

A Natural History of Barrett's Oesophagus

Given the Evans genes and the current investigations around the clan, it seemed worthwhile summarising the sequence of events so that we can all attempt to stem the tide! Particularly as there has been much new research recently and **many very good websites, eg the NIH site:** <http://digestive.niddk.nih.gov/ddiseases/pubs/barretts/>, which takes through all the stages and treatments.

1. GORD (Gastro-Oesophageal Reflex Disease; GERD in USA)

"Heartburn" is the symptom, worse on lying down and exacerbated by spicy foods; not to be ignored as I did! **It is very common**, probably affecting 10-20% of the population. It needs to be differentiated from other possible causes (eg heart disease - angina gets worse on exercise; heart attack in my case). Caused by a lax sphincter at the junction with the stomach or a hiatus hernia - gap in the diaphragm, causing acid reflux, allowing the stomach acid to irritate the oesophagus. Eased by antacids, but best treated by the relatively recent specific remedies designed to reduce the acidity or quantity of the gastric juice, namely H2 blockers, eg cimetidine (Tagamet) and ranitidine (Zantac); and the proton pump inhibitors, eg rabeprazole (Pariet). **These can remove symptoms completely, but obviously do not stop the reflux.** Surgical techniques are available and endoscopic (key-hole) methods are being developed to repair the sphincter/diaphragm and stop the reflux.

Interestingly, recent research links GORD with **morning cough and hoarseness**, presumably from the reflux during the night.

Reassuringly, there is **no greater than normal risk of death** if you have heartburn! (<http://www.sciencedaily.com/releases/2008/01/080103182902.htm>)

2. Barrett's Oesophagus

Develops in about 10% of cases of GORD, **particularly if untreated**, and affects about 1% of the population at large. Specific pathological changes occur in the lining of the lower oesophagus so that the lining looks like stomach/intestine. **Can only be diagnosed by endoscopy and biopsy:** takes about 15 min and can be done under local throat spray (if you need to drive afterwards) or sedation (if you have someone to take you home). **Barretts gives you a 30-125 % greater risk** of developing oesophageal cancer.

3. Dysplasia

In a small number of cases of Barretts, **precancerous changes** can occur in the lining cells and they can become dysplastic, divided into three grades on biopsy: low, medium and high. This means that anyone with **Barretts is now kept under surveillance** with say annual endoscopy. If dysplasia develops then the frequency of surveillance may be increased to 4 times a year even.

4. Cancer

There is a **significant risk of having oesophageal cancer (adenocarcinoma) with high-grade dysplasia.**

This used to be treated by oesophagectomy - surgical removal of the whole oesophagus - but it has substantial mortality (6%) and morbidity. In cases where the lesion is restricted to the lowest part of the oesophagus, a newer procedure is now recommended - see (10) below. Alternatively, and experimentally, there are available new techniques used extensively in Japan, but making their way into the UK: endoscopic mucosal resection and radio frequency ablation.

5. Endoscopic Mucosal Resection (EMR)

This is a **day case procedure under sedation**, where a special endoscope is used to identify the "hot spots" of dysplasia, lasso them and remove them for histological examination. It leaves a raw lining and the need for a few day's of soft/liquid "baby foods". See the Mayo websites:

https://www.mayoclinic.org/tests-procedures/endoscopic-mucosal-resection/multimedia/endoscopic-mucosal-resection/vid-20084651?_ga=2.210289936.48488431.1512986443-215789344.1512986443 especially the video!

In principle, this relatively "trivial" procedure gives the same protection from cancer as the much more serious oesophagectomy.

6. Radio-Frequency Ablation (HALO /RFA)

This is like EMR but more extensive and is designed to **remove the Barretts lining** as far as possible. Again, a **day case procedure under sedation**. A special endoscope passes a small balloon, with electrodes around its periphery, down the oesophagus. The balloon is inflated to give a snug fit, then is slowly pulled out while radio-frequency (rf) current is passed to cauterise away bloodlessly the Barretts lining. Again, it leaves a raw lining and the need for a week of soft/liquid "baby foods". Its results look very promising (see:- <http://content.nejm.org/cgi/content/abstract/360/22/2277> and http://www.eurekalert.org/pub_releases/2009-06/nyph-nsf060209.php.)

7. Both EMR and RFA are followed by endoscopic surveillance as before. It is currently part of a multicentre treatment trial organized between Addenbrookes and UCL.

8. Both EMR and RFA are available at Addenbrookes.

9. Addenbrookes produces good Patient Information Sheets:-

https://www.cuh.nhs.uk/sites/default/files/publications/PIN2154_Gastroscopy_and_EMR_v4.pdf

https://www.cuh.nhs.uk/sites/default/files/publications/PIN2155_Gastroscopy_and_RFA_v4.pdf

10. If EMR and RFA are not possible (eg because of spread or repeated recurrence), then a more limited form of oesophagectomy can be done if the lesion is restricted to the lower oesophagus: Merendino Procedure.

This can be done through an abdominal approach only, thereby reducing the mortality and morbidity associated with opening chest and abdomen. The lowest section of the oesophagus is removed and replaced with a small piece of intestine (complete with its nerve and blood supply) to act as a substitute oesophagus, thus restoring function.

11. In my case, with a strong family history of lethal Ca oesophagus (Father and younger sister), I have been under surveillance for 15 years before high-grade dysplasia appeared in the biopsies of my severe Barretts Oesophagus about 3 years ago. Happily, I went on the experimental programme of (5) and (6) above at Addenbrookes with Dr Massimiliano di Petro in charge (www.cuh.org.uk/addenbrookes/..../massimiliano_di_petro.html). After 3 EMR procedures and 3 RFAs over a period of 3 years, I now have no dysplasia or Barretts and am now back on annual endoscopic surveillance.

Ted Evans 19/12/12; revised 2017