

Mechanical vascular and neoplastic abnormalities of the gut

Intestinal obstruction

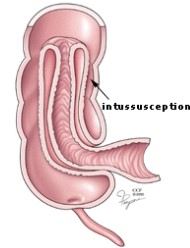
- Hernia – protrusion of all or part of an organ from the cavity normally containing it. Trapping leads to oedema and obstruction of vascular supply
- Volvulus – twisting of a loop of bowel about its mesentery. Commonest in sigmoid colon. Very common in Africa (associated with high fibre diet). Can be associated with worms. Leads to ischaemia/infarction

Intestinal obstruction

- Adhesions – fibrous bands representing organised inflammation (after peritonitis, surgery) – internal hernias
- Intussusception – telescoping of one segment of bowel into a more distal one

Intussusception

- Occurs in infants and children (often associated with infection and lymphoid hyperplasia)
- In adults usually associated with a tumour



Vascular disorders

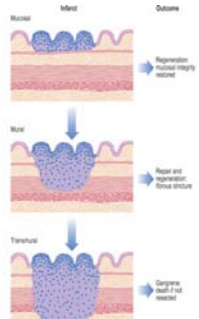
- Ischaemic bowel disease
 - The bowel has a good collateral circulation but
 - Occlusion of a major vessel will lead to extensive infarction
 - Gradual loss of supply may be tolerated

Causes

- Arterial occlusion – atherosclerosis, embolism, vasculitis
- Venous occlusion – thrombotic states (malignancy, sepsis, dehydration)
- Non-occlusive ischaemia – severe drop in blood pressure (cardiac failure, shock)

Extent and effects of injury

- Mucosal necrosis only – can recover
- Deeper necrosis leads to fibrosis and stricture
- Transmural necrosis (gangrene) - perforation



Ischaemia

- Chronic ischaemia can lead to ulceration, fibrosis and obstruction mimicking inflammatory disease

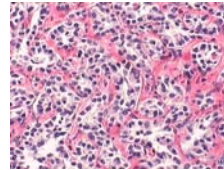
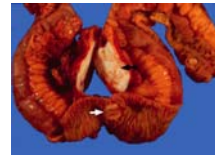
Intestinal neoplasms

- Small intestine accounts for 75% of length of GI tract but is not a common site for tumours
- Large bowel tumours are more common – particularly in the developed world

Small intestine

- Carcinoid tumours are as common as adenocarcinomas
- Other tumours include lymphoma, GIST

Carcinoid with node metastases →



Colon and rectum

- Polyps (mass lesion protruding from a mucosal surface) are common:
 - Hyperplastic
 - Inflammatory
 - Adenomas (benign tumours of glandular epithelium) – important as precursors of cancer

Important Points

- The adenoma-carcinoma sequence
- Colorectal cancer as a model of multistage carcinogenesis in the human
- Pathological determinants of patient prognosis

The adenoma-carcinoma sequence

- Adenomatous polyps are common. How do we know that they predispose to cancer?.....and how do we assess the risk for a particular individual with a polyp(s).



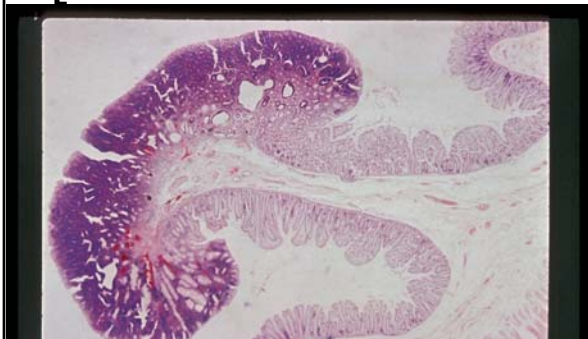
Polyposis coli



Adenoma-carcinoma sequence 2

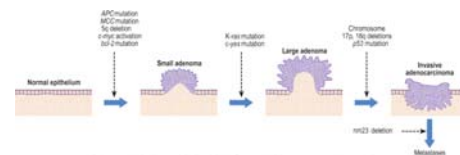
- Familial Adenomatous Polyposis Coli (hundreds of adenomas, certainty of cancer at an early age)
- Anatomical distribution of adenomas and cancers is the same
- Epidemiology is similar

Tubular adenoma



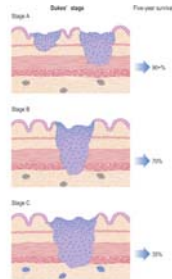
Biology (a well studied system!)

- A number of gene and chromosomal abnormalities have been identified (APC, p53, K-ras, loss of 18q, gain of 13q, 20)



Dukes' Staging

- A - confined to bowel wall
- B - local spread beyond bowel wall
- C - lymph node metastases



Dukes' Staging and Prognosis

- A 90% 5yr survival
- B 70% 5yr survival
- C 30% 5yr survival

Other colonic neoplasms

- Lymphoma
- Carcinoid
- GIST