staging of the resected specimen. It is the recommended technique for the treatment of patients with visible nodules or lesions, with a high success rate for complete excision. Complications include bleeding, perforation and stricture formation.
- ESD allows en bloc resection of pathology, but requires specialised expertise and is associated with a longer procedure time. Currently, EMR is the mainstay resection

technique, with ESD reserved for larger lesions or those lesions that are suspected of submucosal invasion.
- Endoscopic ablation techniques include radiofrequency ablation, photodynamic therapy and cryotherapy. Currently in Australia, radiofrequency ablation is the first choice of ablative therapy, and most suited for treatment of flat, dysplastic tissue. It also has a high success rate for the eradication of dysplasia (more than 95% at three years). The main complications include odynophagia and stricture formation.
- Due to the low risk of lymphovascular invasion, endoscopic resection techniques are effective and safe for the treatment of patients with early oesophageal adenocarcinoma (T1a). In patients where oesophagectomy is contraindicated, selected patients may benefit from endoscopic resection for T1b lesions.

Conclusions

- The overall prevalence of Barrett's oesophagus is low and screening should therefore be reserved for patients with several risk factors, in particular advanced age, male sex and a history of GORD.
- Although Barrett's oesophagus is a premalignant condition, the risk of progression to malignancy is low, and surveillance intervals should be guided by the presence and degree of dysplasia.
- There is currently insufficient evidence to support routine medical or surgical intervention for regression or prevention of progression of disease.
- Therapeutic management is reserved for the eradication of high-grade dysplasia and adenocarcinoma. MT

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Further reading

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COMPETING INTERESTS: None.