CASE TWO

Short case number: 3_21_2
Category: Gastrointestinal & Hepatobiliary
Discipline: Surgery
Setting: Emergency Department
Topic: Gastro-oesophageal disorders_Gastric ulcers and Gastric cancer

Case:

Mario Chippolini, aged 44 years, is a senior executive and public relations officer in a large multinational. He rarely presents for medical care. He presents complaining of recurrent episodes of severe epigastric pain and finally admits that last night he vomited a small amount of fresh blood. He has been taking over the counter Zantac for several months and it helps slightly and for a week has been using his father's Somac tablets as he is sure it is his stomach. His father was diagnosed with a gastric ulcer several years ago.

Questions

1. Discuss the pathophysiology of peptic ulcer disease.
2. What further history and examination would you undertake?
3. Outline the medical and surgical management of PUD and then state what you would do in this case given the history above?
4. List similarities and differences in the presentation of PUD and adenocarcinoma of the stomach.
5. Outline the principles of management of adenocarcinoma of the stomach.

Suggested reading:

- Kumar P, Clark ML, editors. Kumar & Clark's Clinical Medicine. 8th edition. Edinburgh: Saunders Elsevier; 2012.
- Colledge NR, Walker BR, Ralston SH, Penman ID, editors. Davidson's Principles and Practice of Medicine. 22nd edition. Edinburgh: Churchill Livingstone; 2014.

1. **Discuss pathophysiology of peptic ulcer disease**

Aetiology

Peptic ulceration was initially attributed to acid-pepsin digestion of the mucosa because patients with duodenal ulcers have increased acid secretion, so exposing the first part of the duodenum to greater acid-pepsin digestion. Also healing occurs with reduction of acid. Gastric ulceration was looked upon as an outcome of gastritis of unknown cause with secondary acid-peptic digestion. Later, a role for some medications (notably salicylates and NSAIDS) was postulated because of their clinical association with ulceration and their known damaging effects on the mucosa with reduced defence mechanisms of the mucosa. These agents are commonly prescribed in the elderly and represent a significant hazard with complications, such as perforation and haemorrhage. Then a strong association between *Helicobacter pylori* and both gastric and duodenal ulcers was discovered. Most ulcers are cured simply by eradicating H.pylori. Curiously, none of these well-documented mechanisms explains the fact that most ulcers are small, sharply localised and for each particular patient generally recur in the same place. Furthermore, only a minority of patients with H.pylori develop peptic ulceration.

Causes ulcers: - H.pylori - Aspirin - Crohns
- NSAID - Smoking - Stress.
- Alcohol - Steroids - Hypersecretion of acid.

Other antecedents of peptic ulcer which can have a bearing on management are shown in see Table 18.1. in Kumar & Clarke

2. **What further history and examination would you undertake?**

PHx [Surgeries? Spicy foods? • CORD – fatty foods?
SHx [• Booze & fags • Stress
• Meds - NSAIDS
HxPC - Pain during eating or relieved when starting eating → More likely an ulcer. Cancer

- Further assessment of the features of the pain
- Past medical history
- Risk factors for PUD
- inquire about the medications above, as well as self-medication
- Assess haemodynamic status.
- Abdominal examination – signs of perforation.

3. **Outline the medical and surgical management of PUD**

- pretty standard >> pt <50, no risk factors, treat symptomatically
- this implies clinical dx!
- Test for H.pylori. Treat with eradication therapy if positive. ① Amoxycillin ② Clarithromycin ③ Omeprazole
- could do h.p serology/breath test treat if positive
- if >50, risk factors, recurrent >> gastroscopy, including biopsy (?h.p)
- treat accordingly
- may find other issues e.g. barrett's; reflux oesophagitis, hiatus hernia
- then state what you would do in this case given the history above?
  haematemesis usually seen in hospital >> assessed, resuscitated, gastroscopy

Ix: B
1 - Gastroscopy (PUD graded based on Forrest criteria)
M
B - FBE, Iron Studies.
O - urea breath test.

4. **List similarities and differences in the presentation of PUD and adenocarcinoma of the stomach**

Clinical features of PUD

Symptoms

Both gastric and duodenal ulcer cause epigastric pain, and it is often difficult to distinguish one from the other. However, gastric ulcer pain often occurs while eating or about half an hour later while duodenal ulcer pain typically occurs two hours after a meal and often wakes

patients from sleep about 2am. Typically ulcer pain responds temporarily to antacids within several minutes. Pain felt in or going through to the back can mean that the ulcer has penetrated into retroperitoneal structures such as the pancreas. Patients very commonly complain of indigestion which is epigastric discomfort related to meals and for which they take antacids with relief. However, indigestion is a very common non-specific symptom. Heartburn from acid-peptic reflux is common. Symptomatic episodes with temporary remissions which can last weeks or months are more characteristic of duodenal than gastric ulcer.

Vomiting is seen in gastric outflow obstruction (usually from a duodenal ulcer, although a pyloric channel gastric ulcer can also be the cause). Obstruction is the consequence of inflammatory oedema and/or fibrosis. In the first it subsides with effective anti-ulcer treatment; in the second it persists. The vomitus is usually free from bile and may contain partially digested food, recognisable as a meal taken a day or more before. Patients with gastric outflow obstruction often lose weight, but unless the obstruction is complete and vomiting profuse, they do not become dehydrated because absorption of water and electrolytes still takes place across the gastric wall.

Signs
Usually, there are none. In uncomplicated peptic ulcer, epigastric tenderness is the only feature, and even this is non-specific since a mild degree of tenderness can be present in normal people. Obstruction is associated with a succussion splash-a splashing sound heard upon gently rocking the patient's abdomen to and fro. When obstruction is present, there may be signs of weight loss and of extracellular fluid volume deficiency with a lax dry skin and empty collapsed veins. Features of hypokalaemia such as drowsiness are the consequence of:

- loss of hydrogen ion from the stomach
- compensatory renal excretion first of sodium ions but later, and more importantly, of potassium ions.

Symptoms and signs of carcinoma of the stomach

Symptoms

Are usually present for less than a year, but are typically slowly progressive:

- Weight loss (72%)
- Pain (51%)
- Nausea/vomiting (40%)
- Anorexia (35%)
- Abdominal discomfort (22%)
- Dysphagia (22%)
- Melaena (20%)
- Upper gastrointestinal bleeding (11%)

Signs

- Weight loss (26%)
- Abdominal mass (17%)
- Abdominal tenderness (15%)
- Hepatomegaly (13%)
- Cervical lymphadenopathy (4%)
- Ascites (3%)

5. Outline the principles of management of adenocarcinoma of the stomach

Investigation
In a patient suspected of having a carcinoma of the stomach, the following investigations are appropriate.

Oesophagogastroscopy
This is the most sensitive procedure for determining the presence or absence of a gastric neoplasm. It provides information on the anatomical site and enables multiple biopsies and brush cytology to be taken. However, if the histological and cytological reports on a gastric ulcer fail to show malignant cells, this must not be taken as absolute proof that the condition is benign. A short period (6-8 weeks at the most) of appropriate treatment for peptic ulcer is given and the examination repeated. Even if there are signs of healing, this does not mean the lesion is benign, and careful examination of further biopsies from the ulcer or healed area is necessary.

Imaging

Double-contrast barium meal. This examination can provide similar information to that of endoscopy but cannot reliably detect early cancer or give pathological confirmation of the disease.
Computerised axial tomography and ultrasound are helpful by their ability to demonstrate the presence of unsuspected liver or other distant metastases and lymph node metastases. Both may also help to decide on resectability (sometimes called 'operability', which is distinct from 'curability').
Endoscopic ultrasound is being increasingly used to determine nodal status and depth of penetration of the primary tumour.

Haemoglobin level and red cell morphology

It is important to recognise that to discover microcytic hypochromic anaemia in a patient with gastrointestinal symptoms is not to have made a diagnosis which initiates a course of treatment but only to have elicited a sign, which should lead to an urgent search for a source of blood loss within the GI tract.
Almost half of those with gastric cancer are anaemic, and this may require correction by transfusion. In some with unresectable tumours, repeated blood transfusions may be the only palliative procedure possible.

Laparoscopy

This procedure has contributed considerably to identifying irresectability, particularly by the detection of small liver or peritoneal metastases. Laparoscopy is now usually done before a laparotomy for resection is undertaken.

Management

The only curative treatment is surgical resection. In the UK, only 30-40% of patients are suitable for an attempt to cure, although up to 70% of growths may be resectable. Resection for cure means removal of the growth, the stomach or a large proportion of it and the regional lymph nodes as a single anatomical block. The extent of resection is a subject of debate. In Japan, where the best results are obtained, the stomach is removed together with

the nodes within 3 cm of the tumour (N1) and the regional nodes (N2), sometimes with even more radical node resections (N3). In the west, many surgeons question the use of such radical resections because of a higher operative mortality and morbidity and because randomised controlled trials do not show a survival benefit; they prefer partial resections of the stomach and the N1/N2 nodes only.

There is increasing evidence that neoadjuvant chemotherapy may improve survival in patients undergoing resection for stomach cancer.

Preoperative total parenteral nutrition (TPN) is indicated only in those patients with objective criteria of malnutrition. In this group, postoperative infections are diminished by nutritional support, but TPN has no other impact on mortality and morbidity.

Palliation

Surgical resection. This may be done in spite of nodal or metastatic disease that makes cure impossible. Such treatment often alleviates troublesome symptoms such as abdominal pain, dysphagia, blood loss and vomiting. However, because of late diagnosis and advanced disease, bypass of an obstructing lesion in the distal part of the stomach may be all that is possible.

Laser ablation. For unresectable tumours at the cardia, considerable improvement in swallowing may be obtained by the use of a laser through the endoscope so as to core out a passage through an obstruction. Repeated treatments throughout the remaining life of the individual are required and can occasionally be supplemented by the endoscopic insertion of a stent across the malignant stricture, although these tend to migrate and do not provide relief of dysphagia as well as they do in patients with oesophageal cancer.

Chemotherapy. A considerable proportion of patients respond to chemotherapy with carboplatin-based regimens, and this should be offered to patients with a good performance status and low comorbidity. Measurement of tumour markers such as plasma CEA or CA 50 may be useful in assessing response. Occasionally, after chemotherapy, it is possible to resect a gastric carcinoma previously deemed unresectable on CT scanning.