VOLUME 13 #1 APRIL 2009 www.surgcare.co.za DR MATLEY & PARTNERS

GASTRO-INTESTINAL UPDATE

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Helicobacter Pylori Infection

Barry Marshall and Robin Warren were awarded the Nobel Prize for Medicine/ Physiology in 2005 for their discovery of *Helicobacter Pylori* (HP). HP is an organism (Fig 1) that has had a close association with humans for many generations. Recent evidence suggests that HP may have spread from east Africa, with human migration, 58 000years ago!

Since the first HP culture twenty years ago, the diagnosis and treatment of upper gastro–intestinal disorders has changed dramatically, with a shift from surgery to curative antibiotic therapy now available for peptic ulcer disease and low grade gastric malt lymphomas!

The **prevalence** of HP infection is 80% in developing countries and between 20 and 50% in developed countries. The infection is acquired in early childhood and spread by saliva, vomitus, faeces and water contamination.

Acute *H Pylori* infection **causes** transient hypochlorhydria and is rarely diagnosed. Chronic gastritis will develop in virtually all persistently colonized persons, but 80 - 90% will never have symptoms. The further clinical course is highly variable and depends on bacterial and host factors (Fig 2). Patients with higher acid output are likely to have antral predominant gastritis, which predisposes them to duodenal ulcers.

Patients with lower acid output are more likely to have gastritis in the body of the stomach which predisposes them to gastric ulcers and can initiate a sequence of events that in rare cases leads to gastric carcinoma.

H Pylori infection can also induce the formation of mucosa associated lymphoid tissue (MALT) in the gastric mucosa. Malignant lymphoma arising from such acquired mucosa-associated lymphoid tissue is another rare complication of *H Pylori*.

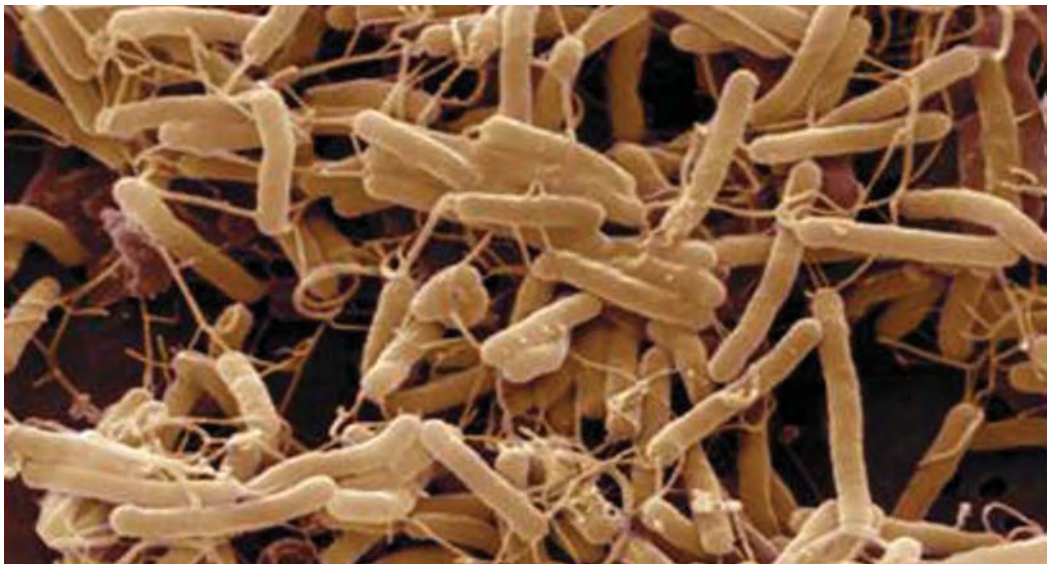


Fig 1: Helicobacter Pylori

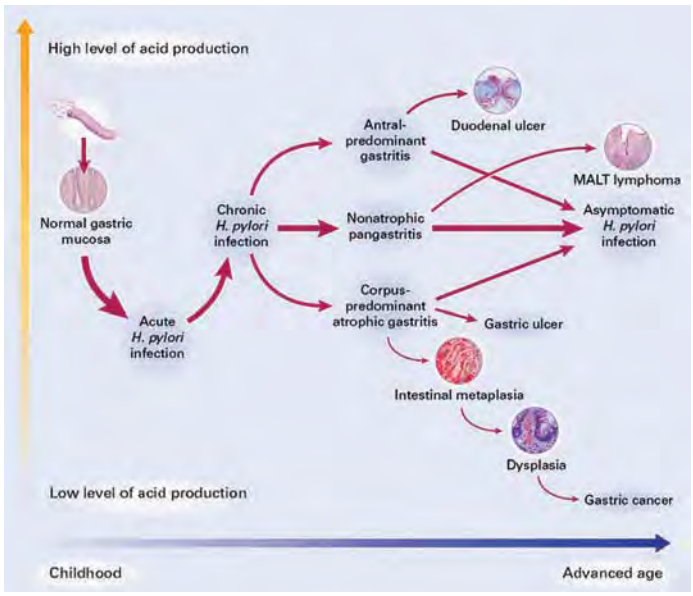


Fig 2: Natural history of H.Pylori infection

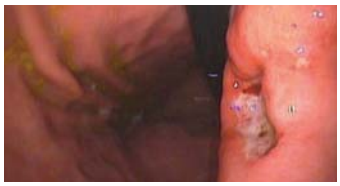


Fig 3: Gastric Ulcer

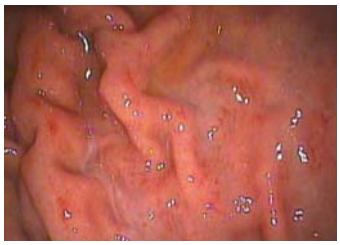


Fig 4: Gastritis

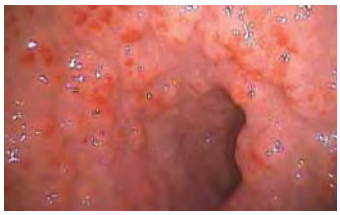


Fig 5: MALT

Conditions associated with HP include:

:: gastritis,
:: duodenal and gastric ulcers (Fig 3)
:: gastritis
:: gastric carcinoma
:: MALT lymphoma
:: iron deficiency anaemia

There are a whole host of other conditions possibly associated with HP which include: non ulcer dyspepsia, IHD, ITP, Raynauds, amenorrhoea and extra gastric malt lymphoma.

DIAGNOSTIC TESTING

Non endoscopic

:: urea breath test
:: serological tests
:: stool antigen assays

Endoscopic

:: urease (clotest)

The urea breath test is useful for the initial diagnosis and for follow up after eradication therapy. It has a specificity and sensitivity of more than 90%. If used for follow up, one should wait for at least four weeks to avoid false negative results.

Office based serological testing has proved unreliable. However approved laboratory based tests have sensitivity and specificity similar to the

(*Helicobacter Pylori* Infection CONTINUED FROM FRONT PAGE...)

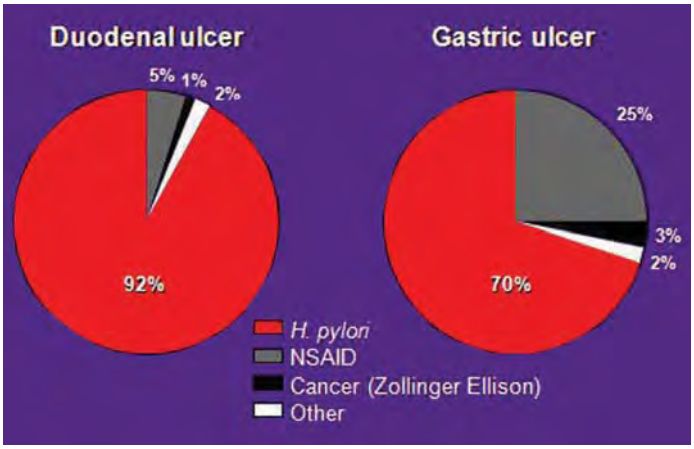


Fig 6: Causes of Peptic Ulcers

TAKE HOME MESSAGE
:: If treating empirically – follow up and refer if patient fails to settle
:: Patients with alarm symptoms must be investigated immediately.

urea breath test.

Stool antigen testing is accurate but remains a practical problem. If used for follow up after eradication therapy, one should wait for at least eight weeks.

When endoscopy is indicated the test of choice is a urease test on an antral biopsy specimen.

PRACTICAL APPROACH

All patients with alarm symptoms and those that fail empiric treatment must have a gastroscopy, biopsy and a urease test.

If none of the above exists, you may choose to treat empirically, or to test for HP and eradicate if positive. If the patient tests positive eradication treatment is essential!

Alarm symptoms include:
:: loss of weight
:: loss of appetite
:: anaemia
:: bleeding
:: dysphagia
:: age > 45years

Current guidelines for treatment

All patients with the following must be treated:
:: gastric or duodenal ulcers
:: MALT lymphoma
:: gastritis
:: recent resection for gastric carcinoma
:: first degree relative of a patient with gastric carcinoma

The aim of treatment is complete elimination of the organism. Once this has been achieved re-infection rates are very low.

Triple therapy, the combination of two antibiotics and a PPI, for seven to fourteen days increases rates of cure and reduces the risk of resistance. The current antibiotics used are amoxicillin (1g po bd) and clarithromycin (500mg po bd). In the case of penicillin allergy, Metronidazole (400mg po tds) is used.

Patients who fail empiric therapy in the primary care setting, should be referred for appropriate investigation. *RO*

COLON POLYPS – does size matter?

Colorectal cancer remains one the most significant and yet preventable causes of cancer deaths today.

Screening is effective in reducing colorectal cancer mortality. Compliance with screening, however, remains poor .The reasons are not well understood but includes lack of awareness and patient reluctance.

The primary goal of colorectal screening is the identification and removal of premalignant polyps. Colonoscopy remains the gold standard for screening for colorectal cancers as it offers the opportunity to do both at the same setting. Barium enema and the newer methods such as computer tomographic colonoscopy (CTC) are sometimes used (Fig 1). If these are used, a decision then needs to be made about which patient requires a referral for colonoscopy and polypectomy. In addition polyps less than 5mm may not be reported because polyps this size fall below the threshold for accurate detection.

SHOULD ALL POLYPS BE REMOVED OR COULD WE BE SELECTIVE?

In a recent review of 13 992 asymptomatic patients who had a screening colonoscopy, patients were sub-grouped according to polyp size and advance histology (severe dysplasia or early carcinoma) into three subgroups according to polyp size

size	severe dysplasia or early carcinoma
10mm or greater	30.6%
6 – 9mm	6.6%
1-5 mm	1.7%

It is generally agreed that polyps 10mm or greater must be removed. The data on smaller polyps has been unclear. Recommendations after CTC or barium enema for polyps

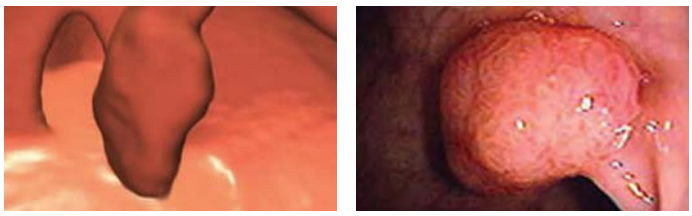
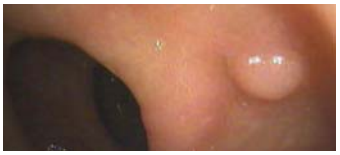


Fig 1: Polyp as seen on CTC vs colonoscopy

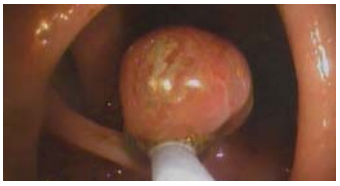
6 – 10mm include repeat CTC in 2 to 3 years. It is thus clear that polyps greater than 10mm must be removed.

One in fifteen patients with polyps 6 - 9mm will have advanced histology. A biopsy is needed to make this decision and thus these patients should be offered a colonoscopy.

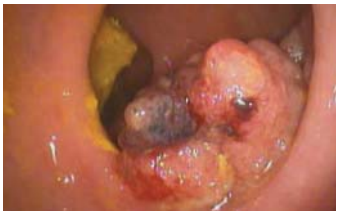
In those with polyps less than 5mm it is interesting to note that 1.7% will also have advanced histology. *RO*



Small Polyp



Polyp being snared during colonoscopy



Colon Cancer

reference
1. Liebeman D Gastroenterology. 2008;135(4):1100 1105

TAKE HOME MESSAGE
:: **All patients with polyps greater than 5mm must have a colonoscopy and polypectomy.**
:: **Patients with polyps less than 5mm could be offered a colonoscopy in 2 – 3 years. The patient, however, needs to make a decision, based on the above data, on whether they would prefer to have an immediate colonoscopy and polypectomy or to defer this.**

Gastrointestinal Stromal Tumours - GIST

Gastrointestinal stromal tumors (GIST) are a recently recognised tumour entity. These tumours arise in the Cajal cells (the GI pacemaker cell) and almost always express the CD117 (kit) and CD34 antigens. GISTs are of variable biological activity, ranging from benign to very aggressive malignant tumours (Fig 1). Many tumours previously classified as leiomyomas and leiomyosarcomas are now redefined as GIST. An increasing number of patients are diagnosed with GIST tumours as the awareness of this condition increases.

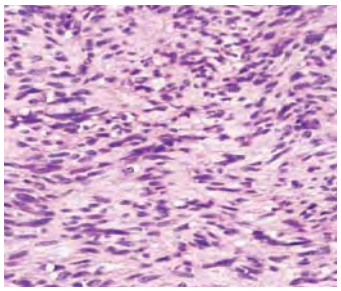


Fig 1: Gastric GIST histology

GIST can be located anywhere in the gastrointestinal tract with stomach (50 – 70%) and small bowel (30%) most common. They occasionally occur in the duodenum and oesophagus (Fig 2). The tumours vary in size from a few millimetres to more than 30 centimeters. Although the large tumours (greater than 5cm) have a higher rate of malignancy, size is not an accurate predictor of malignancy. The commonest age group affected by GIST is 40 – 60 year olds, with an equal distribution in males and females.

Symptoms include abdominal pain, gastrointestinal (GI) bleed or an abdominal mass. The bleed usually presents as malaena or very rarely as a major upper GI bleed. Up to 20% of patients may be asymptomatic. With the widespread use of abdominal CT scan, GIST is often diagnosed incidentally. The question that then arises is - should the tumour be excised or not? Malignant tumours must be excised. It is difficult, however, to distinguish between benign and malignant tumours. Unfortunately the clinical and radiological picture is unhelpful in making this distinction and this differentiation can only be made on histology.

The current recommendation is that tumours > 5 cm should be excised and those < 2 cm should be monitored with follow-up CT scans. There are no clear-cut recommendations for tumours between 2 and 5 cm, and these cases are treated individually. As these tumours rarely metastasize to lymph glands a wide local excision is adequate. Increasingly these lesions are amenable to a laparoscopic resection.

Until recently recurrent or metastatic GIST was almost uniformly fatal as the response rate to conventional chemotherapy is less than 5%. The recent use of molecular targeted 'biological" treatment, tyrosine-kinase inhibitors (Gleevec/imatinib), has changed the prognosis dramatically. This treatment may results in significant tumour shrinkage or retards tumour growth. *RO*

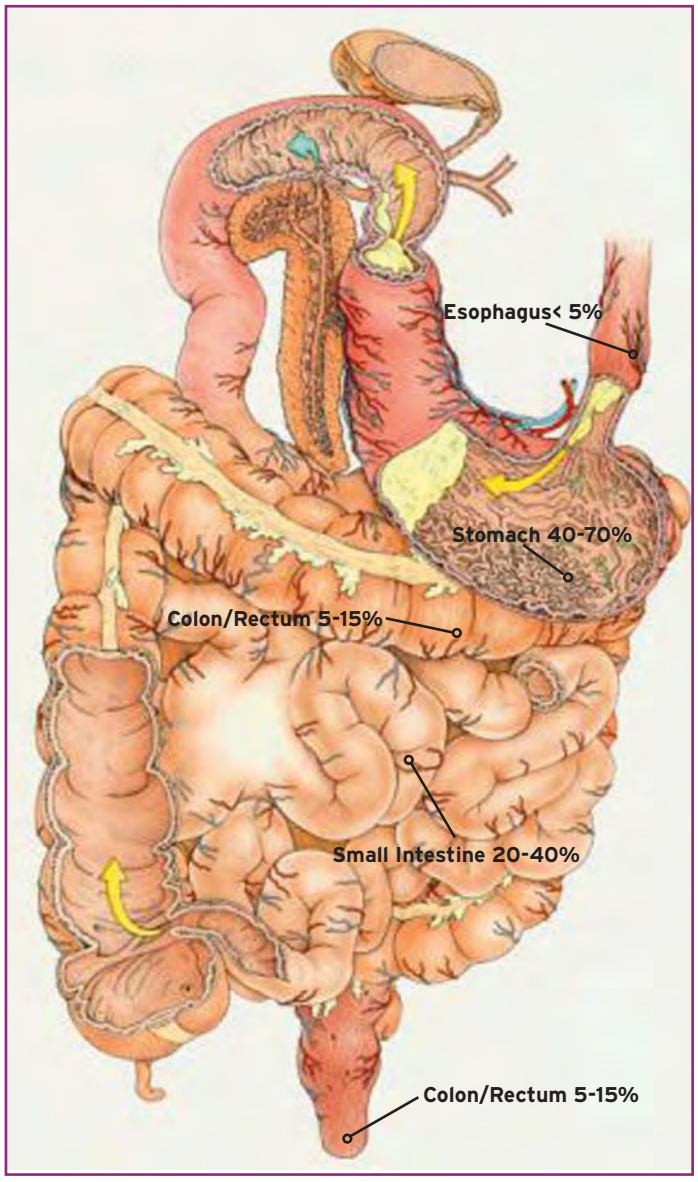


Fig 2: Sites of Occurrence of GIST

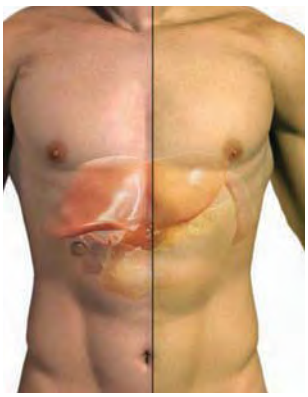
What's new?

Constantiaberg Medi-Clinic Hospital recently launched the first fully fledged laparoscopic theatre in the southern suburbs of Cape Town and the first ever for the Medic–Clinic group. A pilot project was set up with the assistance of Dr Ravi Oodit. This has proven to be an excellent project. Improved multi-modal imaging, technology and a direct link to radiology has improved visualization, picture image, efficiency of utilization, turn-around time and cost effectiveness.

This has allowed us to expand our current service to advanced laparoscopic surgery that includes laparoscopic splenectomy, retroperitoneal nodal biopsy, colorectal surgery and laparoscopic assisted oesophagectomy. *RO*

Dr Keith Brice, Dr Ravi Oodit and Sr Jenny Burnham-King in the new laparoscopic theatre

RIGHT UPPER QUADRANT PAIN AND A NORMAL ABDOMINAL ULTRASOUND, WHAT NEXT?



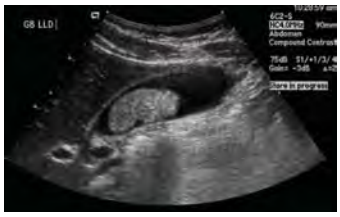
The incidence of both gallstones and acalculous gall bladder disease is increasing and the epidemiology is changing.

Gall stones are occurring in younger patients, in increasing frequency in males and are no longer confined to the overweight, older patient. The number of patients undergoing cholecystectomy for acalculous gall bladder disease is on the increase in the UK and USA. To date we have not seen this pattern. This is most likely due to a combination of a difference in disease profile and a lack of awareness.

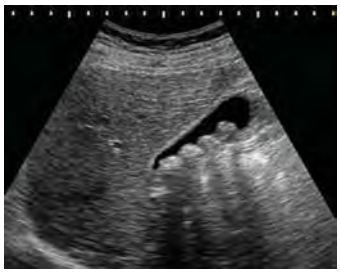
Characteristic biliary pain is intermittent, often radiates to the back or right shoulder, is frequently associated with nausea and vomiting and might be post prandial. The pain is not associated with posture, exercise or bowel movements. Jaundice and fever is not usually present.

The differential diagnosis in this subgroup includes

:: Missed gall stones
:: Biliary dyskinesia/ acalculous biliary disease
:: Peptic ulcer disease
:: Choledocholithiasis
:: Microlithiasis
:: Pancreatobiliary neoplasia
:: Sphincter of Oddi dysfunction
:: Irritable bowel syndrome (IBS)
:: Respiratory
:: Musculoskeletal



Single gallstone on US



Multiple gallstones on US

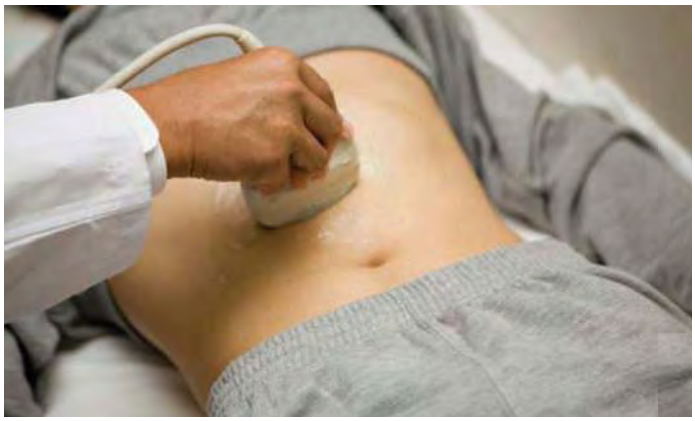
Approach

Respiratory, musculoskeletal causes and irritable bowel syndrome will usually be evident on history and examination. It is worth remembering that patients with IBS have a higher incidence of gall stones.

Pancreato- biliary neoplasia will classically present with painless jaundice.

Patients with CBD stones typically will have pain, jaundice and deranged LFTs.

It is important to remember that gall stones may be missed in 2% of patients undergoing an ultrasound of the abdomen. This is usually due to technical factors and if there is a high index of suspicion, consider repeating the ultrasound. *RO*



ACALCULOUS GALL BLADDER PAIN

These patients present with typical biliary pain, have an unremarkable physical examination and a normal ultrasound, liver functions and serum amylase/lipase.

The pathophysiology is not well understood but does include gallbladder outlet obstruction, primary disorder of motility and visceral hypersensitivity. Lack of coordination between gall contraction, contractions of the sphincter of Oddi or relative cystic duct narrowing may cause functional gall bladder obstruction.

In the past several tests were used to assess gall bladder contractility. Most of these are hardly used because of issues of reproducibility and low sensitivity and specificity.

The investigation of choice, today, is a HIDA scan. An ejection fraction of less than 40% is regarded as diagnostic of gall bladder dysfunction. However it is not an investigation without limitation and is not 100% specific. Several conditions may also cause impaired emptying; these include obesity, diabetes, cirrhosis and medication including opiates, antispasmodics. An ejection fraction greater than 85% (a hypercontractile) gall bladder may also precipitate pain in some patients.

The treatment of choice is a cholecystectomy.

The results of cholecystectomy for acalculous gallbladder pain have not been well studied. In a meta – analysis evaluating 274 patients in five studies, symptomatic improvement occurred in 98% compared with 32% in the non operative group. Total symptom relief occurred in only 74% of the operative group and in only 8% of those managed conservatively. Thus informed consent is absolutely crucial.

The cause for only partial response is unclear but maybe because there is another primary cause or that the gallbladder dysfunction is part of a multifactorial pain syndrome. *RO*

TAKE HOME MESSAGE

:: **Repeat ultrasound if indicated**
:: **Consider acalculous gall bladder disease**
:: **HIDA scan maybe diagnostic**
:: **Informed decision for surgery**