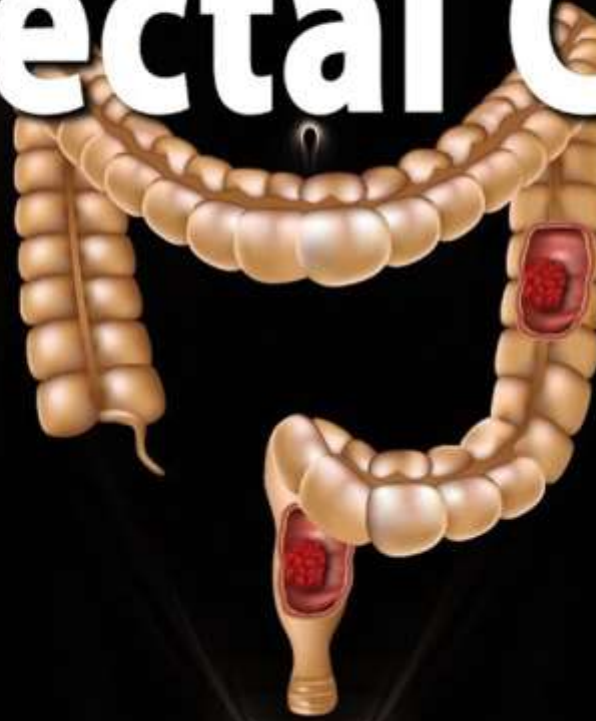


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Colorectal Cancer



Alila
MEDICAL MEDIA

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Embryologically

Right-sided colon cancer

Left-sided colon cancer

Midgut

Hindgut

MSI-H, CIMP-H
High TML
BRAF mutation
KRAS mutation
TGFbR2 mutation

Aneuploidy
TP53, APC, KRAS and
SMAD4 mutations

CMS1

HER2 overexpression

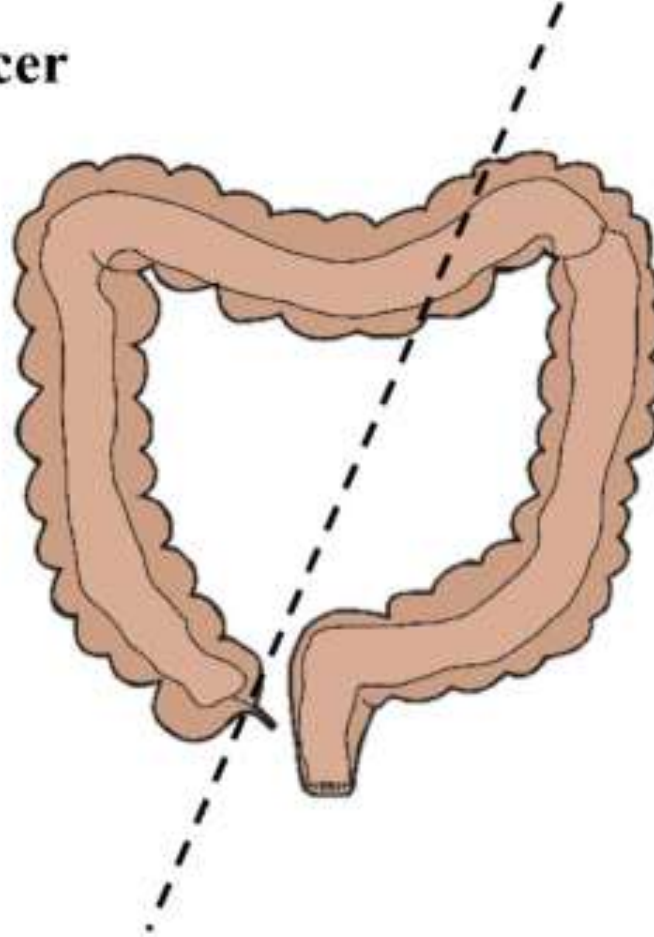
CMS2

Worse prognosis

Better prognosis

Lack of benefit from
Anti-EGFR therapy

Benefit from
Anti-EGFR therapy



Upto right 2/3rd of the transeverse colon

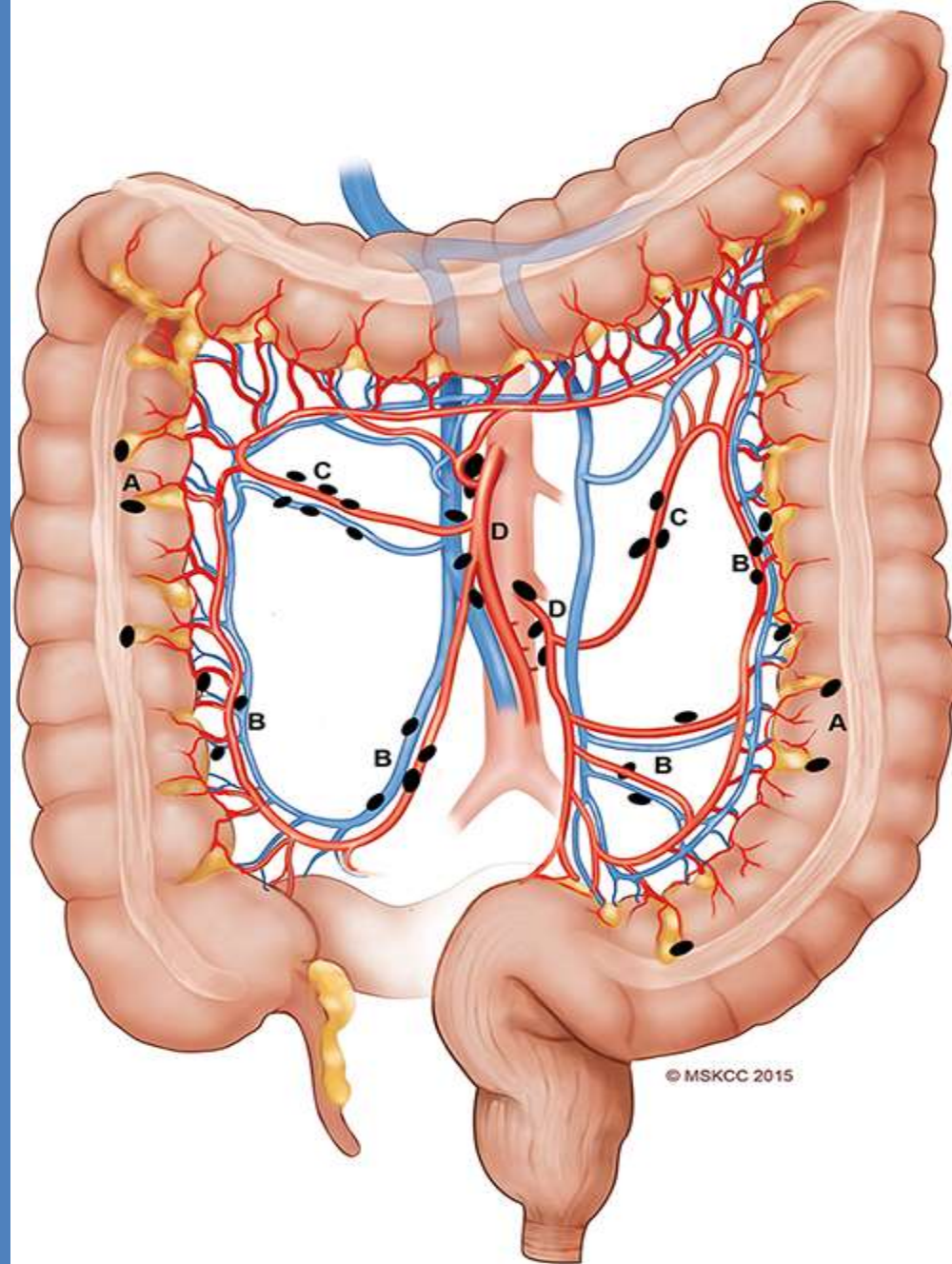
From left 1/3rd of the transeverse colon.

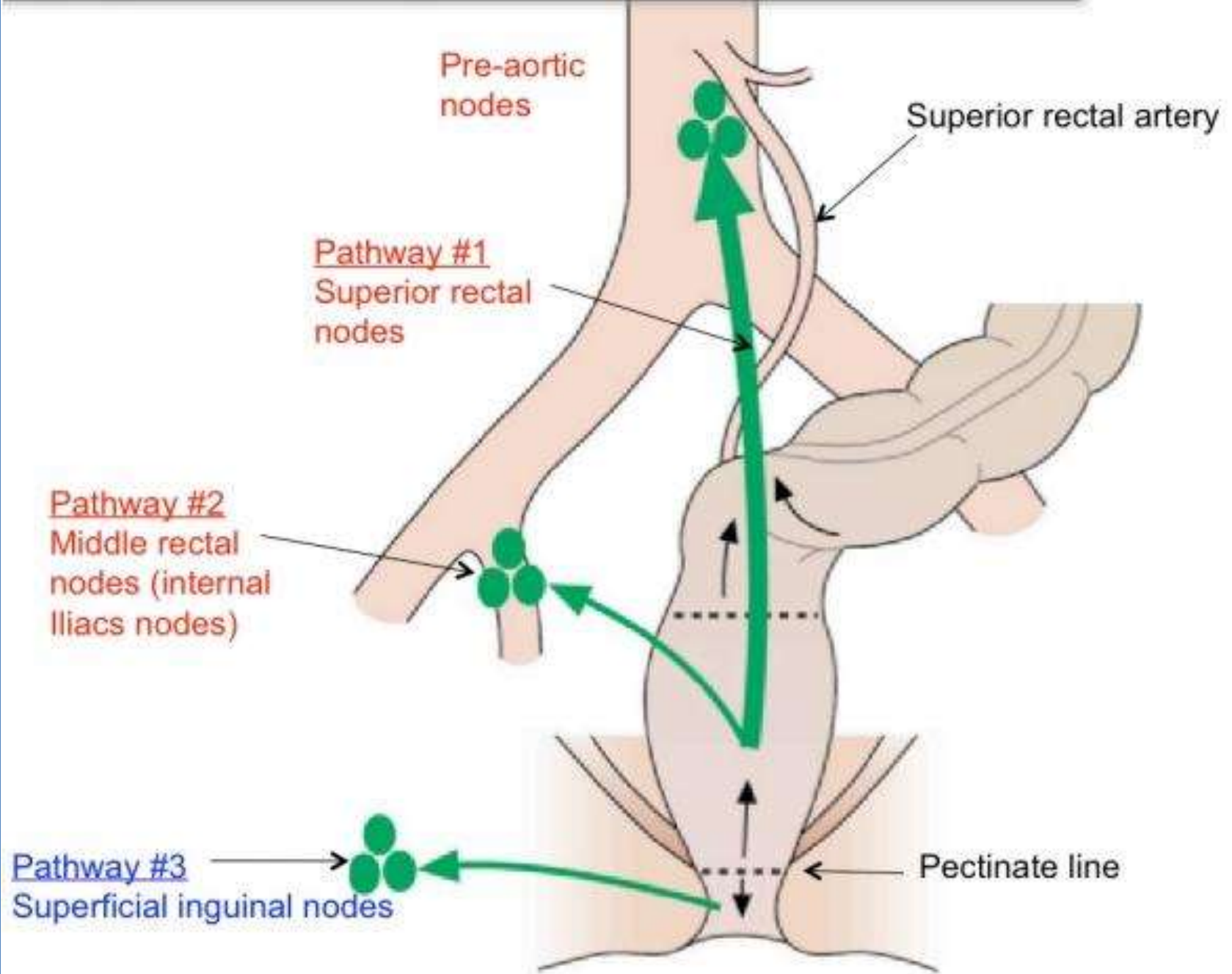
Lymphatic Drainage

- Submucous
- Subserous
- Extramural lymph channels follow their vascular supply.

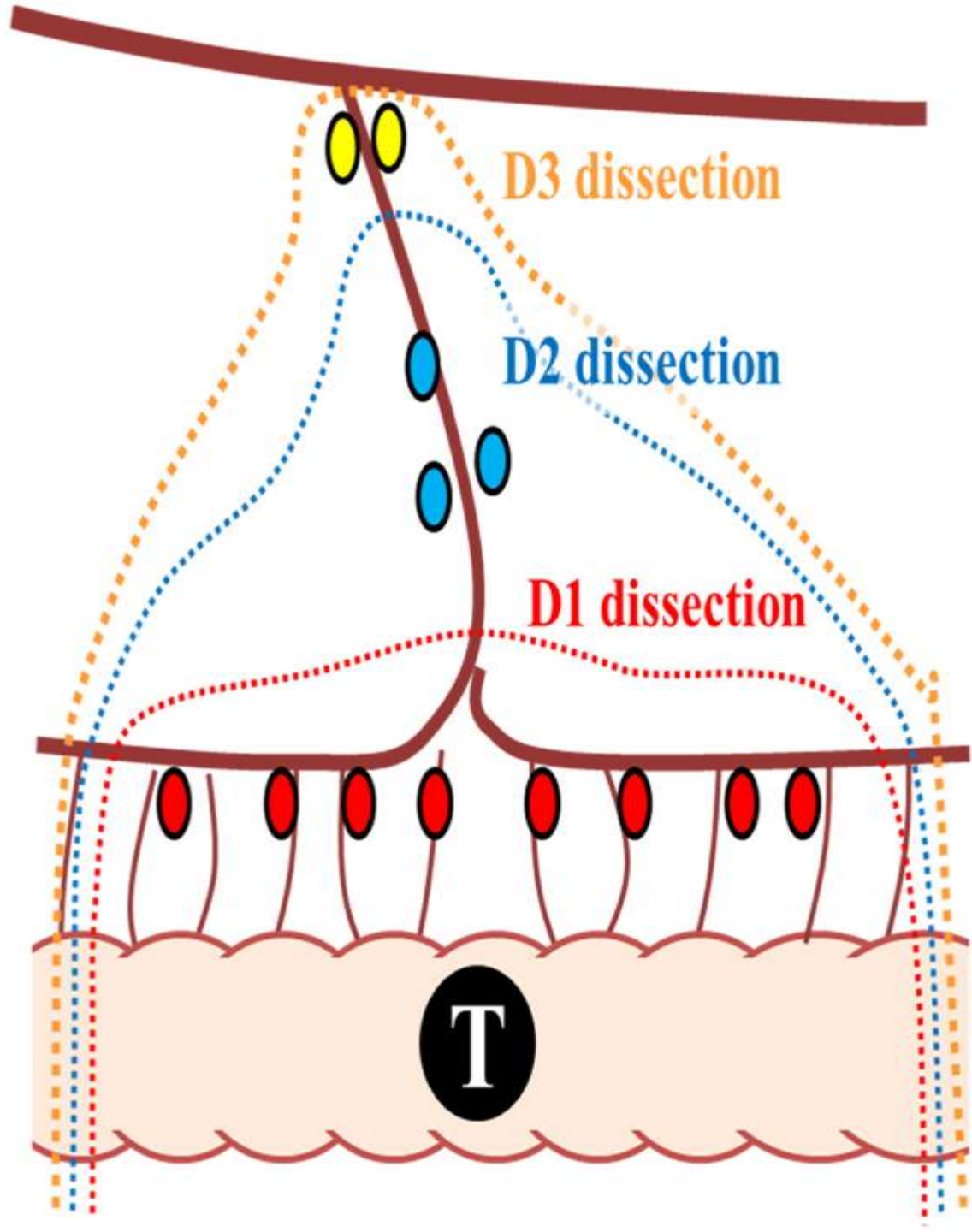
Colorectal lymph nodes are classically divided into 4 groups:

- Epiploic
- Paracolic
- Intermediate
- Principal.





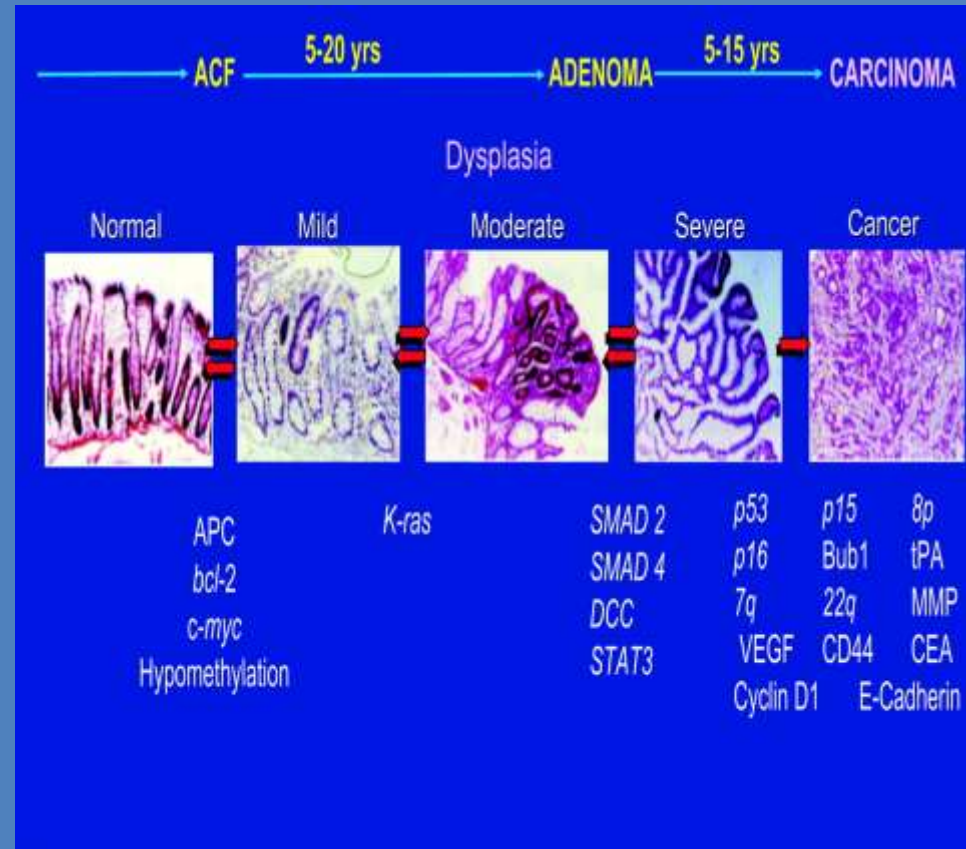
- Main lymph nodes
- Intermediate lymph nodes
- Pericolic lymph nodes



A mathematical model suggested----

- Slow process.

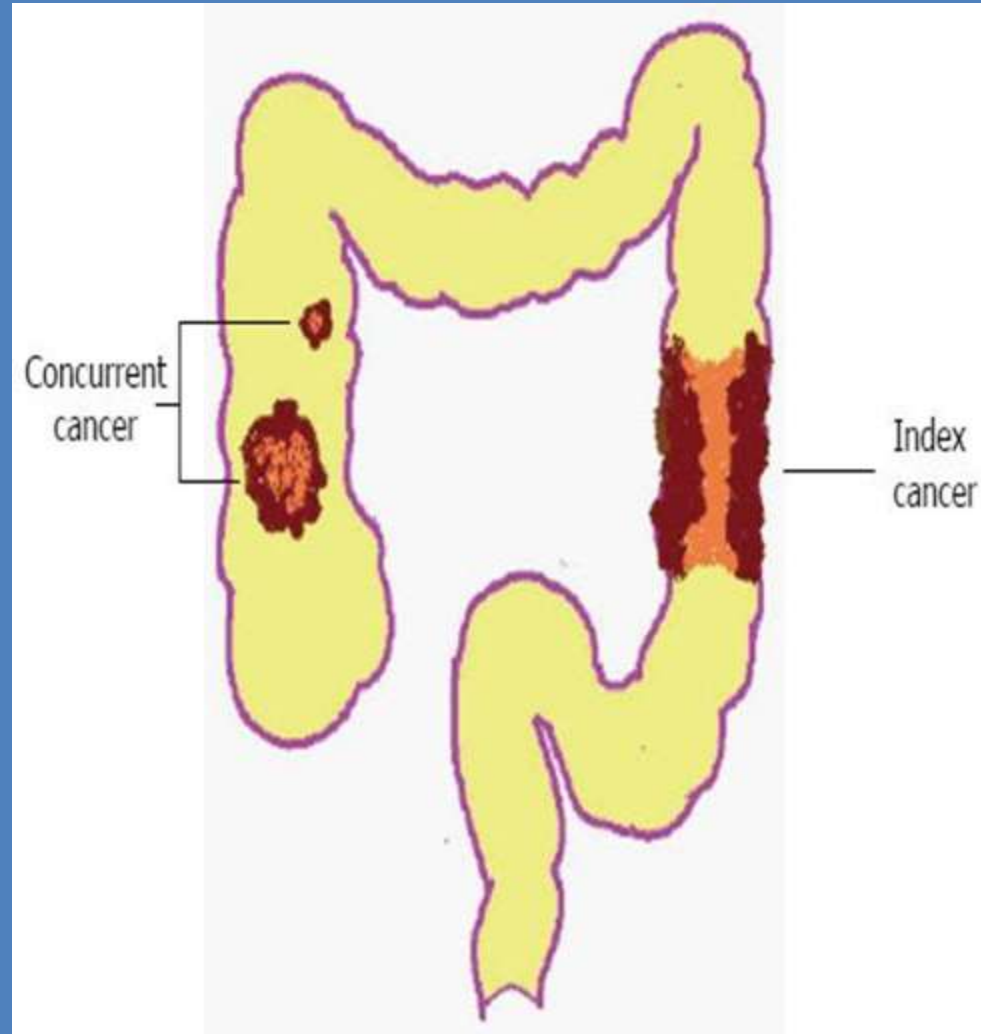
- 2–3 years for an adenoma <5 mm to grow to 1 cm,
- Another 2–5 years– for 1 cm to cancer.
- Mean age of adenoma to carcinoma is 7 years.



ACF--Aberrant crypt foci

Synchronous lesion

- Presence of 2 or more cancer at the time of diagnosis of index case.
- Incidence -2-8%.
- Treatment-
 - 2 resection anastomosis
 - Subtotal colectomy.
 - ?



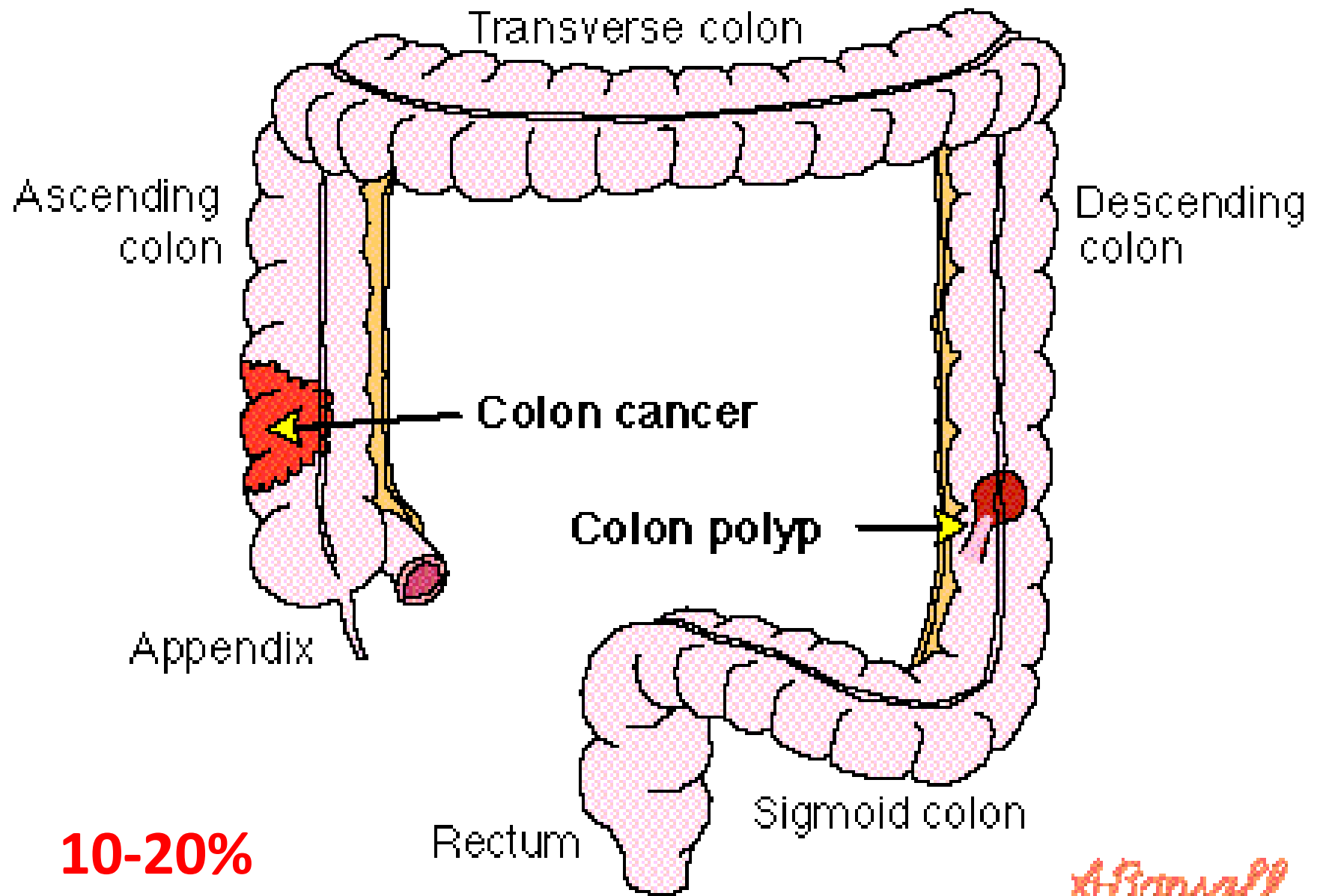
- **Metachronous colon cancer-**

- 2nd ary CRC occurring >6 months after the index cancer.
- 4%.

- **Missed synchronous CRC-**

- Diagnosed within 6 months following Sx for index case.

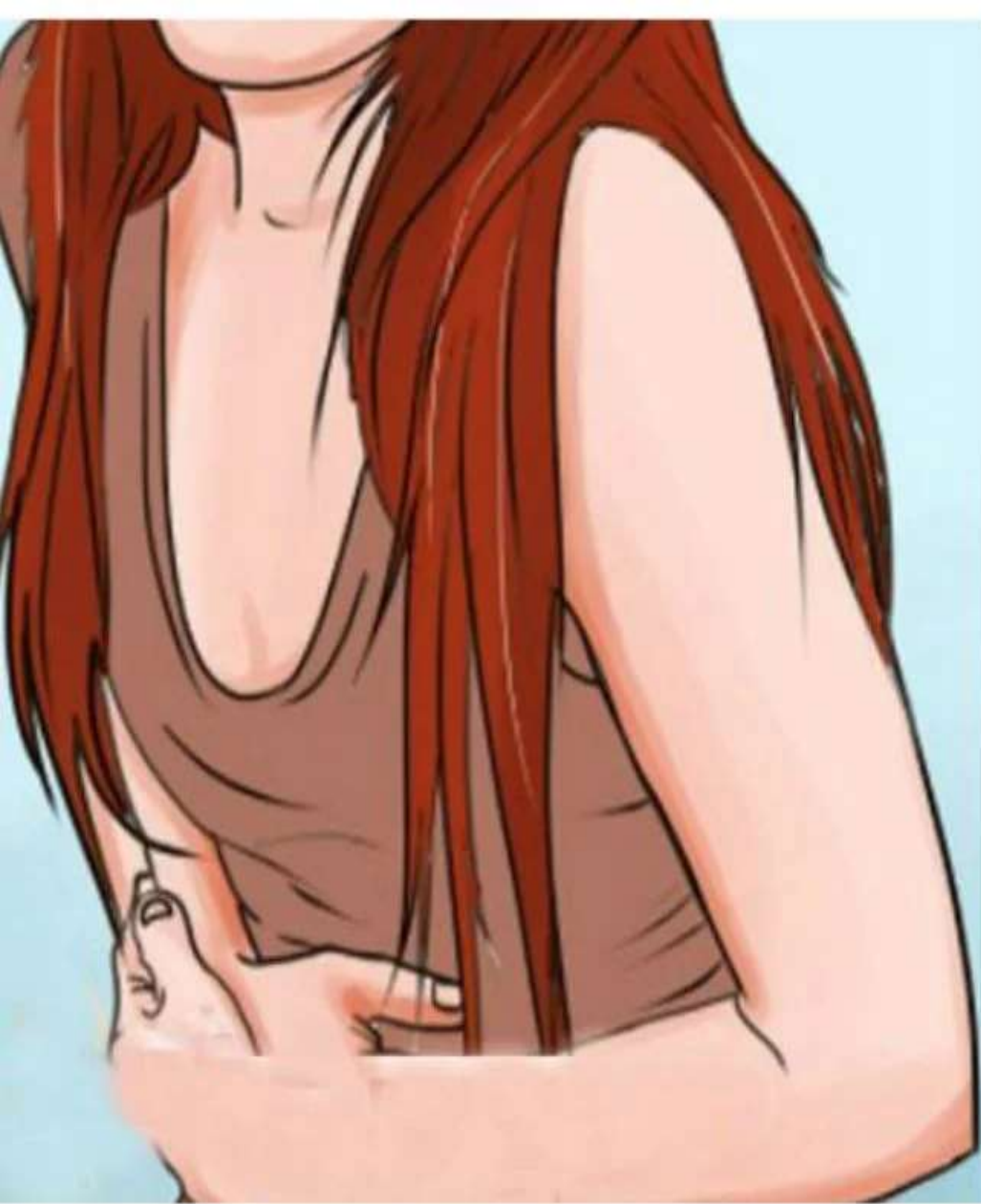




10-20%

Colon Cancer and Polyp

A Bonnell



Carcinoma with impending obstruction



(1)



(2)



(3)



(4)

Figure 65.38 The four common macroscopic varieties of carcinoma of the colon. (1) Annular; (2) tubular; (3) ulcer; (4) cauliflower.

Alteration of bowel habit

- Frequency.
- Composition.
- Consistency.
- Timing.

Tenesmus

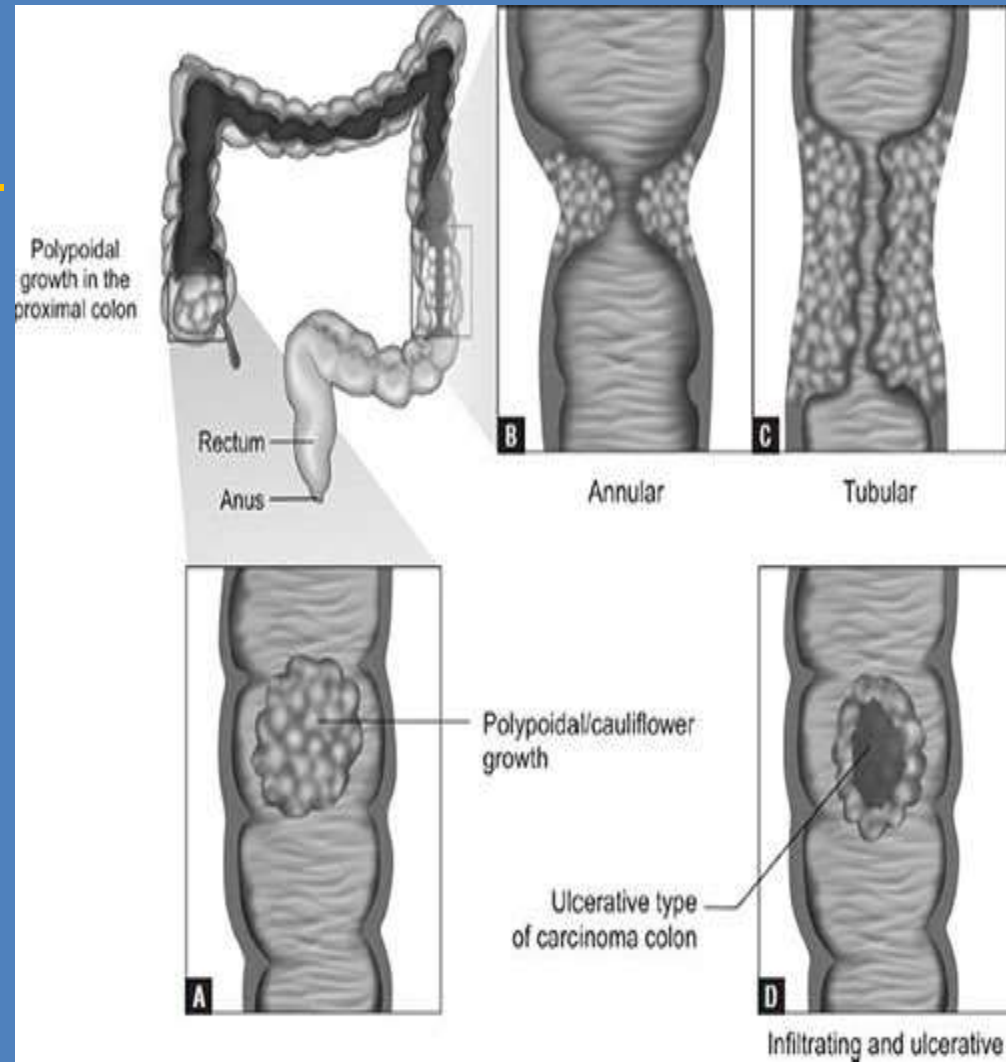
- Painful fruitless effort of defecation.

Spurious diarrhoea

- Tries to empty the rectum several times a day.
- Passage of flatus & little bloodstained mucus (bloody slime).
- No stool at all.

Obstruction more on left side

- Annular or tubular variety.
- Formed faecal matter.
- Narrow calibre.
- Thick wall.
- Less distensibility.





What is cancer staging?

Extent of spread of disease.

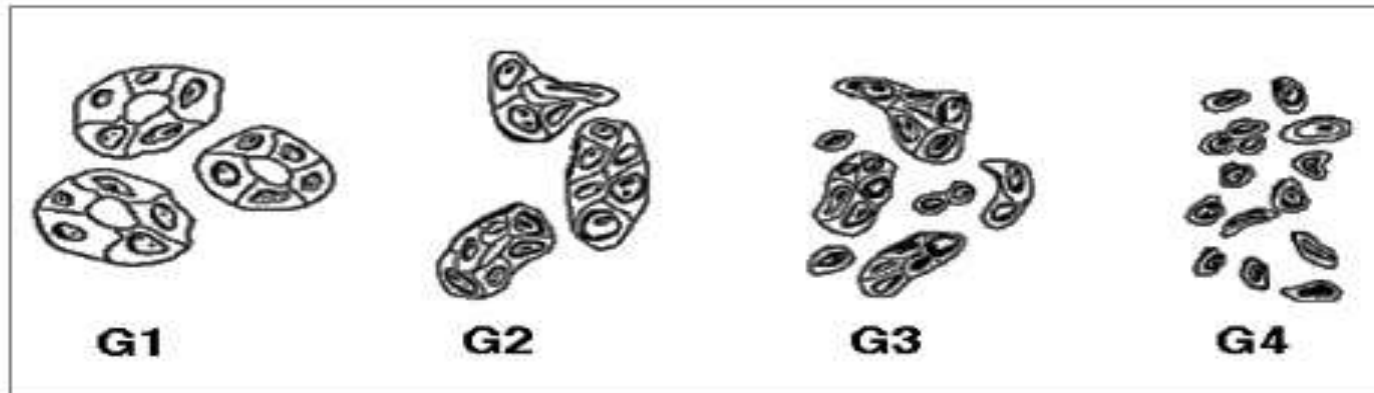
Degree of differentiation.



Stage & Grade of Cancer:

Staging: Progression or spread in the body.

Grading: Cell differentiation & Rate of growth – Microscopy.



Well differentiated (low grade)

Adenocarcinoma Grade

Undiff. (high grade)

(a)

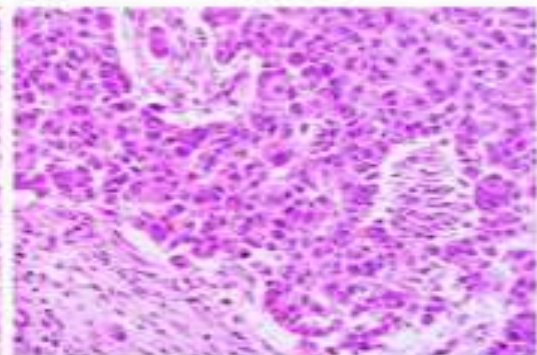
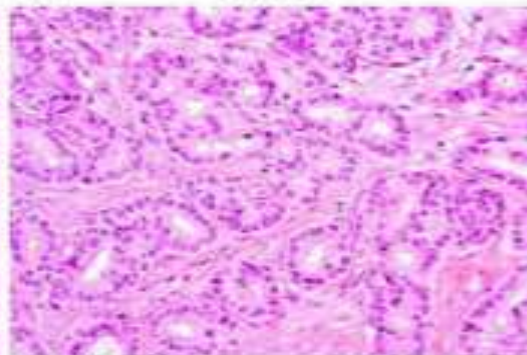
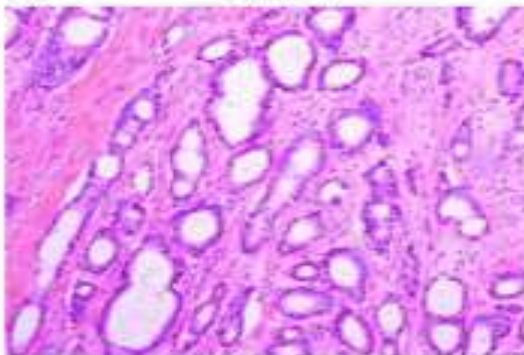
Grade 1

(b)

Grade 2

(c)

Grade 3



Duke's staging

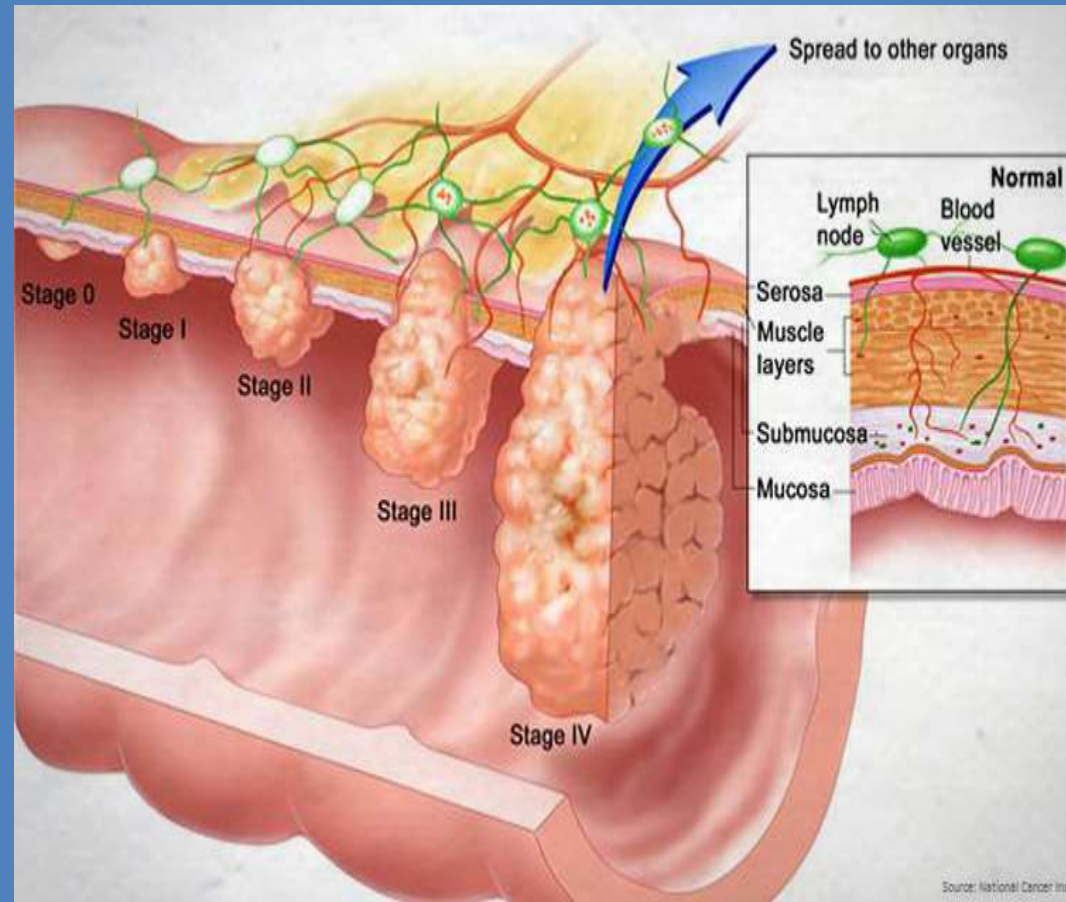
- A- within the wall.
- B- pararectal tissue.
- C- LN involvement.

Modified Duke's staging-

- D- distant spread.

TNM staging

- T₁- Mucosa & submucosa.
- T₂- Muscle layer.
- T₃- Pararectal tissue.
- T₄- Surrounding tissue.
- N₁- Upto 3 LN.
- N₂- > 4 LN.
- M₀- No metastasis.
- M₁- Metastasis present.



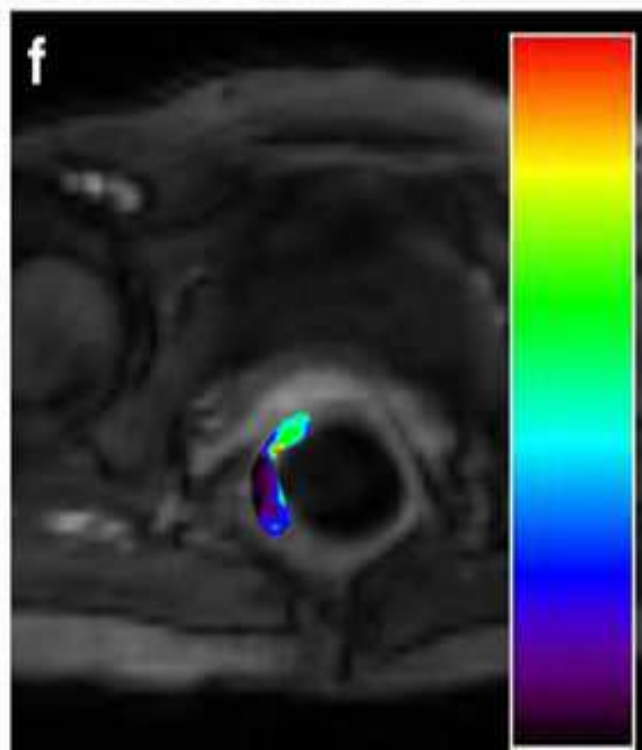
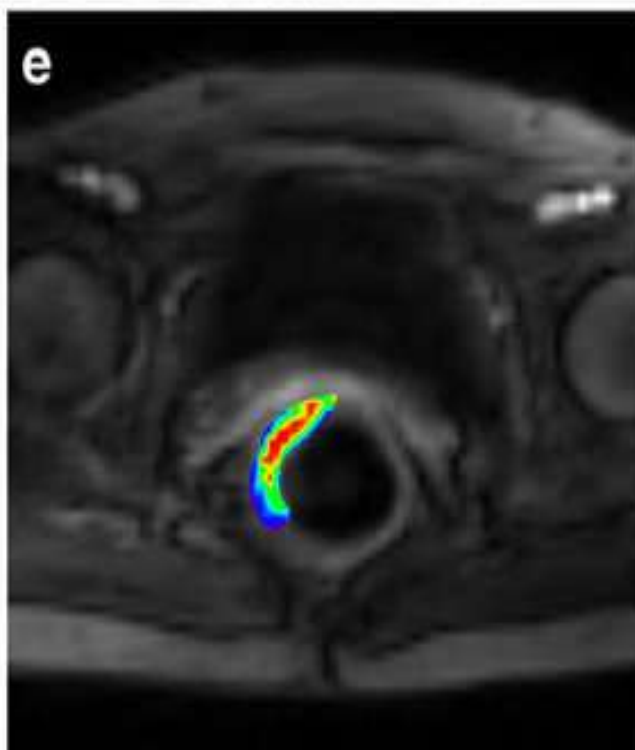
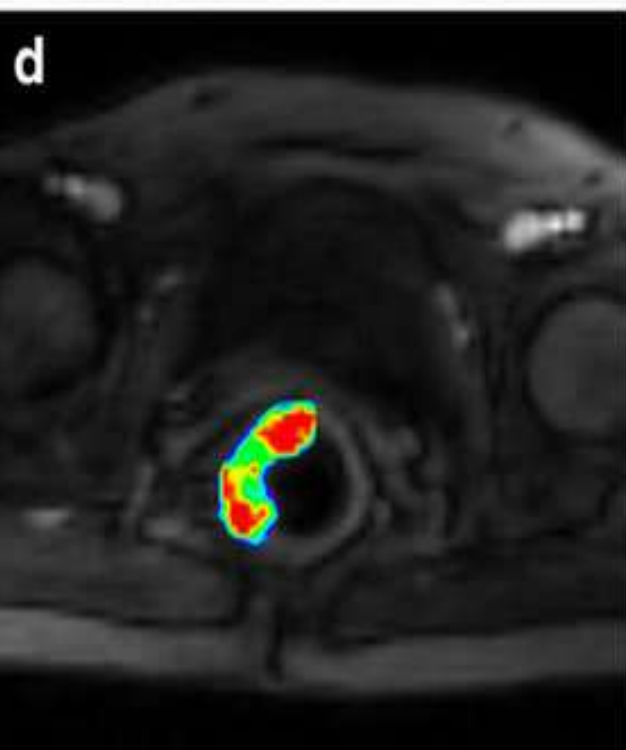
Down staging – Reduction of the stage of the tumor.

- T
- N
- M.



Reducing the size of the tumor.





DRE-

- Depends upon length of the finger.
- Upto 7 cm.
- With straining 12 cm.



I



II



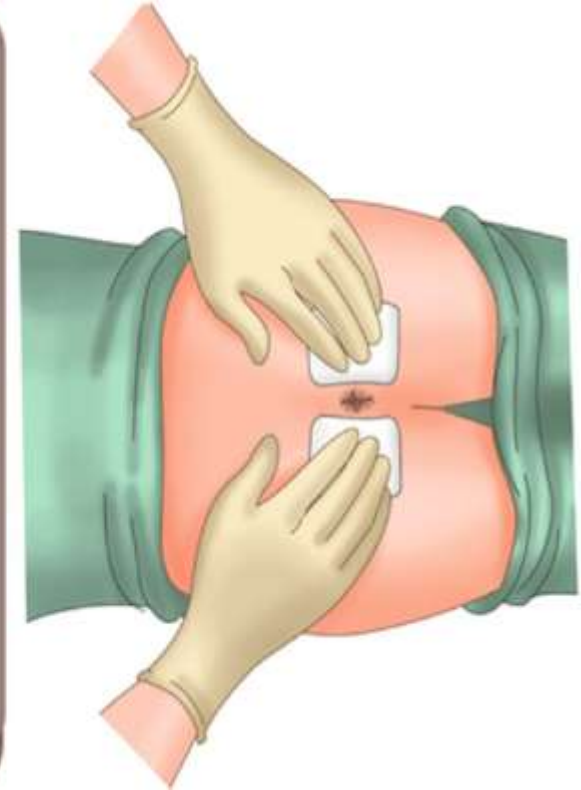
III



IV

Positions-

- Left lateral.
- Right lateral.
- Dorsal position.
- Knee-elbow.
- Lithotomy.
- Standing.



Left lateral position-

- Sim's position.
- Knee flexed, hip flexed.
- Buttock at the corner of the bed.
- Right index finger.
- Push over postanal region.
- Relaxes puborectalis, straightens rectum & anal canal.



Investigations

- Colonoscopy & biopsy.
- Barium enema X-ray of large Gut.
- CT scan of abdomen & chest.
- Serum CEA & CA 19-9.
- Serum albumin.
- LFT.
- MRI of Pelvis.
- Endoanal USG.
- Fitness investigations.

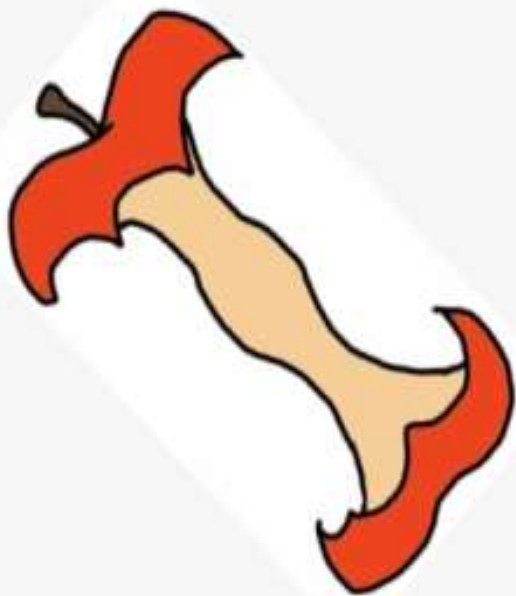




Fig. 5 Double-contrast barium enema reveals an an

Mechanical cleansing.
Chemical cleansing.



STARZ

Mechanical bowel preparation

Mechanical ways to reduce the bulk of stool.

- PEG.
- Sodium picosulfate (Picolax).
- Hercules preparation.
- Enemas.
 - Enema simplex.
 - Compound enema.
 - Fleet enema.

- 3 days preparation.
- 2 days preparation.
- 1 day preparation.
- No bowel preparation.

- 4 bottle PEG solution in 4 litre of fluid.
- 250 ml 15 min interval.
- Starting from 10 am.
- Ends at 2 pm.
- Liquid diet upto 8 pm.
- Then start saline.
- Enema if required.

What we do?

- No bowel preparation for-
 - Anorectal procedures.
 - Right sided colonic resection.
 - APR.
 - Emergency procedures.
- Bowel preparation for-
 - Left sided colonic resections.
 - AR.
 - LAR.
 - ULAR.
 - Colonoscopy.

Principle of cancer surgery

- Removal of tumor.
- Adequate tumor free resection margin.
- Lymphovascular clearance.

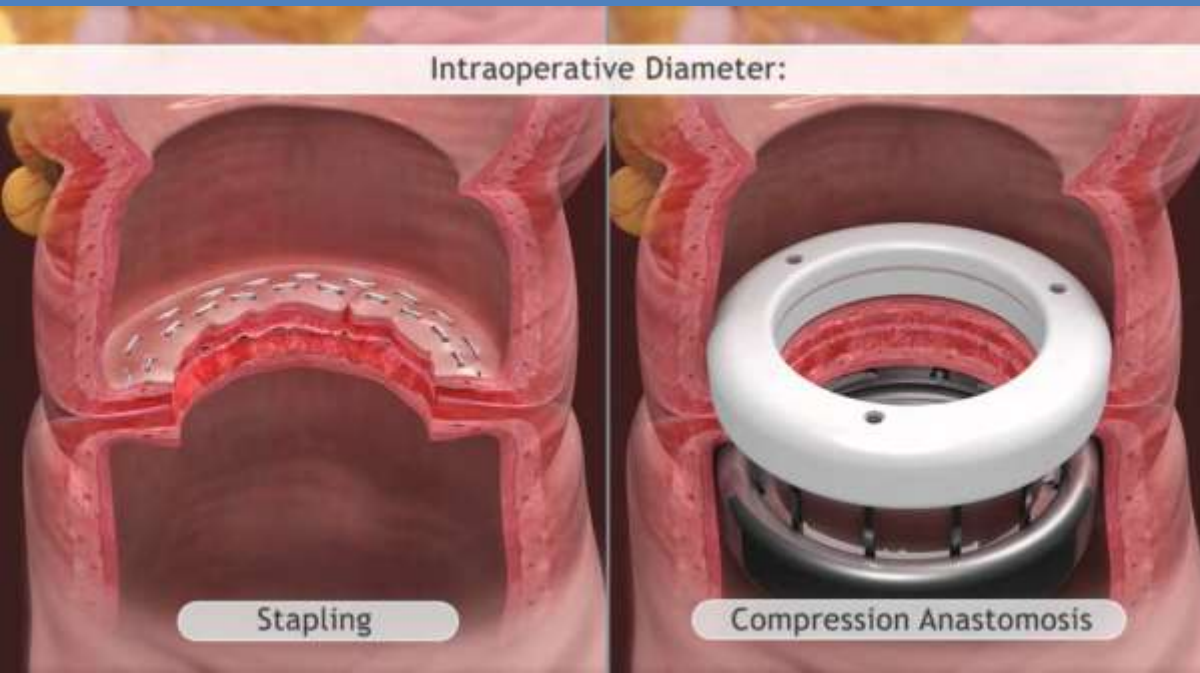
Principles of anastomosis

- Good blood supply.
- Tension free anastomosis.
- Air tight & water tight.
- Anastomosis with healthy, non diseased bowel ends.

- 3-0 R/B vicryl.
- Single layer seromuscular extramucosal.
- Single layer full thickness.



Intraoperative Diameter:

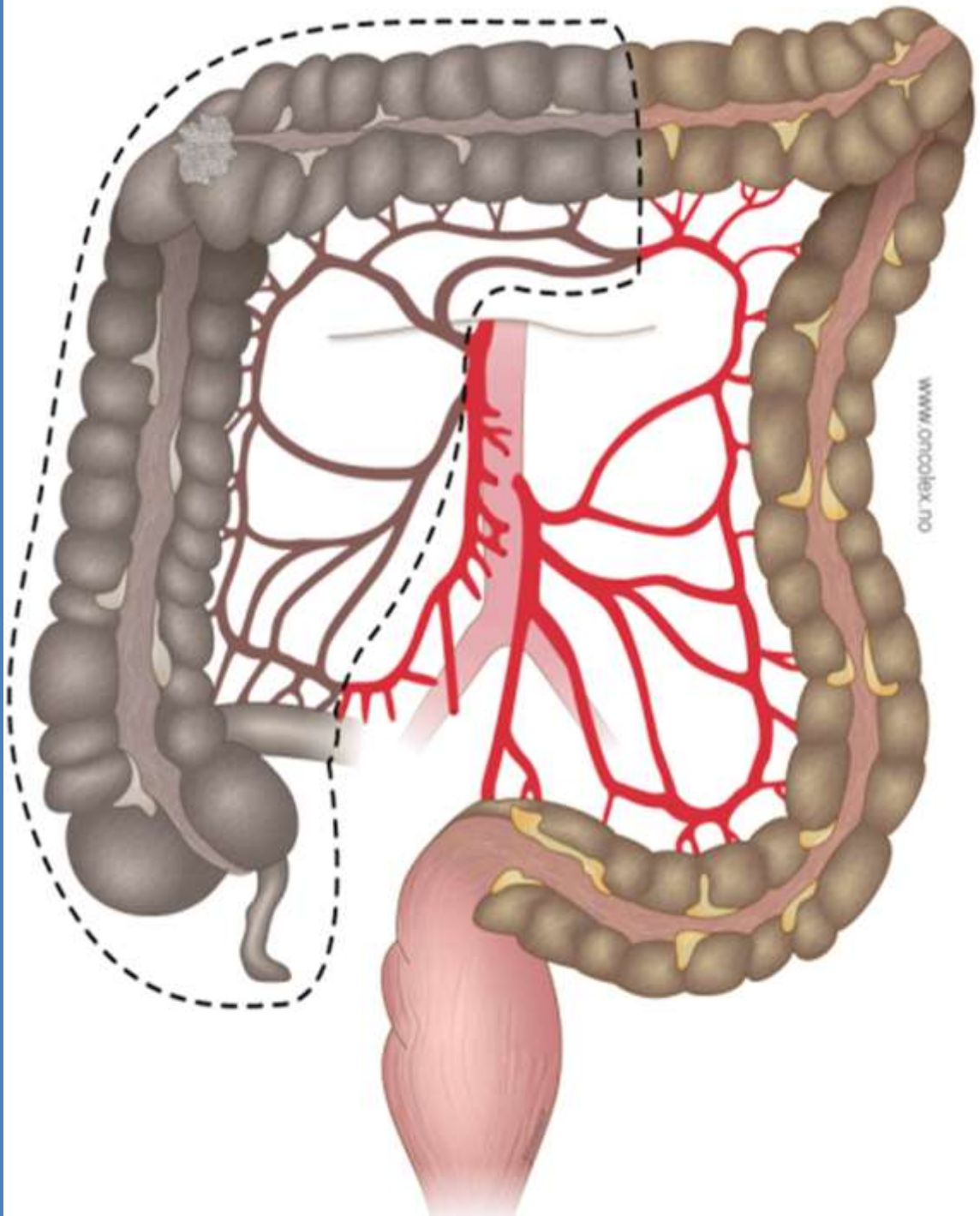


Stapling

Compression Anastomosis

PRM

- 10 cm tumor free resection margin is adequate.
- At least 5 cm should be resected.



DRM

Maximum distal mesorectal spread upto 2-3 cm.

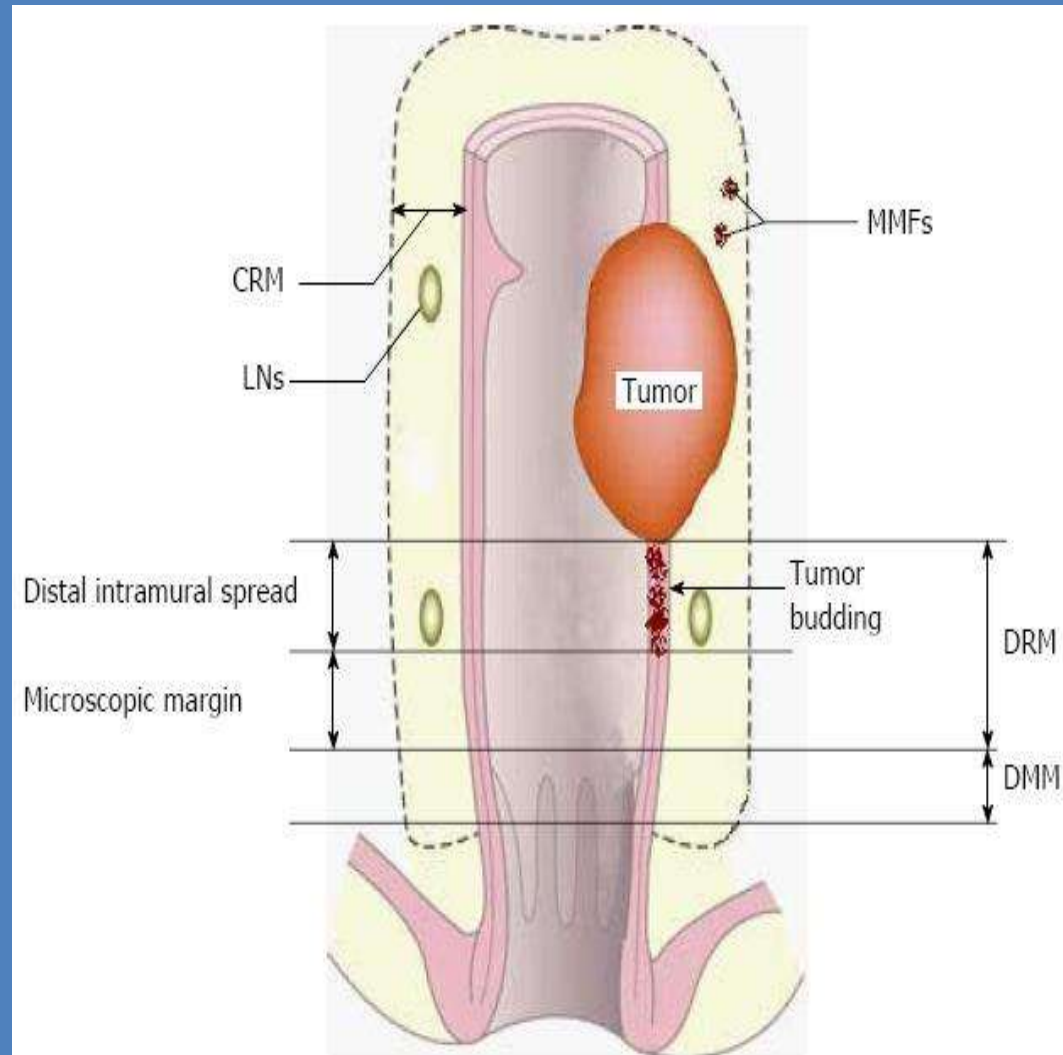
- DRM should be 5 cm where possible.

Standard for low rectal cancer

- At least 2 cm.

SSS-

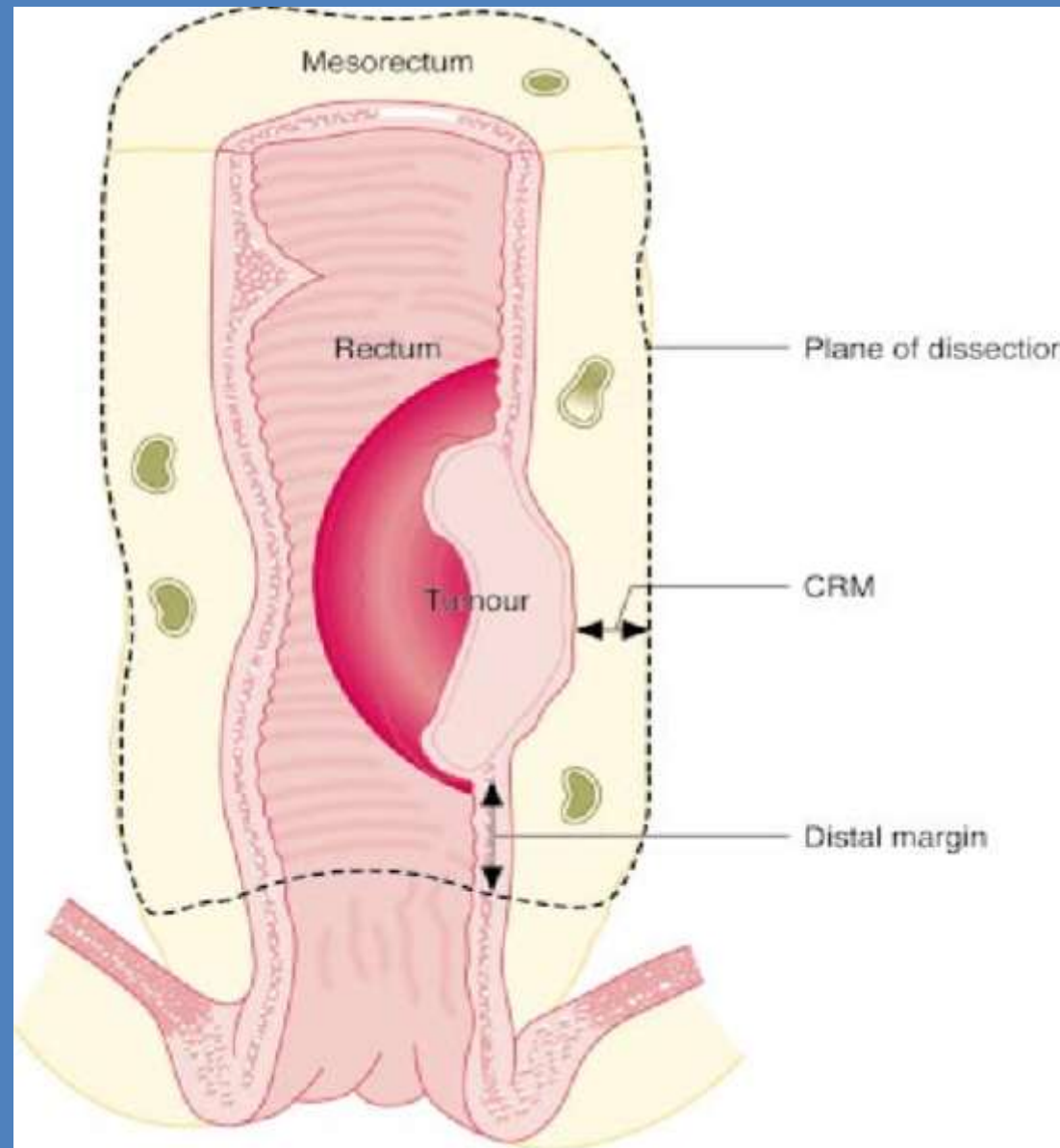
- Well diff-0.5 cm
- Mod. diff-1 cm
- Poorly diff- 2 cm

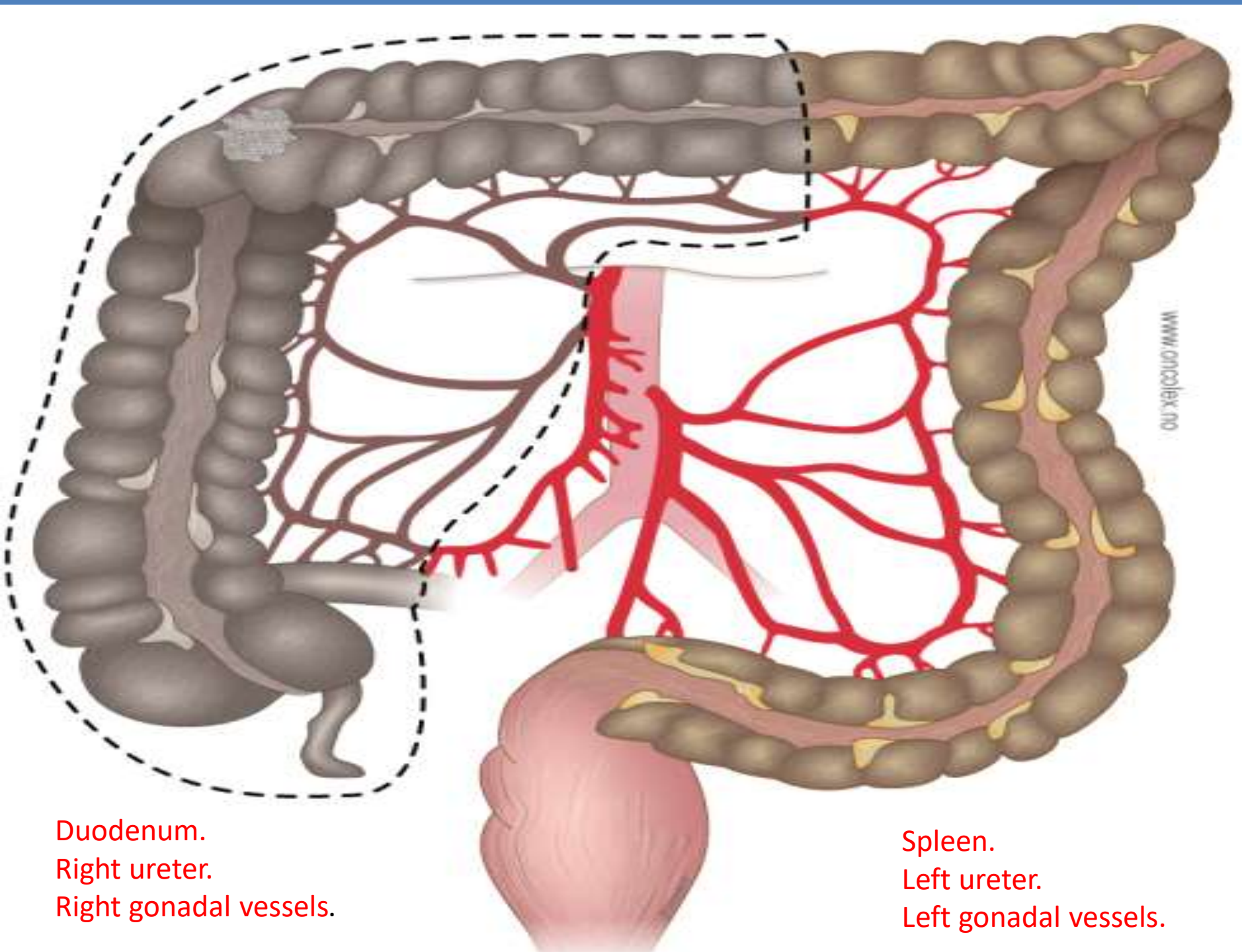


CRM

CRM positive

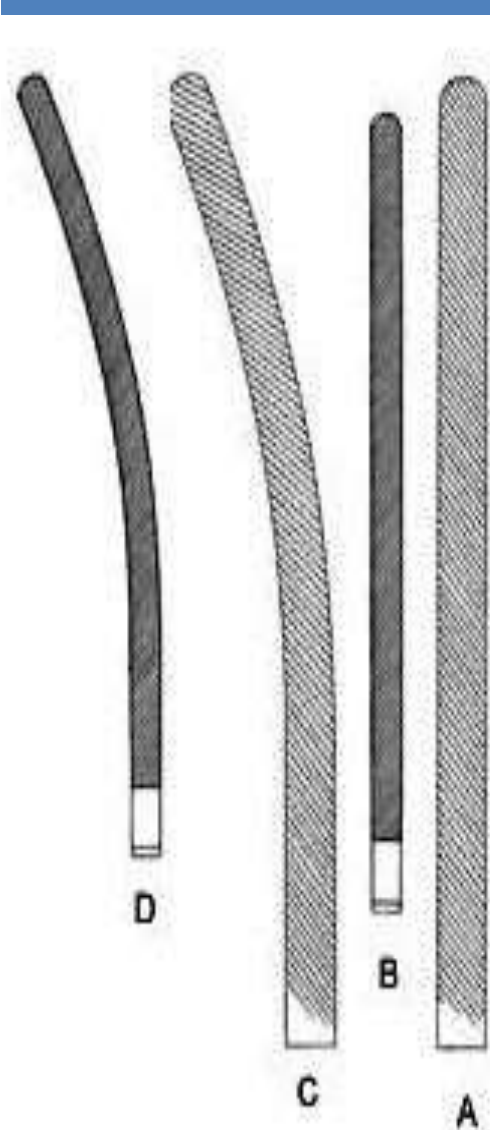
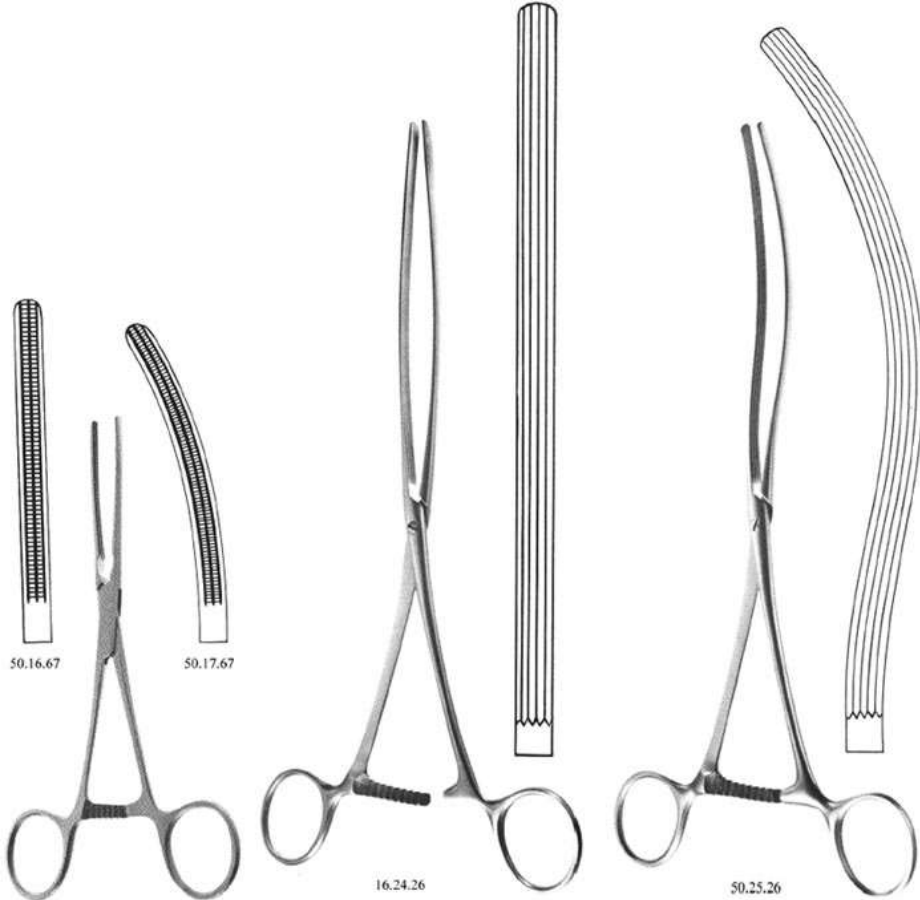
- Tumor cell deposit within 1 mm of CRM.
- Bad prognostic sign
- High chance of recurrence.





Duodenum.
Right ureter.
Right gonadal vessels.

Spleen.
Left ureter.
Left gonadal vessels.



Occlusive variety.
Crushing variety.

Straight.
Curved.

Functions-

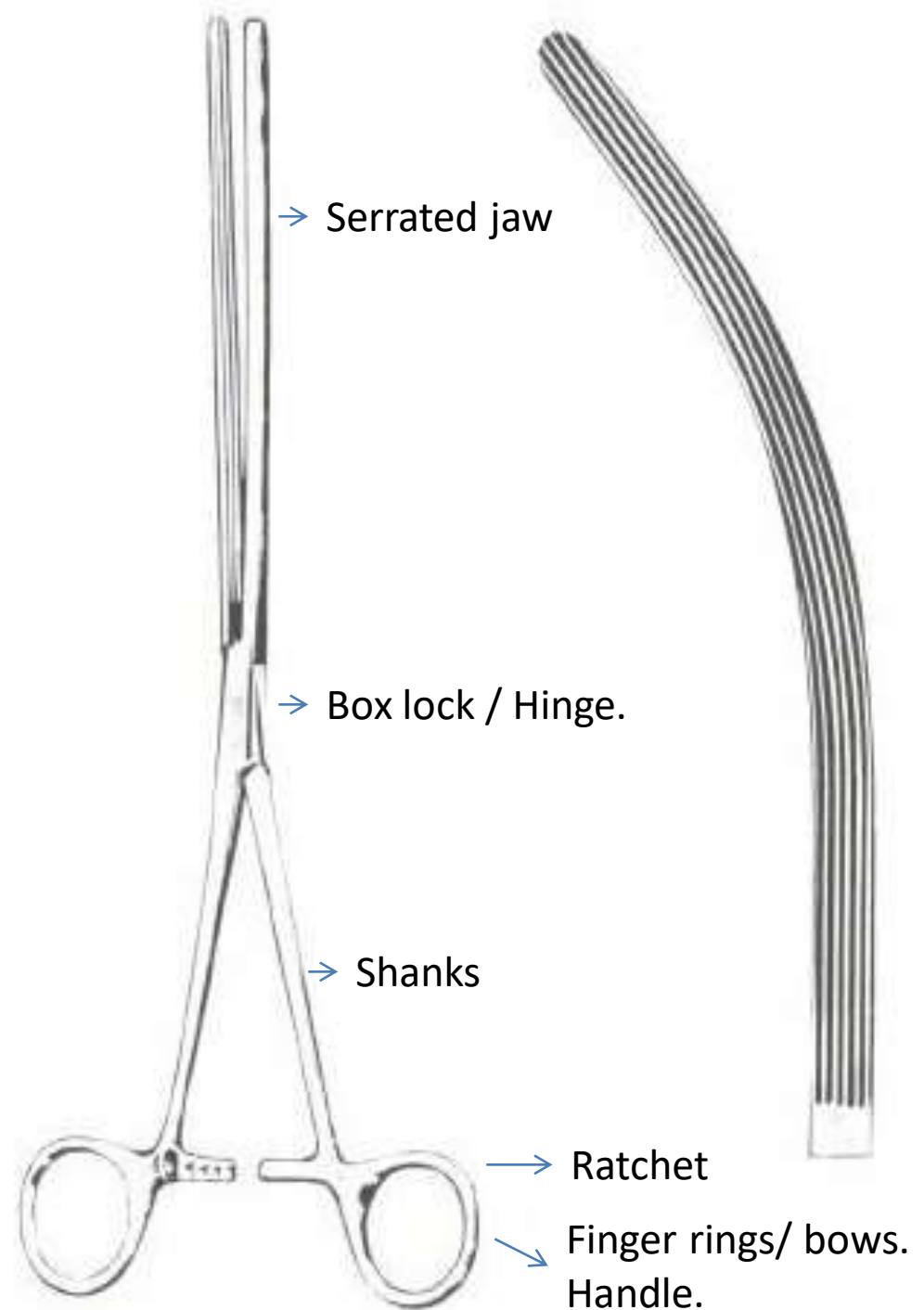
- Occlusion.
- Haemostasis.
- Apposition.

Sterilization-

- Autoclaving.



Resected end- Crushing variety.
Remaining segment- Occlusive.



Proctoscope



Proctoscope:



Length

- Depends upon the length of proctoscope.
- Upto 12 cm.



Proctoscope

Parts-

- Outer sheath with a handle.
- Inner obturator.

Types-

- Illuminating.
- Non illuminating.

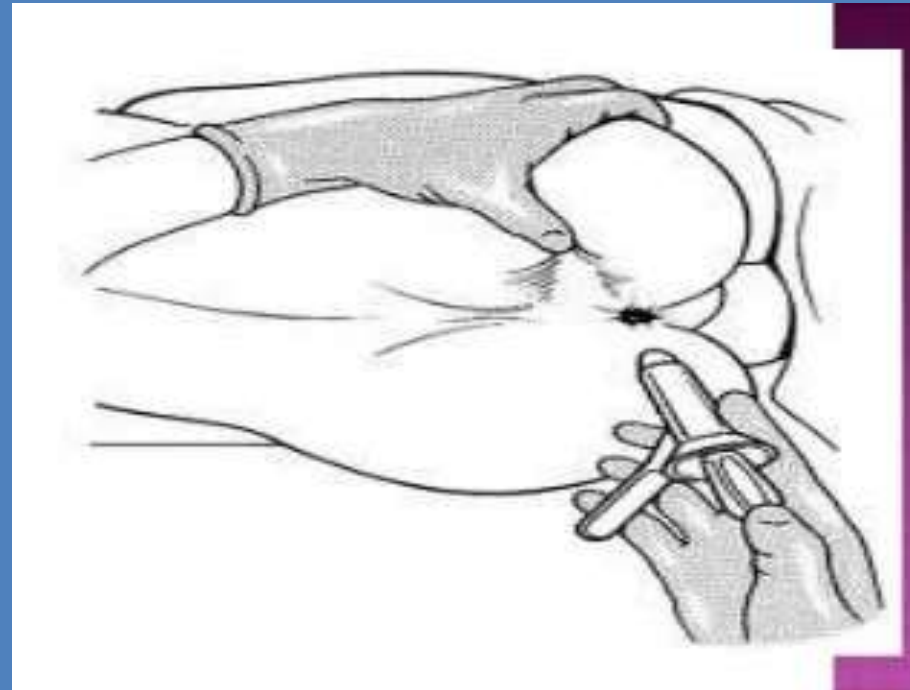
Proctoscope:



Indications

Diagnostic-

- Haemorrhoids.
- Fissure.
- Fistula.
- Polyp.
- Biopsy.
- Stricture.



Therapeutic-

- Sclerotherapy.
- Polypectomy.
- RBL.

Complications

- Pain.
- Bleeding.
- Thrombosis.
- Prolapse.
- Ulceration.
- Abscess formation.
- Portal pyemia (rare).

Contraindication-

- Painful anal condition.

Per rectal bleeding

Painless-

- Haemorrhoids.
- Rectal polyp.
- IBD.
- Diverticular disease.
- CRC (early).
- SRUS.
- Rectal varices.
- Postpolypectomy .

Per rectal bleeding

Painful-

- Thrombosed haemorrhoids.
- Anal fissure.
- Anal trauma.
- Advanced cancer.
- Anal warts.
- Rectal prolapse.
- Proctocolitis.

Painful anal condition

- Acute anal fissure.
- Complicated haemorrhoids.
- Anorectal abscess.
- Perianal haematoma.
- Anal cancer.
- Proctalgia fugax.

One-piece type

Two-piece type

Urine collection bag

Stool collection bag

Faceplate
stoma hole

Flange
(connection part)

Non-return
valve

Faceplate

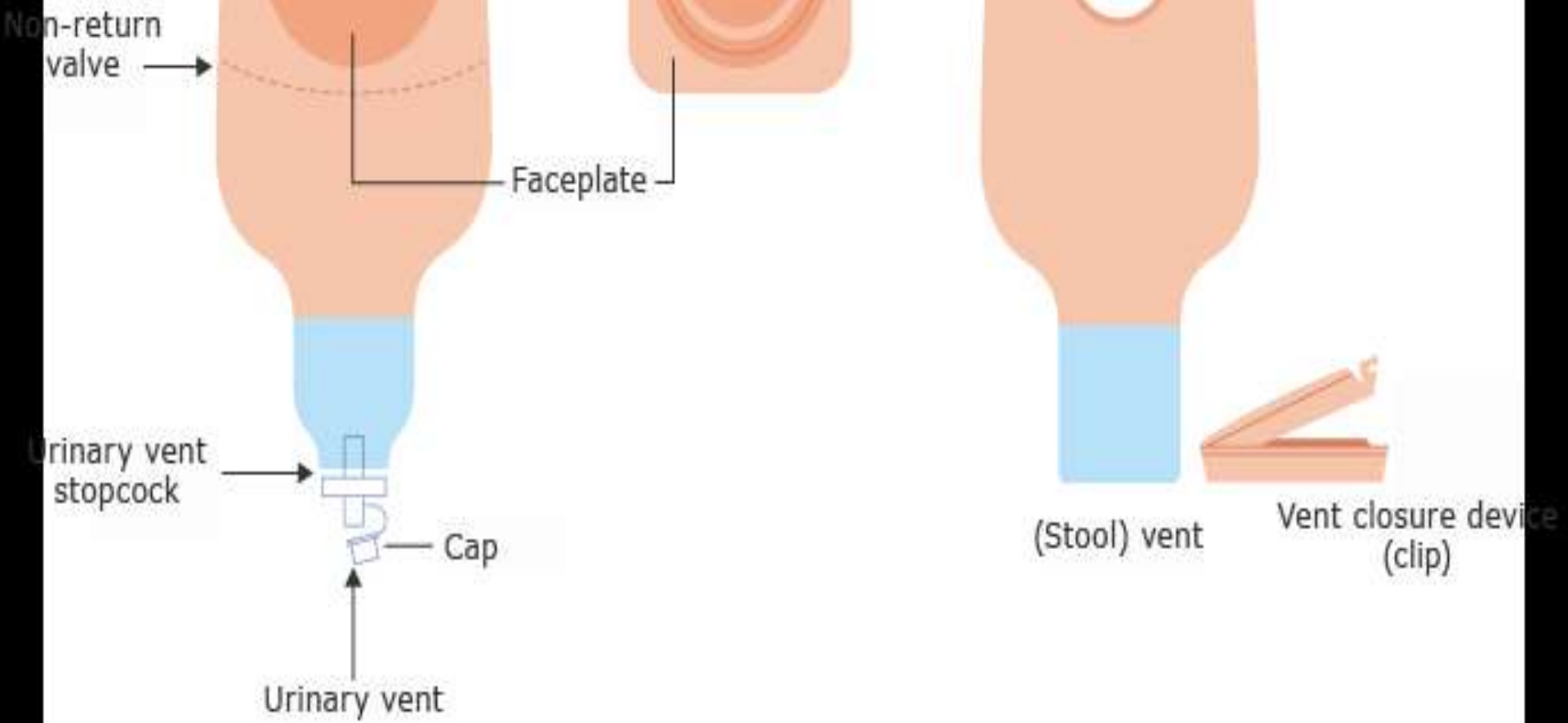
Urinary vent
stopcock

Cap

Urinary vent

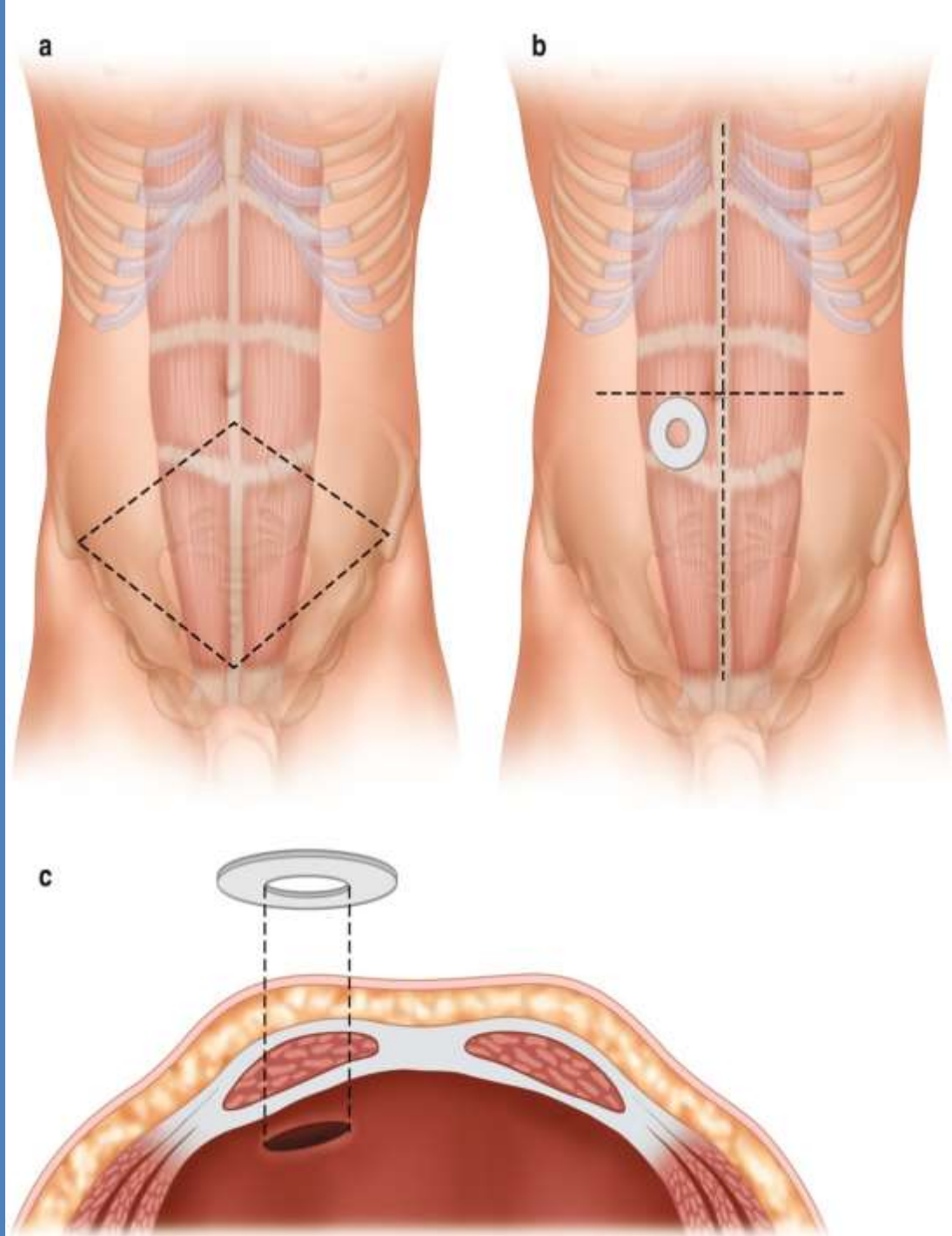
(Stool) vent

Vent closure device
(clip)



Stoma triangle-

- Anterior superior iliac spine.
- Pubic tubercle.
- Umbilicus.



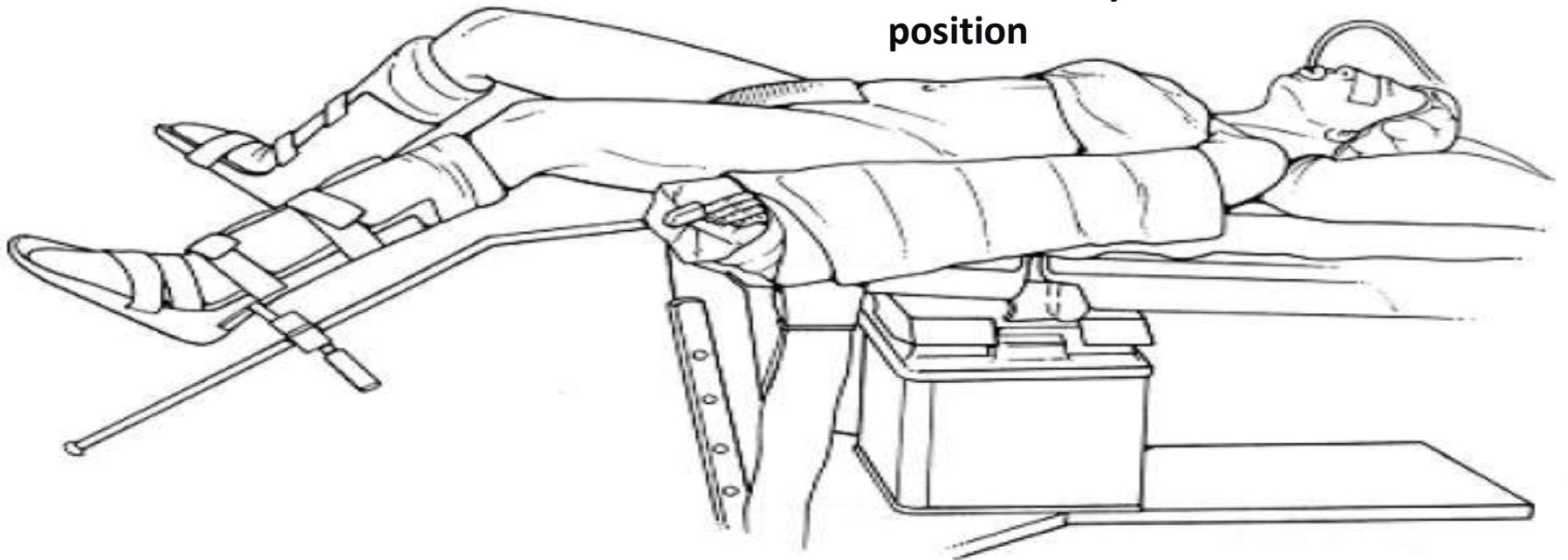
Indications of stoma

- Anastomosis below peritoneal reflection
- Obstruction
- Perforation
- Immunosuppression
- Comorbidities
- Haemodynamic instability
- Intraoperative severe blood loss
- Hypoalbuminemia- < 2.1 gm/dl
- Sepsis
- Long time steroid
-

Lithotomy position



Modified Lithotomy position



Leak test

Patency test.

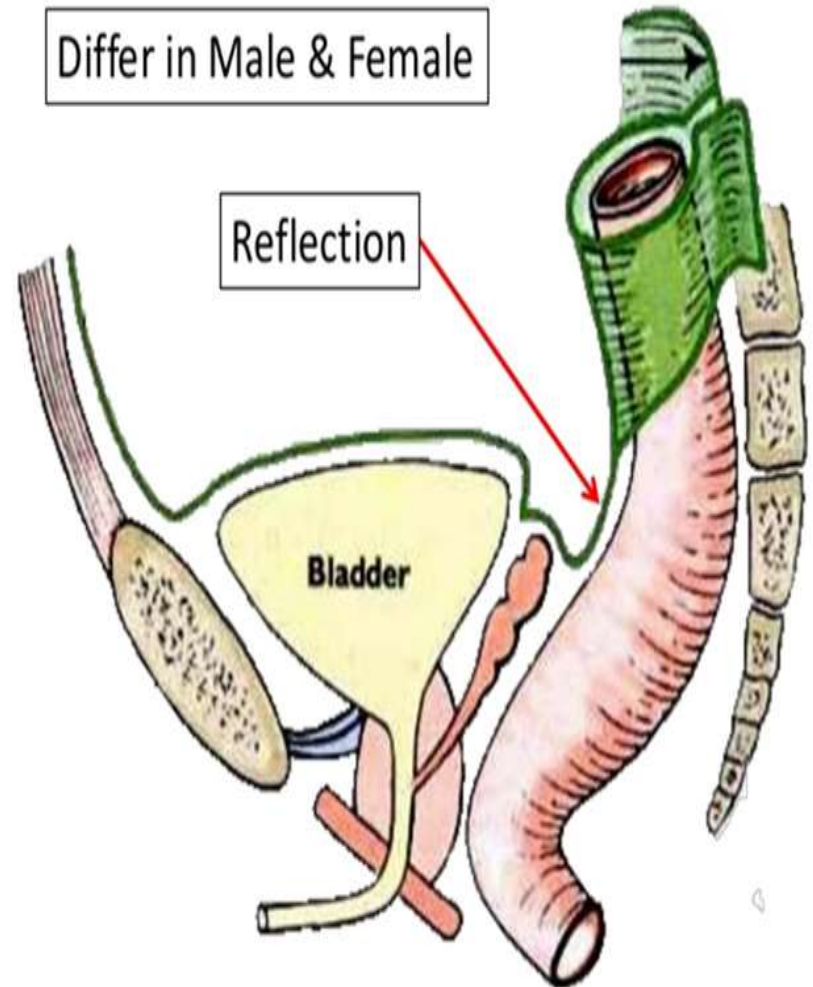


Histopathology requisition

- Tissue diagnosis
- Type of malignancy
- Grading
- PRM
- DRM
- CRM
- Nb. Of LN
- Nb. Of positive LN.
- Immunohistochemistry
- Tumor biology & molecular profiling.

Types of surgery

- High anterior resection-
 - Anastomosis above peritoneal reflection.
- LAR-
 - below peritoneal reflection.
- ULAR-
 - Coloanal anastomosis.
- APR.

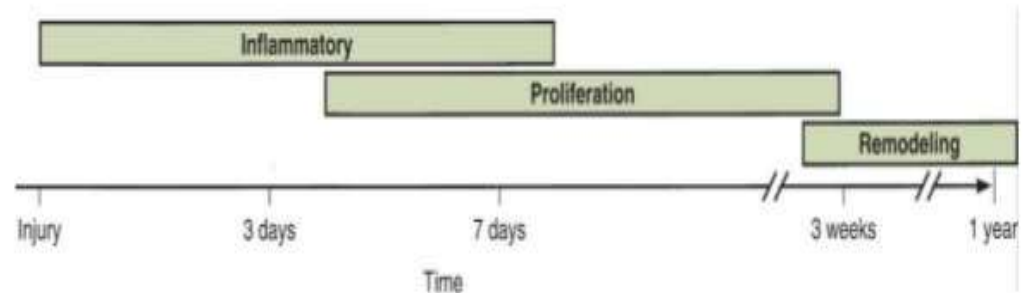


Healing of anastomosis

- Inflammatory / Lag phase.
 - 0-4 days.
- Proliferative phase-Fibroplasia.
 - 3-14 days.
- Remodelling / maturation phase.
 - >10 days.

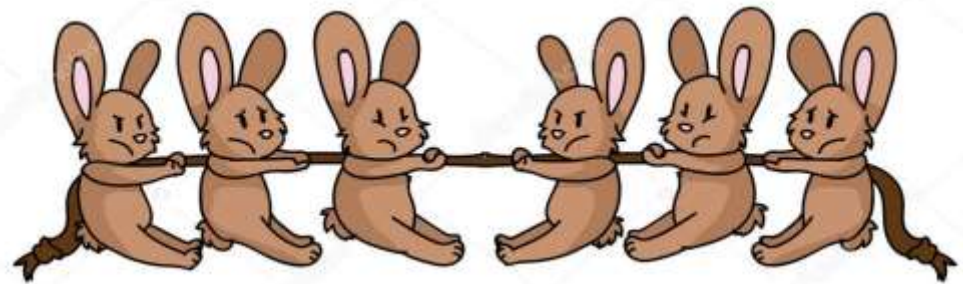
Intestinal healing

- Occurs like other tissues
- Hemostasis & Inflammatory phase
- Proliferative phase
- Remodelling & maturing phase



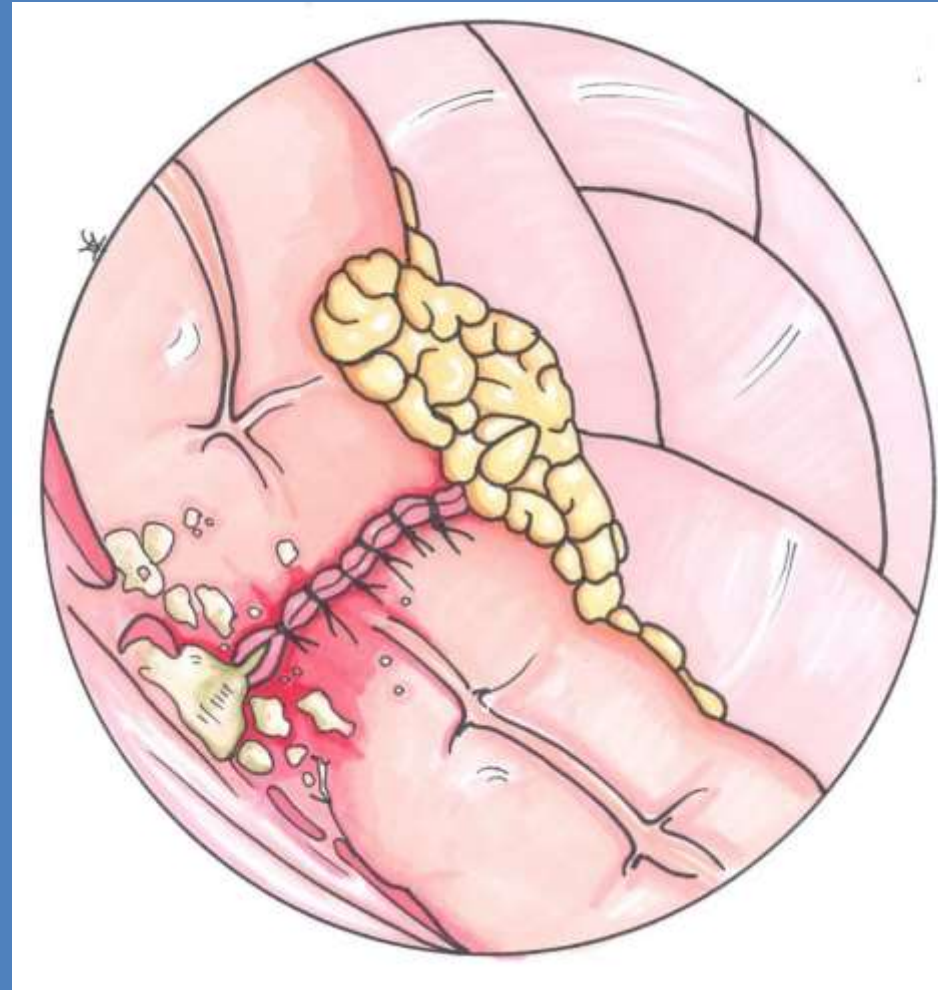
Anastomotic strength

- From collagen of submucosa.
- Low during the 1st POD.
- Early strength- on suture or stapler.
- Weakest- 3- 4th POD.



Grading of anastomotic leakage

- A- leakage with-
 - Minimal or
 - No clinical impairment.
 - Require no active intervention.
- Leakage require-
 - Active intervention.
 - But manageable without surgical intervention.
- Leakage require-
 - Repeat surgical intervention.
 - Often require diversion.



Website---www.ferdauscolorectalcare.info.

Facebook page-

colorectal care dr md ashek mahmud ferdaus.