

GIT endoscopy

The risks of endoscopy

1_ Sedation related cardiorespiratory complications 2 Damage to dentition
_3- Aspiration 4 Perforation or haemorrhage after endoscopic dilatation/
therapeutic endoscopic ultrasound 5- Perforation or haemorrhage after flexible
sigmoidoscopy/ colonoscopy with polypectomy 6- Pancreatitis, cholangitis, perforation
or bleeding after endoscopic retrograde cholangiopancreatography

Elective endoscopy in the anticoagulated patient

Endoscopic procedures vary in their potential to produce significant or uncontrolled bleeding.
. High-risk procedures include colonoscopic polypectomy (1–2.5 per cent), gastric polypectomy
(4 per cent), laser ablation of tumour (6 per cent), endoscopic sphincterotomy (2.5–5 per cent)
and procedures with the potential to produce bleeding that is inaccessible or uncontrollable by
endoscopic means, such as dilatation of benign or malignant strictures, percutaneous gastrostomy
insertion and endoscopic ultrasound (EUS)-guided fine-needle aspiration.

The risk of a **thromboembolic** event varies according to the underlying medical condition.

Atrial fibrillation with valvular heart disease	High
Mechanical mitral valve	High
Mechanical valve and previous thromboembolic event	High
Deep vein thrombosis low , Uncomplicated atrial fibrillation	low
Bioprosthetic valve , low Mechanical aortic valve	low

Oesophagogastroduodenoscopy (OGD)

In addition to clear mucosal views, diagnostic endoscopy allows mucosal biopsies to be taken. In addition, brushings may be taken for cytology and aspirates for microbiological culture.

Indications for OGD : OGD is usually appropriate when a patient's symptoms are persistent despite appropriate empirical therapy or are associated with warning signs such as intractable vomiting, anaemia, weight loss, dysphagia or bleeding.

It is also part of the diagnostic work-up for patients with anaemia, symptoms of malabsorption and chronic diarrhoea. In addition to the role of OGD in diagnosis, it is also commonly used in the surveillance of neoplasia development in high-risk patient groups. genetic conditions such as familial adenomatous polyposis and Peutz–Jeghers syndrome,

Therapeutic OGD

The most common therapeutic endoscopic procedure performed as an emergency is the control of upper gastrointestinal haemorrhage of any aetiology. Band ligation has replaced sclerotherapy in the management of oesophageal varices, whereas sclerotherapy using thrombin-based glues can be used to control blood loss from gastric varices. Injection sclerotherapy with adrenaline coupled with a second haemostatic technique, such as heater probe vessel obliteration or haemoclip application, remains the technique of choice for a peptic ulcer with an active arterial spurt or stigmata of recent haemorrhage .

Chronic blood loss from angiodysplasia is most safely treated with argon plasma coagulation because of the controlled depth of burn.

Benign oesophageal and pyloric strictures may be dilated under direct vision with 'through the scope' (TTS) balloon dilators or the more traditional guidewire-based systems. Intractable disease can be treated by the insertion of a removable stent. Likewise, the lower oesophageal sphincter hypertension associated with achalasia can be reduced by pneumatic balloon dilatation, although the procedure may need to be repeated every few years and the large (2–3 cm) balloons required are associated with a significantly increased risk of perforation. An alternative is the injection of botulinum toxin, which has a considerably more favourable side-effect profile but a shorter duration of benefit.

To reduce gastro-oesophageal reflux relying on tightening the loose gastro-oesophageal junction by plication, the application of radial thermal energy or injection of a bulking agent

The area of greatest progress in the endoscopic management of early oesophageal and gastric neoplasia with endoscopic mucosal resection (EMR) and the destruction of areas of high-grade dysplasia (HGD) using either EMR or photodynamic Therapy

Complications of diagnostic and therapeutic OGD

Diagnostic upper gastrointestinal endoscopy is a safe procedure with minimal morbidity as long as appropriate patient selection and safe sedation practices are considered.

approximately 1:1000, the majority of adverse events relate to sedation and patient comorbidity. Particular caution should be exercised in patients with recent unstable cardiac ischaemia and respiratory compromise. Perforation can occur at any point in the upper gastrointestinal tract, including the oropharynx. Perforation is more common in therapeutic endoscopy, particularly oesophageal dilatation and EMR for early malignancy

Symptoms of endoscopic oesophageal perforation

_ Neck/chest pain _ Dysphagia/drooling saliva _ Abdominal pain _ Increasing tachycardia _ Hypotension
_ Surgical emphysema Prompt management includes radiological assessment using CT/water-soluble contrast studies, strict nil by mouth, intravenous fluids and antibiotics, and early review by an experienced upper gastrointestinal surgeon.

ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP)

This procedure involves the use of a side-viewing duodenoscope, which is passed through the pylorus and into the second part of the duodenum to visualise the papilla. This is then cannulated, either directly with a catheter or with the help of a guidewire.. By altering the angle of approach one can selectively cannulate the pancreatic duct or biliary tree, which is then visualised under fluoroscopy after contrast injection. The significant range of complications associated with this procedure and improvements in radiological imaging using magnetic resonance cholangiopancreatography (MRCP) have rendered much diagnostic ERCP obsolete, and thus most procedures are currently performed for therapeutic purposes. There is still a role for accessing cytology/ biopsy specimens.

Therapeutic endoscopic retrograde cholangiopancreatography

The most common indication for therapeutic ERCP is the relief of biliary obstruction due to gallstone disease and benign or malignant biliary strictures. The pre-procedural diagnosis can be confirmed by contrast injection, which will clearly differentiate the filling

defects associated with gallstones and the luminal narrowing of a stricture. If there is likely to be a delay in relieving an obstructed system, percutaneous drainage may be required. The cornerstone of gallstone retrieval is an adequate biliary sphincterotomy, which is normally performed over a well positioned guidewire using a sphincterotome connected to an electrosurgical unit. Most gallstones less than 1 cm in diameter will pass spontaneously in the days and weeks

ENDOSCOPIC ASSESSMENT OF THE SMALL BOWEL

Introduction and indications

The most frequent indication is the investigation of gastrointestinal blood loss, which may present with either recurrent iron deficiency anaemia (occult haemorrhage) or recurrent overt blood loss per rectum (cryptic haemorrhage) in a patient with normal OGD (with duodenal biopsies) and colonoscopy. Other indications include the investigation of malabsorption; the exclusion of cryptic small bowel inflammation such as Crohn's disease in patients with diarrhoea/ abdominal pain and evidence of an inflammatory response; targeting lesions seen on radiological images; and surveillance for neoplasia in patients with inherited polyposis syndromes.

A standard enteroscope is able to reach and biopsy lesions detected in the proximal small bowel; however, even in the most experienced hands this is limited to approximately 100 cm distal to the pylorus, although the use of a stiffening overtube may increase this somewhat.

Barium follow-through or enteroclysis were the most effective imaging modalities to visualise the distal duodenum, jejunum and ileum. Obviously these techniques do not give true mucosal views

E.R.cholangiopancreatography Complications

Complications specific to ERCP include duodenal perforation(1.3%) /haemorrhage (1.4%) after scope insertion or sphincterotomy, pancreatitis (4.3%) and sepsis (3–30%); the mortality rate approaches 1%. It is important to remember that post-sphincterotomy complications may be retroperitoneal. Although normally mild, post-ERCP pancreatitis can be severe with extensive pancreatic necrosis and a significant mortality rate

Capsule endoscopy

The technique

requires three main components: an ingestible capsule, a portable data recorder and a workstation equipped with image-processing software.

The small bowel capsule provides good visualisation from mouth to colon with a high diagnostic yield. It compares favourably with the 'gold standard' techniques for the localisation of cryptic and occult gastrointestinal bleeding and the diagnosis of small bowel Crohn's disease. Use of the capsule endoscope is contraindicated in patients with known small bowel strictures in which it may impact, resulting in acute obstruction requiring retrieval at laparotomy or via laparoscopy. Severe gastroparesis and pseudo-obstruction are also relative contraindications to its use.

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Single/double-balloon enteroscopy

This technique allows the direct visualisation of and therapeutic intervention for the entire small bowel and may be attempted via either the oral or rectal route.

The enteroscope and overtube are inserted through either the mouth or anus and steered to the proximal duodenum//terminal ileum in the conventional manner

In single-balloon enteroscopy, developed more recently, an enteroscope and overtube are used, but only the overtube has a balloon attached. A full range of therapeutics including diagnostic biopsy, polypectomy, argon plasma coagulation and stent insertion are available for balloon

Enteroscopy

Current established indications for single/ double-balloon endoscopy

- _ Bleeding from the gastrointestinal tract of obscure cause
- _ Iron deficiency anaemia with normal colonoscopy and gastroscopy
- _ Visualisation of and therapeutic intervention for abnormalities seen on traditional small bowel imaging/ capsule endoscopy

Indications for colonoscopy

■ Rectal bleeding with looser or more frequent stools +/-

abdominal pain related to bowel actions ■ Iron deficiency anaemia (after biochemical confirmation

+/- negative coeliac serology):oesophagogastroduodenoscopy and colonoscopy togetherB■ Right iliac fossa mass if ultrasound is suggestive of colonic Origin

■ Change in bowel habit associated with fever/elevated inflammatory response

■ Chronic diarrhoea (> 6 weeks) after sigmoidoscopy/rectal biopsy and negative coeliac serology ■ Follow-up of colorectal cancer and polyps ■ Screening of

patients with a family history of colorectal Cancer ■ Assessment/removal of a

lesion seen on radiological Examination ■ Assessment of ulcerative

colitis/Crohn's extent and activity ■ Surveillance of inflammatory bowel disease

■ Surveillance of acromegaly/ureterosigmoidostomy

Therapeutic colonoscopy

The most common therapeutic procedure performed at colonoscopy is the resection of colonic polyps .Small polyps up to 5 mm are removed by either cheese-wiring with a 'cold' snare or hot biopsy

. A brief burst of monopolar current is used to coagulate the stalk, allowing the polyp to be removed. Larger polyps with a defined stalk can be resected via snare polypectomy using coagulating current either *en bloc* or piecemeal depending on their size. Post-polypectomy bleeding can be prevented by the application of haemoclips or an endoloop to the polyp stalk. Sessile polyps extending over several centimetres can be removed by endoscopic mucosal resection

. Any residual polyp is obliterated with argon plasma coagulation. Care should be taken with all polypectomies in the right colon where the wall may only be 2–3 mm thick. APC and alternative thermal therapies such as heater probes are also used in the treatment of symptomatic angiodysplasias of the colon. Laser photocoagulation may be used to debulk colonic tumours not suitable for resection. As with benign oesophageal strictures TTS balloons can be used to dilate short (less than 5 cm) colonic strictures.

Complications of colonoscopy

-Perforations -Total colonoscopy is contraindicated in the presence of severe colitis; a limited examination and careful mucosal biopsy only should be performed. - Polypectomy is associated with a well-documented rate of perforation (approximately 1%) and haemorrhage (1–2%). Immediate haemorrhage should be managed by re-snaring the polyp stalk where possible and applying tamponade for several minutes followed by careful coagulation if this is unsuccessful. Submucosal adrenaline injection and the deployment of haemoclips are alternatives if this is not possible. Delayed haemorrhage may occur 1–14 days post-polypectomy and can normally be managed by observation.

. If recognized at the time of polypectomy small perforations should be closed using clips and the patient admitted for observation. Symptoms of abdominal pain and cardiovascular compromise after a polypectomy should alert one to the risk of delayed perforation. Patients should be kept nil by mouth and receive intravenous resuscitation and antibiotics. Prompt assessment with plain radiography and a CT scan will often distinguish between a frank perforation and a transmural burn with associated localized peritonitis (the post-polypectomy syndrome). Assessment by an experienced colorectal surgeon is essential, as surgery is often the most appropriate course of action