Peptic ulcer

Peptic ulcers are so named because, in addition to acid being a requirement for their occurrence, pepsin is probably also required. Certainly, it is clear that patients with duodenal ulcers tend to have a higher than average pepsin level within the gastric juice. However, this is of little practical importance as in the absence of acid, for instance in type A gastritis with atrophy, peptic ulcers do not occur. All peptic ulcers can be healed by using proton pump inhibitors, such as omeprazole, that can render a patient virtually achlorhydric.

Common sites for peptic ulcers are the first part of the duodenum and the lesser curve of the stomach, but they also occur on the stoma following gastric surgery, the oesophagus and even in a Meckel's diverticulum, which contains ectopic gastric epithelium. In general, the ulcer occurs at a junction between different types of epithelia, the ulcer occurring in the epithelium least resistant to acid attack.

In the past much distinction has been made between acute and chronic peptic ulcers, but this difference can sometimes be difficult to determine clinically. It is probably best to consider that there is a spectrum of disease from the superficial gastric and duodenal ulceration, frequently seen at endoscopy, to deep chronic penetrating ulcers.

Duodenal ulceration

Pathology

Most occur in the first part of the duodenum. A chronic ulcer penetrates the mucosa and into the muscle coat leading to fibrosis. The fibrosis causes deformities such as pyloric stenosis. When an ulcer heals a scar can be observed in the mucosa. Sometimes there may be more than one duodenal ulcer. The situation in which there is both a posterior and an anterior duodenal ulcer is referred to as 'kissing ulcers'. Anteriorly placed ulcers tend to perforate and, by contrast, posterior duodenal ulcers tend to bleed, sometimes by eroding a large vessel such as a gastroduodenal artery. Duodenal ulcers are always benign.

Gastric ulcers

Malignancy in gastric ulcers

Chronic duodenal ulcers are not associated with malignancy and, by contrast, gastric ulcers are. It is fundamental that any gastric ulcer should be regarded as being malignant no matter how classical the features of a benign gastric ulcer. Multiple biopsies should always be taken, perhaps as many as 10 well-targeted biopsies, before an ulcer can be accepted as being benign. Even

then it is important that further biopsies are taken whilst the ulcer is healing and when healed. Modern antisecretory agents can frequently heal the ulceration associated with gastric cancer but clearly are ineffective in treating the malignancy itself. At operation even experienced surgeons may have difficulty distinguishing between the gastric cancer and a benign ulcer.

Types of benign gastric ulcers

Benign gastric ulcers can be classified into 5 groups according to their location and acid secretory status.

Type 1

It occurs along the lesser curvature, these ulcers not associated with gastric acid hypersecretion and many patients have low acid output. It is the most common benign gastric ulcer occurring in ≅ 1/2 of the patients with gastric ulcer.

The elective procedure of choice is distal gastrectomy with inclusion of the ulcer. Reconstruction with gastro duodenal anastomosis (Billroth I) is preferred, but gastro jejunostomy (Billroth II) can be performed if the situation warrants it.

Vagotomy is not routinely performed as these ulcers not associated with gastric acid hypersecretion. The exception to this: **1)** Billroth II which is ulcerogenic procedure. **2)** Absolute need to continue chronic use of NSAIDs.

Type II

It is a combination of two ulcers, one ulcer in the body of the stomach & another one in the duodenum. The ulcer in the body often occurs on the lesser curvature as in type I. These patients are often acid hyper secretor.

Type III

It is a prepyloric ulcer occurring within 3 cm of the pylorus.

Like duodenal ulcer, they are often associated with acid hypersecretion.

The elective procedure of choice for type II& III gastric ulcer is truncal vagotomy and antrectomy with inclusion of the ulcer.

Type IV

It occur high on the lesser curvature at or near the gastroesophageal junction. Similar to type I gastric ulcer, these ulcers are not associated with acid hypersecretion.

Elective resection of the ulcer can be challenging.

If the ulcer is more than 2cm distal to the gastroesophageal junction, distal gastrectomy can be performed with a vertical extension along the lesser curvature to include the ulcer.

If the ulcer is closer to the gastroesophageal junction, a near total gastrectomy may be considered with Roux en y jejunal anastomosis. This procedure is associated with significant morbidity and mortality.

If too risky to resect the ulcer, then an alternative is truncal vagotomy and antrectomy leaving the ulcer intact and biopsying it. It is important to adequately exclude malignancy.

Type V

It is an ulcer in any location of the stomach as a result of chronic use of NSAIDs including aspirin. These patients are often initially present with bleeding or perforation.

Treatment of type V gastric ulcer involves discontinuation of the NSAIDs.

Of course, initially (and before surgery for gastric ulcer) medical treatment is started. It is important to eradicate H. pylori infection & to suppress acid hyper section. Antisecretory treatment is usually given for 12 weeks with an additional twelve weeks if not completely successful at healing the gastric ulcer, but malignancy has to be ruled out.

Indications of elective operations for benign gastric ulcer include:

1) Failure of gastric ulcer to heal after adequate medical treatment.
2) Recurrence of gastric ulcer after adequate initial treatment.
3) Inability to exclude malignancy of the ulcer.
4) Any ulcer larger than 3 cm should be suspected of harboring malignancy & should undergo early operative excision.

Clinical features of peptic ulcers

Whilst many textbooks try and create differences in the clinical feature of gastric and duodenal ulceration, detailed analysis has shown that they cannot be differentiated on the basis of symptoms.

Pain

The pain is epigastric, often described as gnawing and may radiate to the back. Eating may sometimes relieve the discomfort. The pain is normally intermittent rather than intractable.

Periodicity

One of the classical features of untreated peptic ulceration is periodicity. Symptoms may disappear for weeks or months to return again. This periodicity may be related to the spontaneous healing of the ulcer.

Vomiting

Whilst this occurs, it is not a notable feature unless the stenosis has occurred.

Alteration in weight

Weight loss or, sometimes, weight gain may occur. Patients with gastric ulceration are often underweight but this may precede the occurrence of the ulcer.

Bleeding

All peptic ulcers may bleed. The bleeding may be chronic and presentation with anaemia is not uncommon.

Clinical examination

Examination of the patient may reveal epigastric tenderness but except in extreme cases (for instance gastric outlet obstruction) there is unlikely to be much else to find.

Investigation of the patient with suspected peptic ulcer

In the investigation of such patients, imaging, preferably with flexible gastroduodenoscopy, is required.

Gastroduodenoscopy

This is the most sensitive investigation in the management of suspected peptic ulceration and in the hands of a well-trained operator is highly sensitive and specific. In the stomach any abnormal lesion should be multiply biopsied, and in the case of a suspected benign gastric ulcer numerous biopsies must be taken in order to exclude, as far as possible, the presence of a malignancy. Commonly biopsies of the antrum will be taken to see whether there is histological evidence of gastritis and a CLO test performed to determine the presence of H. pylori.

If a stoma is present, for instance after gastroenterostomy or Billroth II gastrectomy, it is important to enter both afferent and efferent loops. Almost all stomal ulcers will be very close to the junction between the jejunal and gastric mucosa. Attention should be given to the pylorus to note whether there is any prepyloric or pyloric channel ulceration and also whether it is deformed, which is often the case with chronic duodenal ulceration. In the duodenum care must be taken to view all of the first part. It is not infrequent for an ulcer to be just beyond the pylorus and easily overlooked.

Treatment of peptic ulceration

Medical treatment

The vast majority of uncomplicated peptic ulcers is treated medically .It is reasonable that a doctor managing a patient with an uncomplicated peptic ulcer should suggest modifications to the patient's lifestyle, particularly the cessation of cigarette smoking. This advice is rarely followed and pharmacological measures form the mainstay of treatment.

Medications given are:

1. H2-receptor antagonists
2. Proton pump inhibitors
3. Eradication therapy

Eradication therapy now is routinely given for patient having peptic ulcer disease who has H. Pylori as the principal cause (essentially the patient not taking NSAIDs).

Complete eradication of the organism will cure the disease & re infection as an adult is uncommon.

Eradication therapy has the following advantages:

1) Extremely economic as compared with the prolonged use of antisecretary drugs & in comparism to surgery.
2) It is safer than surgical treatment.

Some patients with peptic ulcer are not candidates for eradication therapy & those are:

1) ***Patients with non steroidal anti inflammatory drugs*** related ulcer.
The treatment in such patients is to avoid these drugs & if can't be avoided, they should combined with potent antisecretary agents.

2) ***Patients with stomal ulcer***. Those patients treated by antisecretory agents.
3) ***Patients with Zollinger Ellison syndrome.*** Those treated with long term omeprazole. Unless the tumour can be managed adequately with surgery.

Treatment regimens for H. pylori (Treatment for 10-14 days is recommended).

1) Bismuth triple therapy
Bismuth 2 tablets / 6hrs + Flagyl tab 250mg 8 hourly + Tetracycline 500mg 6 hourly.

2) Proton pump inhibitor triple Rx

Proton pump inhibitor 12 hourly + amoxicillin 1000 mg 12 hourly + clarithromycine 500mg 12 hourly.

Or

Proton pumps inhibitor 12 hourly + amoxicillin 1000 mg 12 hourly + Flagyl 500 mg 12 hourly.

3) quadriple therapy

Proton pump inhibitor twice daily + Bismuth 2 tablets 4 times a day + Flagyl tab. 250mg 8 hourly + tetracycline tab. 500mg 6 hourly.

- The patient should stop smoking, alcohol & NSAIDs including Aspirin.
- If initial H. pylori infection is documented, it should be treated by one of the above regimens.
- If the initial test for H.Pylori is negative, the ulcerated patient should be treated with H2 receptor antagonist or proton pump inhibitors.
- Sucralfate or mesoprostol may be also effective.

If ulcer symptoms persist, an empirical trail of anti H. pylori treatment is reasonable as false negative tests for H. pylori are common.

- Generally antisecretory therapy can be stopped after 3 months if the ulcerogenic stimulus (usually H. pylori, NSAIDs or aspirin) has been removal.

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