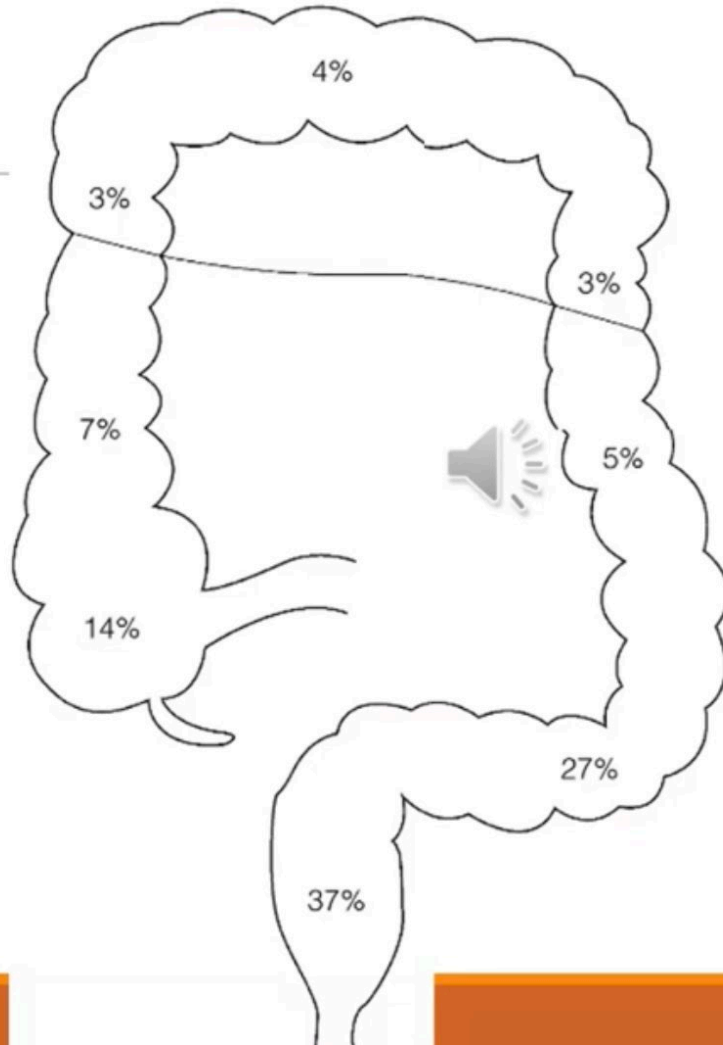


Colon and Rectal Cancer

Colorectal Cancer

- Major Problem in western world
- Equal between men and women (slight more in men)
- Overall 5 year survival around 45% **and improving**
- The definition of rectum is not clear !!
 - 15 cm from anal verge
 - 11-12 cm from anal verge
 - Fusion of the taenea coli
 - Third sacral vertebrae
- Colon cancer is different from rectal cancer in term of
 - Preoperative
 - Operative
 - Postoperative

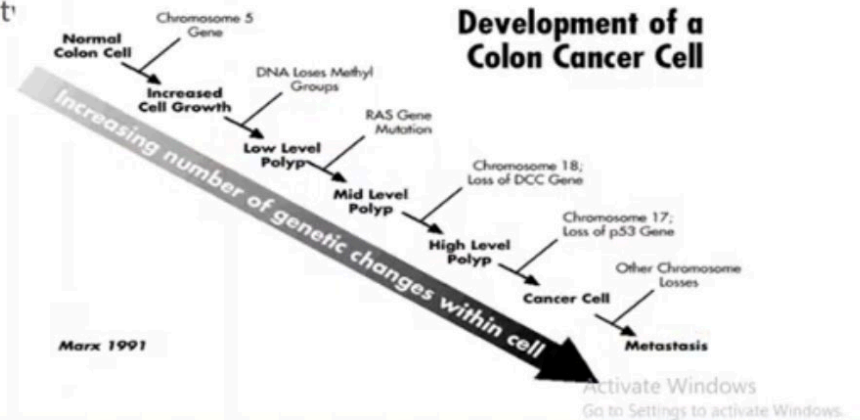




50% in the rectum and left colon
25% in the right
4-5% synchronous lesions

Aetiology

- The majority of colorectal cancer is sporadic in nature. rarely related to family history
- 5 -10 % of cases can be linked to inherited syndromes. The most commonly Lynch syndrome and Familial adenomatous polyposis (FAP)
 - Lynch syndrome
 - caused by mutations to the DNA mismatch repair genes
 - Familial adenomatous polyposis (FAP)
 - germline mutations in the APC gene.
- Two main pathways to carcinogenesis – chromosomal and microsatellite instability
- APC gene
- K-ras mutation → stimulate cell growth (late)
- DCC gene (suppressor gene)
- P53 gene (late event)



Colorectal cancer - Diet and lifestyle

- Decreased risk
 - ✓ physical exercise
 - ✓ dietary fibre
 - ✓ calcium, garlic,
 - ✓ non-starchy vegetables
 - ✓ pulses.

- Increased risk
 - ✓ obesity
 - ✓ red meat
 - ✓ processed meat
 - ✓ alcohol
 - ✓ animal fat
 - ✓ sugar
 - ✓ Smoking

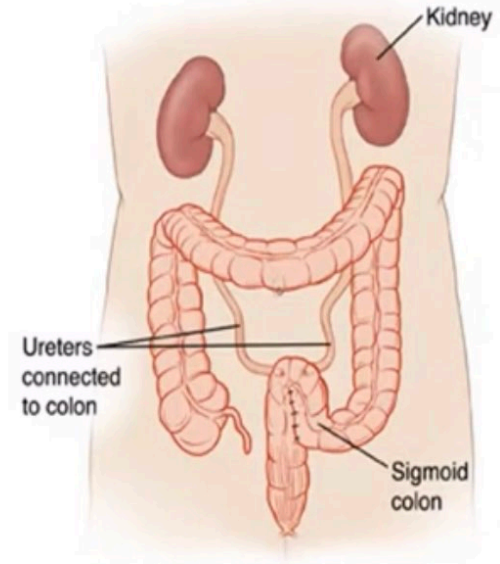


Predisposing conditions

- ✓ ◦ Longstanding inflm. Bowel disease UC and CD
- ✓ ◦ Cholecystectomy
- ✓ ◦ After gastrectomy and vagotomy
- ✓ ◦ Uretero-sigmoidostomy



↳ cut of more than one branch of vagus nerve to ↓ gastric secretions



Clinical presentation of colorectal cancer

- Asymptomatic
 - Screening programs

↳ colonoscopy for example

- Symptomatic
 - Elective
 - Emergency

↳ such as intestinal obstruction



Presentation

Higher risk

- ✦ Rectal bleeding with a change in bowel habit to looser stools or increased frequency of defecation persisting for 6 weeks (all ages)
- ✦ Change in bowel habit as above without rectal bleeding and persisting for 6 weeks (> 60 years)
- ✦ Persistent rectal bleeding without anal symptoms* (> 60 years)
- ✦ Palpable right-sided abdominal mass (all ages)
- ✦ Palpable rectal mass (not pelvic) (all ages)
- ✦ Unexplained iron deficiency anaemia (all ages)



Low risk

- ✦ Patients with no iron deficiency anaemia, no palpable rectal or abdominal mass
- ✦ Rectal bleeding with anal symptoms and no persistent change in bowel habit (all ages)
- ✦ Rectal bleeding with an obvious external cause, e.g. anal fissure (all ages)
- ✦ Change in bowel habit without rectal bleeding (< 60 years)
- ✦ Transient changes in bowel habit, particularly to harder or decreased frequency of defecation
- ✦ Abdominal pain as a single symptom without signs and symptoms

→ less need for colonoscopy

Investigation

(pre-operative evaluation / staging)

Colonoscopy → for tumor, polyps and taking a biopsy

- Risk: perforation / bleeding
- **Diagnostic and therapeutic**
- Synchronous tumours (3- 5 %)

→ removal of the polyp for example

Ba enema

- Diagnostic only , → looking for apple core appearance

Barium

CT Colonography

- Less invasive → in elderly, low risk patients
- Diagnostic
- Radiation
- Nephrotoxicity

or investigating intraabdominal structures
(patients with nonspecific symptoms)

PET-CT scanning has a **limited role**, (not used routinely)
just to make sure there's no other mets

Pelvic MRI

→ surgery

recommended when surgical resection of metastases is being considered

FOB / Fit test : Screening tool only.

→ to look for blood in stool

Blood test



(Carcinoembryonic Antigen (CEA))

Routine laboratory studies,

- complete blood count (CBC)
- serum CEA level

Carcinoembryonic Antigen is a glycoprotein primarily involved in intercellular adhesion. It is produced by columnar and goblet cells and can be found in normal colonic mucosa.

* it is an important tool in CRC surveillance after surgical resection since its elevation may be the first indication of locally recurrent or metastatic disease

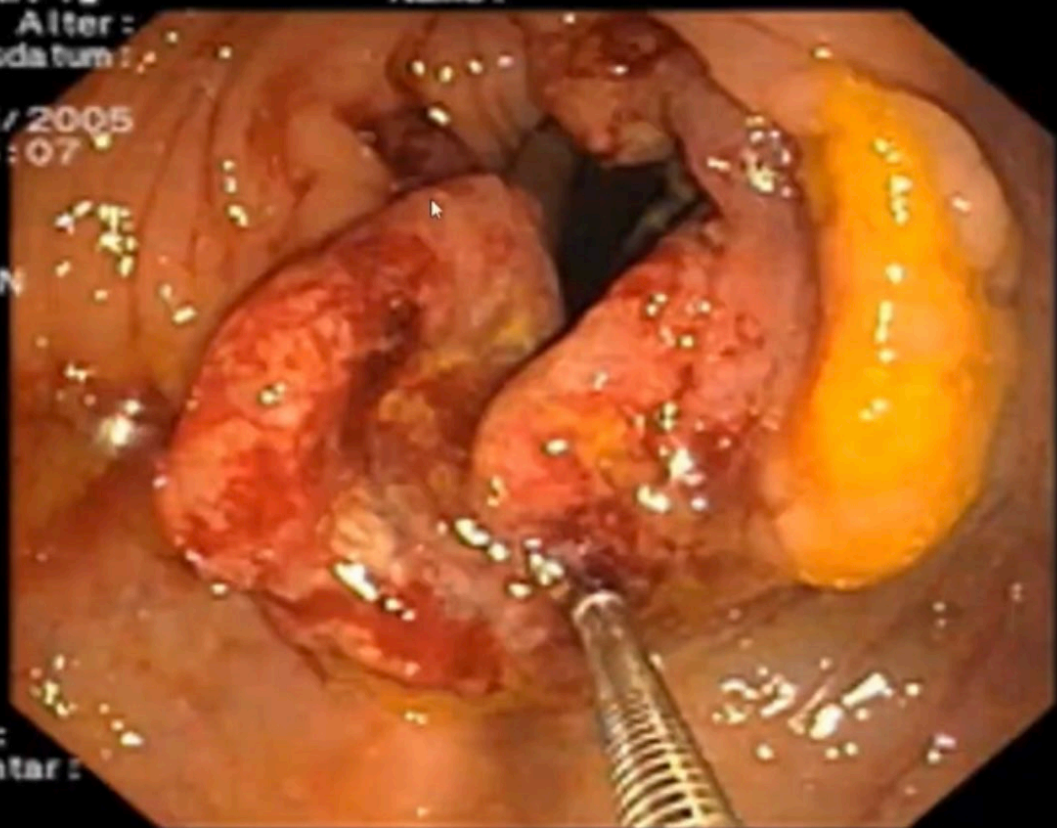
(Apple core appearance)

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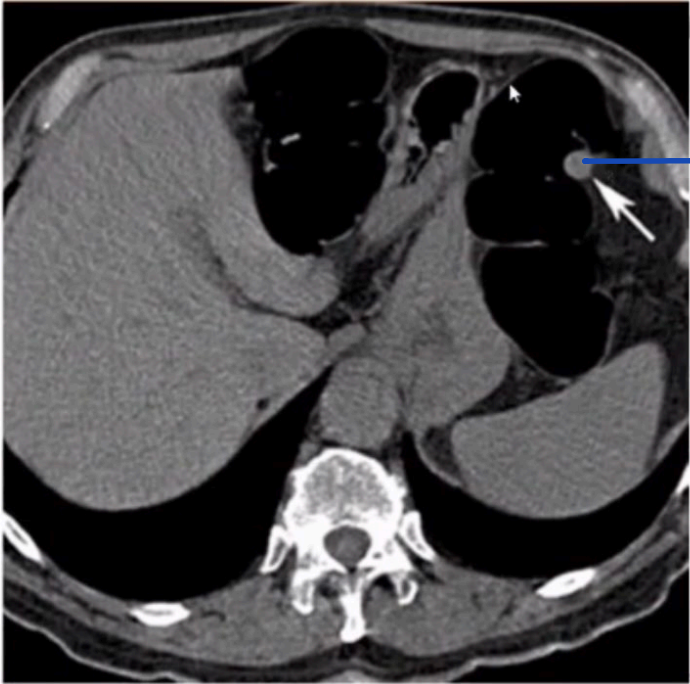
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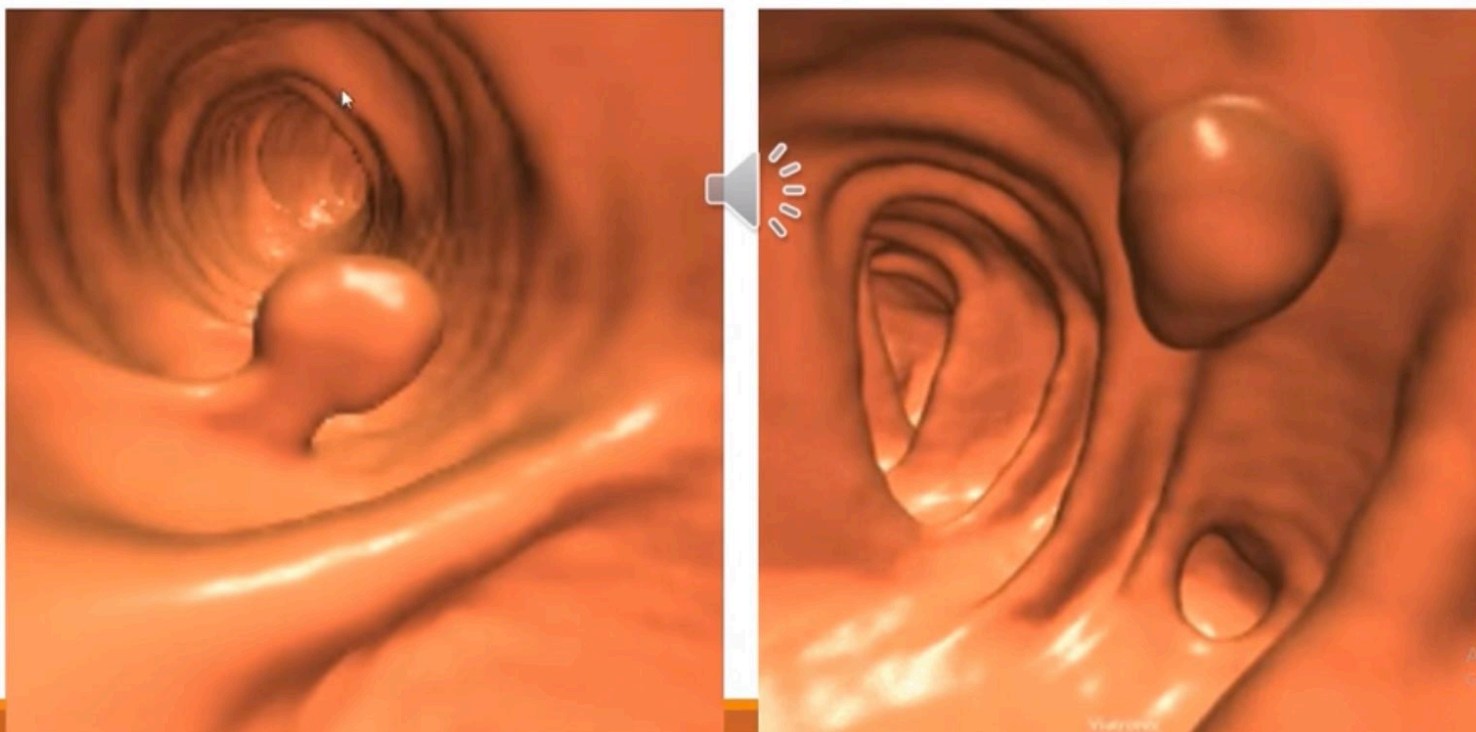
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CT Colonography



polyp

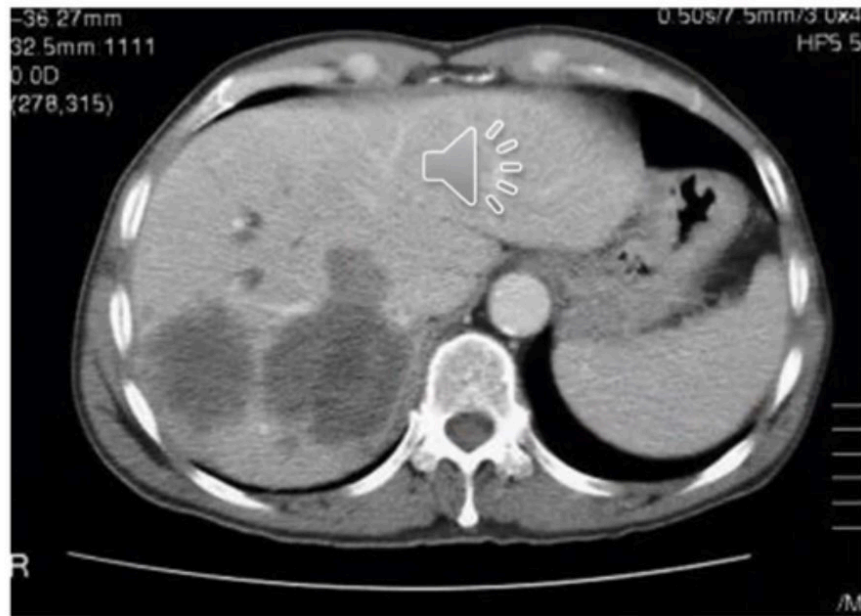
Virtual Colonoscopy



Activate Windows
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CT Scan liver . → mets on the liver on the right side.



Spread of Colorectal cancer

- **Direct spread**

- longitudinally, transversely and radially

- **Lymphatic spread**

- from the paracolic nodes along the main colonic vessels to the nodes associated with either cephalad or caudal vessels, eventually reaching the para-aortic glands in advanced disease
- 30 % can skip a tier of glands
- 15% of cases confined to the bowel wall will be found to have lymph node metastases

- **Blood-borne spread**

- The most common site : liver then lung
- Up to 37% of patients may have occult liver metastases at the time of operation

- **Transcoelomic spread** → inside the peritoneal cavity

Treatment

Multidisciplinary Approach

Staging

first thing

- CT
- Blood : LFT , tumour marker (CEA)
- CXR
- Confirm pathology (.biopsy)

Preoperative evaluation . Risk assessment

→ whether the patient is suitable for surgery,
chemotherapy . . .

Treatment

Symptoms

Investigation and Diagnosis

Staging

Colon Adenocarcinoma

Surgery (curative)

Surgery (palliative) → in cases of mets or invading
major structures like blood vessels

Other

Treatment

Symptoms

Investigation and Diagnosis

Staging

Rectal Adenocarcinoma

Surgery (curative) → Small and locally advanced

Neoadjuvant treatment + surgery → lymph nodes involved

palliative + Other

→ not suitable for surgery or recurrent disease

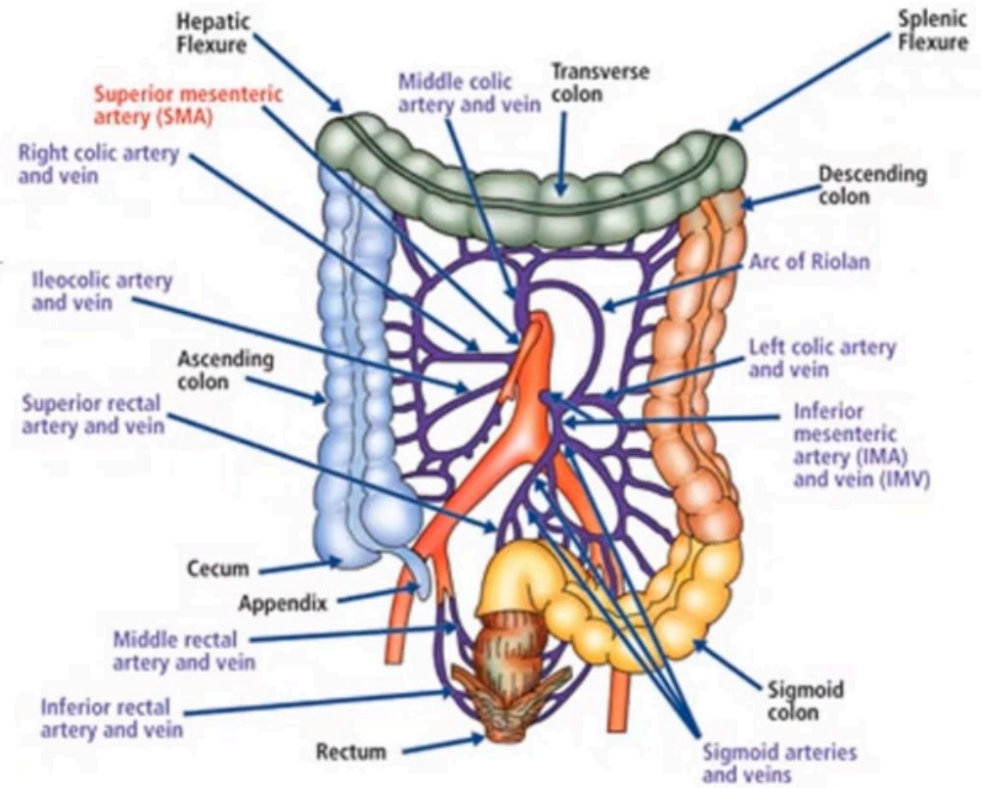
Surgery




Curative or palliative

Aim

- Local control with free margin
- **Excision of draining lymph nodes** along named vessels.
- Viable bowel left behind
- Safe anastomosis

no cancer cells left behind



-  = sealable with LigaSure™ tissue fusion
-  = nonsealable with LigaSure™ tissue fusion
-  = landmark structures

Pathological staging

Macroscopic description

Size of the tumour (greatest dimension).

Site of the tumour in relation to the resection margins.

Any abnormalities of the background bowel.

Microscopic description

- ✓ Histological type.
- ✓ Differentiation of the tumour, based on the predominant grade within the tumour.
- ✓ Maximum extent of invasion into/through the bowel wall (submucosa, muscularis propria, extramural).
- ✓ Serosal involvement by tumour, if present.
- ✓ A statement on the completeness of excision at the cut ends (including the 'doughnuts' from stapling devices) and at any radial margin.
- ✓ The number of lymph nodes examined, the number containing metastases, and whether or not the apical node is involved.
- ✓ Extramural vascular invasion if present.
- ✓ Pathological staging of the tumour according to Dukes' classification.

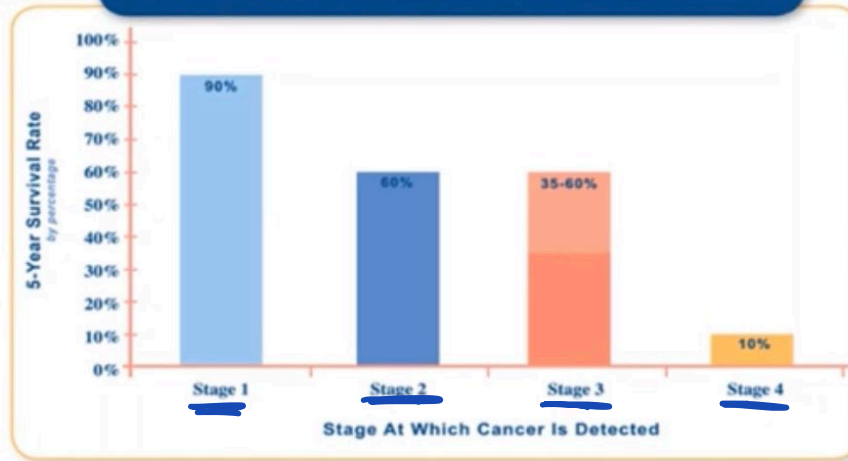
Final staging

TNM

Consider postoperative chemotherapy

- Lymph positive → adjuvant
- Lympho-vascular invasion
- Perforation
- Obstruction
- Peritoneal involvement
- Poorly differentiated

5-Year Survival Rate for Colorectal Cancer



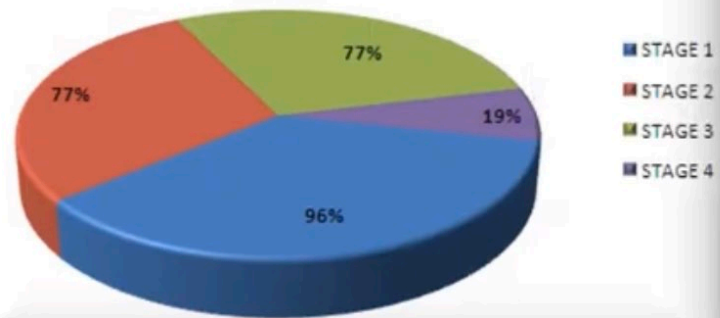
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Colorectal Cancer: Surveillance After Curative-Intent Therapy

- Intense follow up at the first 2 -3 years .
- 80% of recurrence occur within 3 years.
- * Laboratory , * radiological and * endoscopy.
(CBC, CEA, LFT)
- Different guidelines and recommendations'



COLON CANCER
1998-2008
SURVIVAL



Advances of treatment of Colorectal Cancer

- MDT approach
- Preoperative (Neoadjuvant treatment) in rectal cancer
- Standardization of surgical technique
 - meso-rectal and meso colon excision
- Standardization of pathological reporting
- Advanced chemotherapy agents
- Target treatment according to genetic testing
- Treatment of liver mets , peritoneal disease
- Screening program

→ exploring polyps → early removal → ↓ risk of cancer