Anastomotic Leakage & It's Consequences

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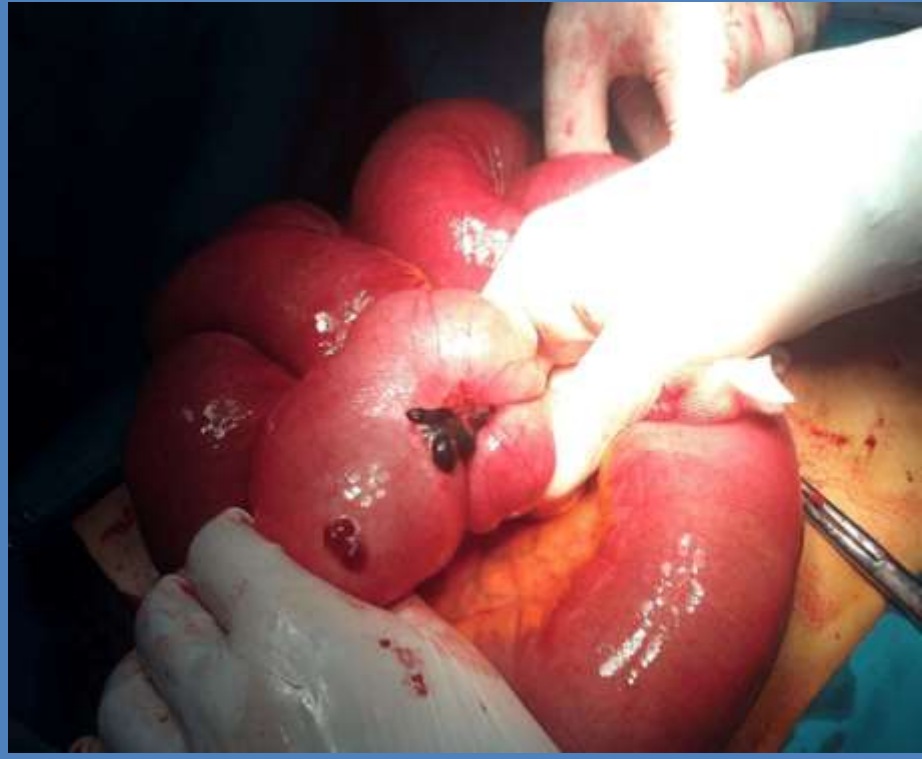
Preoperative preparation

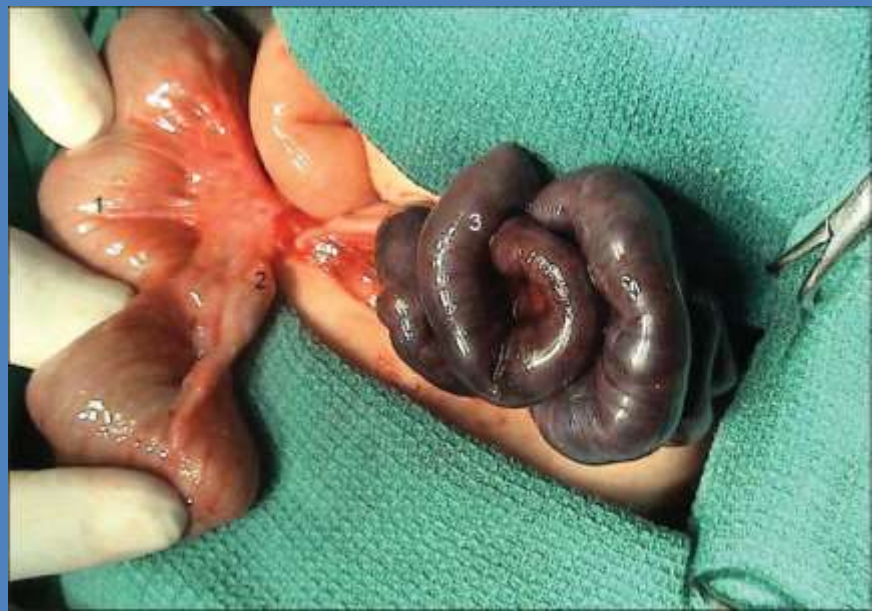
- Assessment followed by resuscitation.
- Optimization of the condition.
- Bowel preparation?
- Prophylactic antibiotics.
- Counselling.

Assessment of gut viability-

- Clinically-
  - Pink serosa.
  - Peristalsis.
  - Positive pulsation.
  - Bleeding on pin prick.
  - Color change on hot compression.

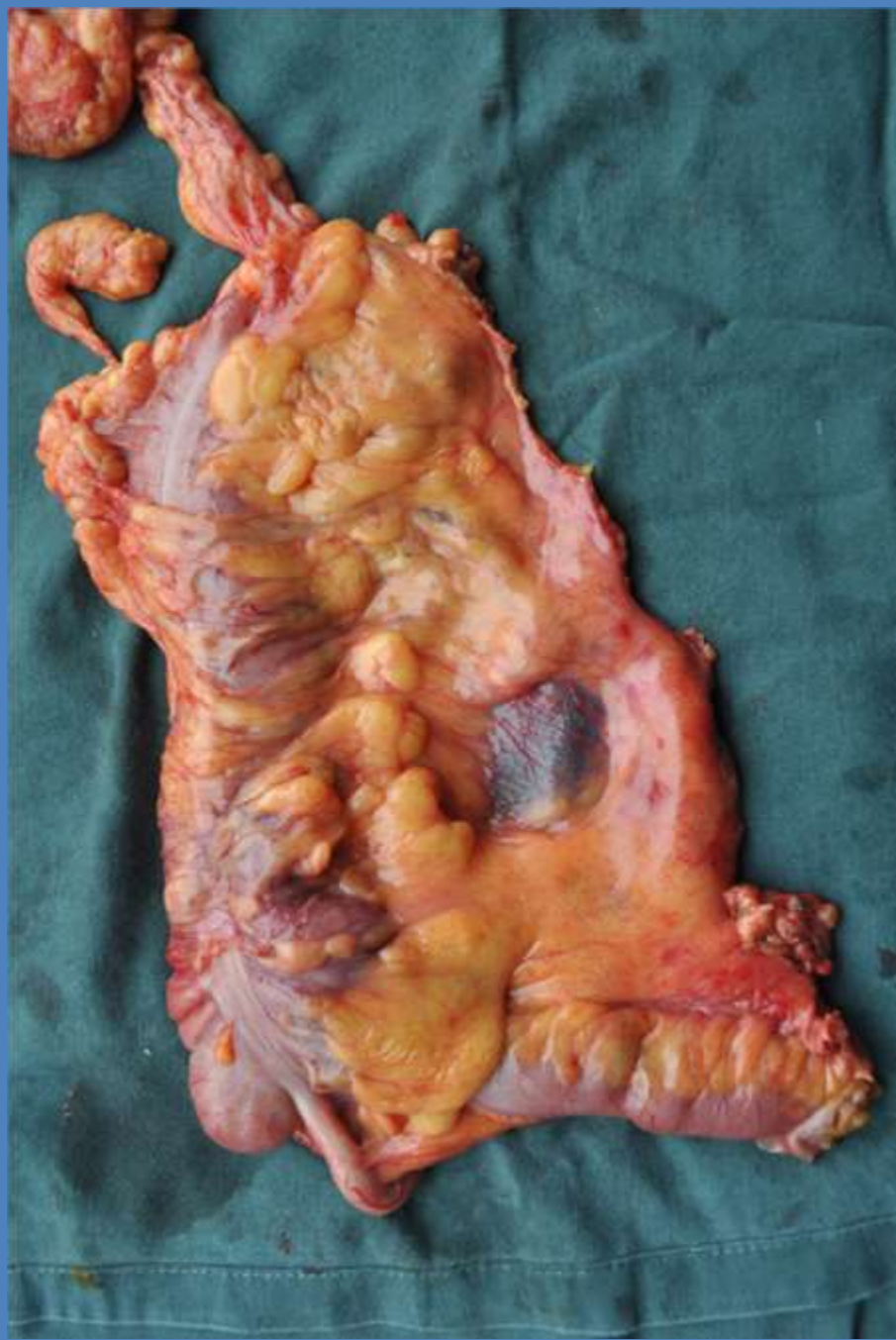


- Doppler USG- detects antimesenteric blood flow.
- Fluorescein dye test- IV 1 gm Na fluroscein.



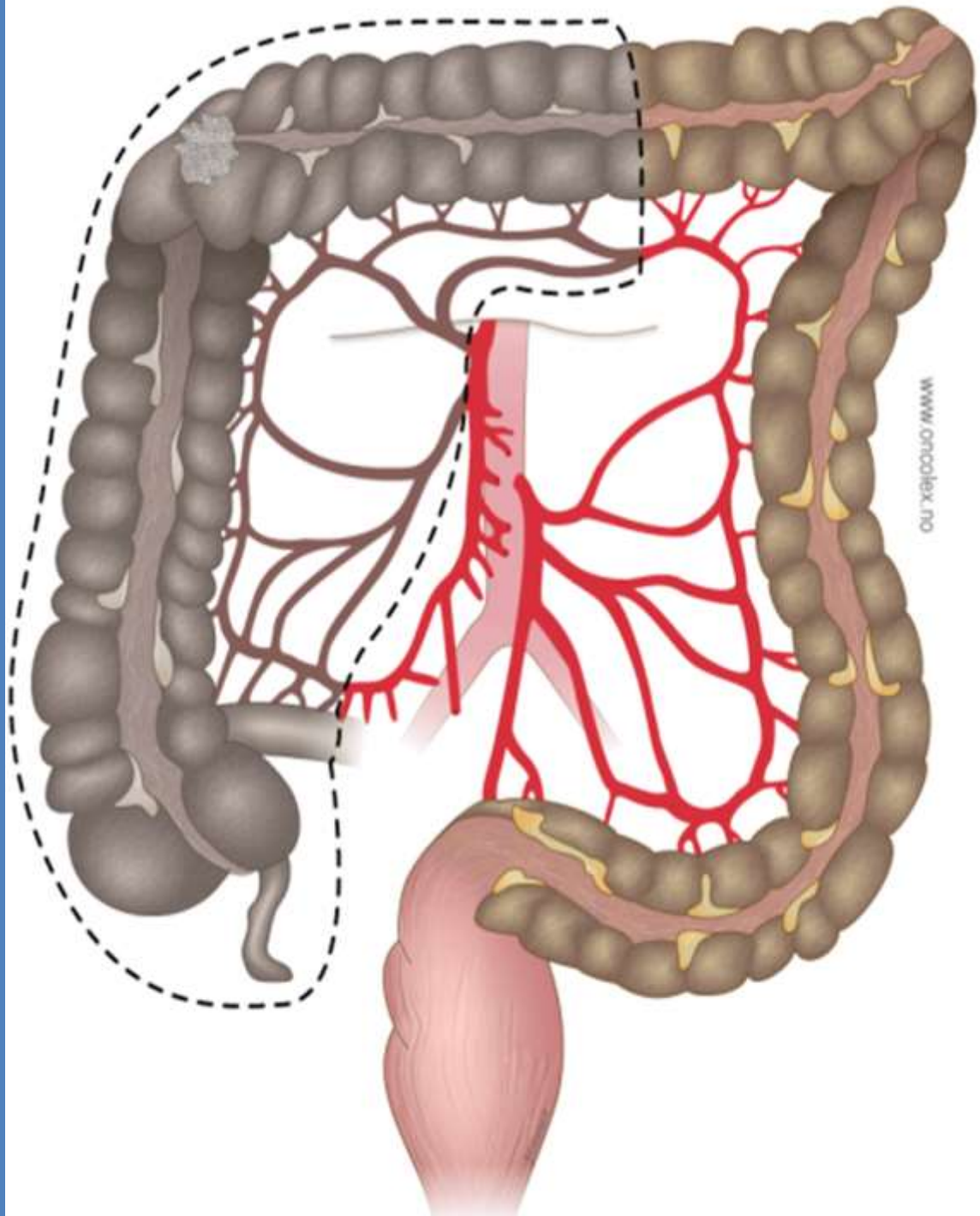
Right hemicolectomy

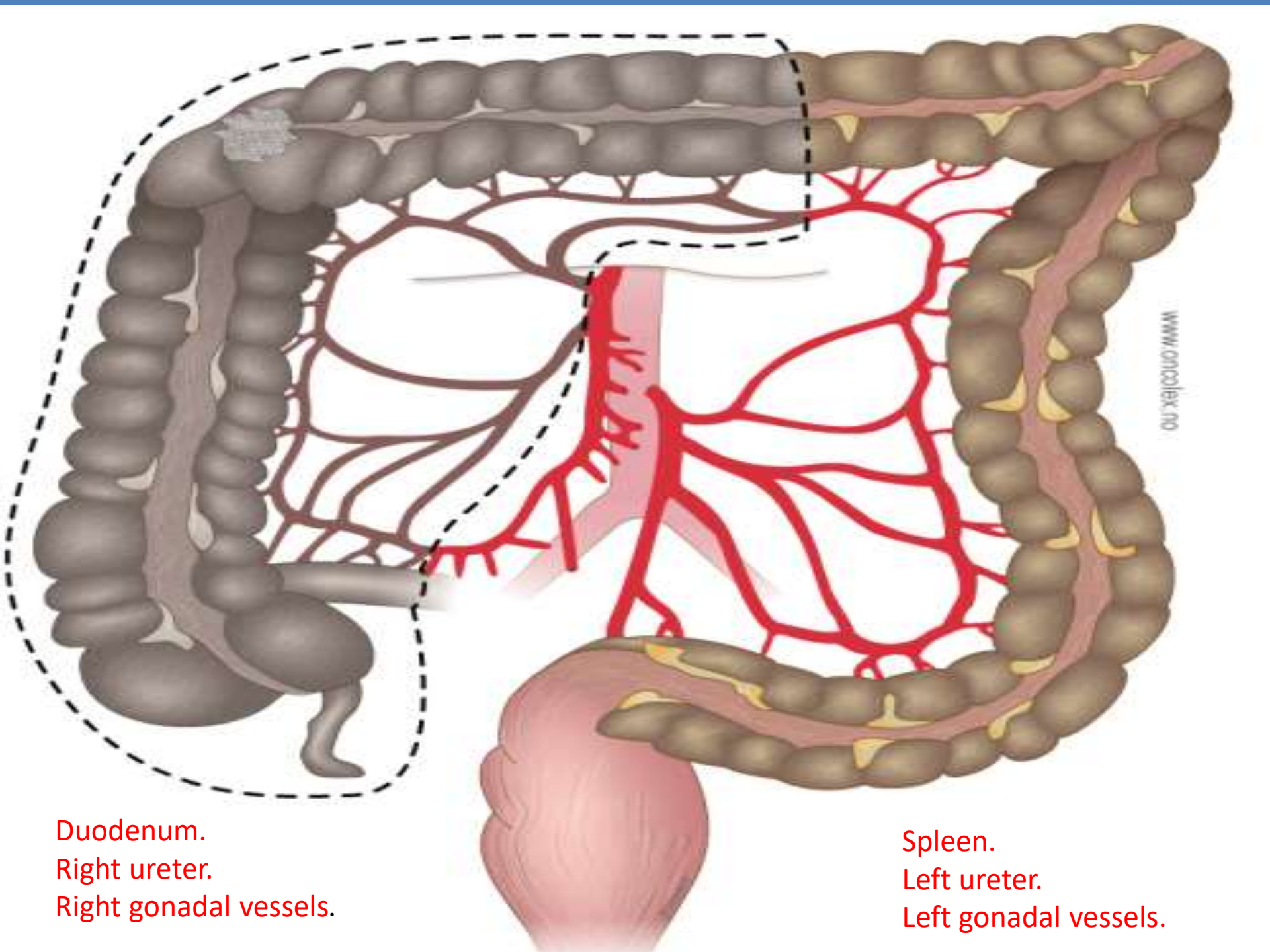
- Vessels-
  - Ileocolic.
  - Right colic.
  - Right branch of middle colic.
- Structures-
  - Terminal 15-20 cm of ileum.
  - Appendix.
  - Caecum.
  - Ascending colon.
  - Hepatic flexure.
  - Right 2/3rd of transverse colon.



PRM

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



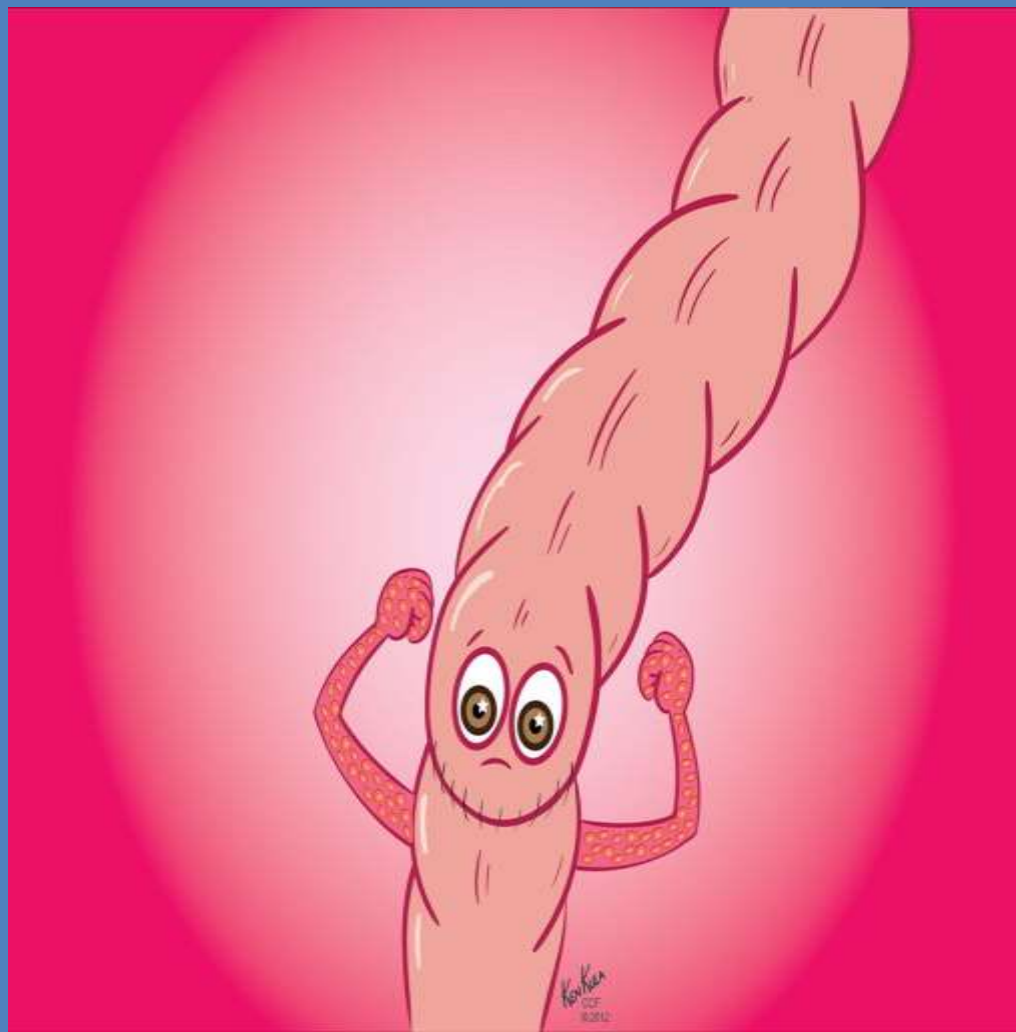


Duodenum.
Right ureter.
Right gonadal vessels.

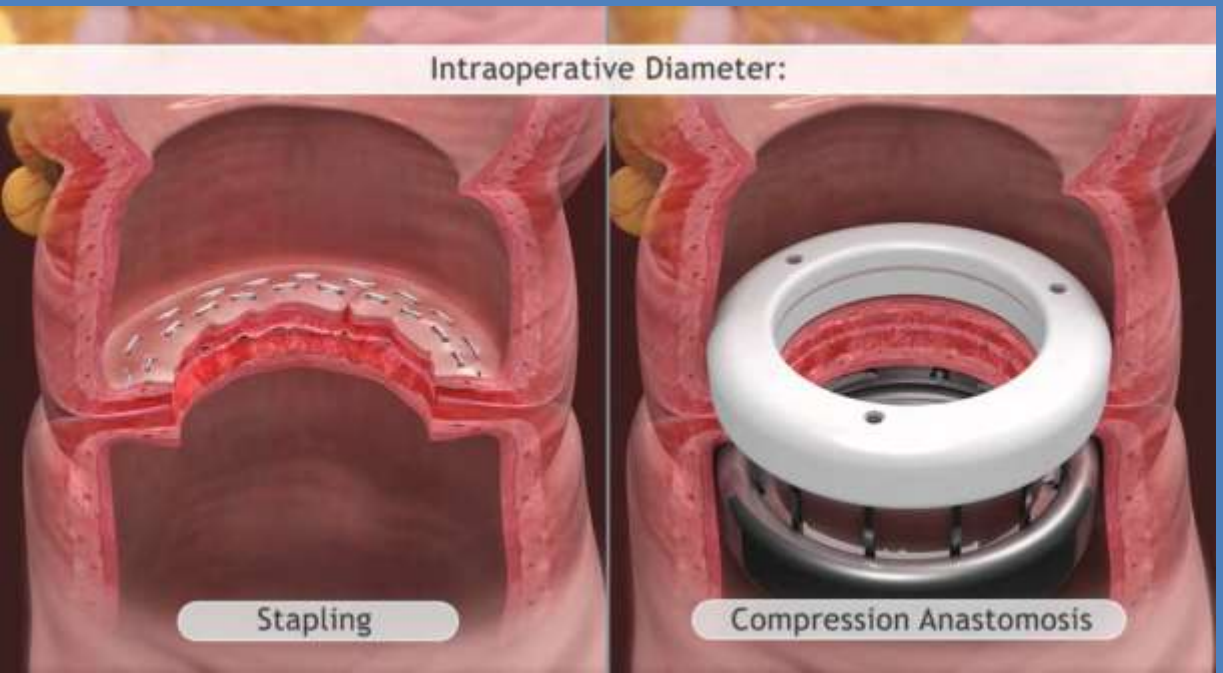
Spleen.
Left ureter.
Left gonadal vessels.

Principles of anastomosis

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



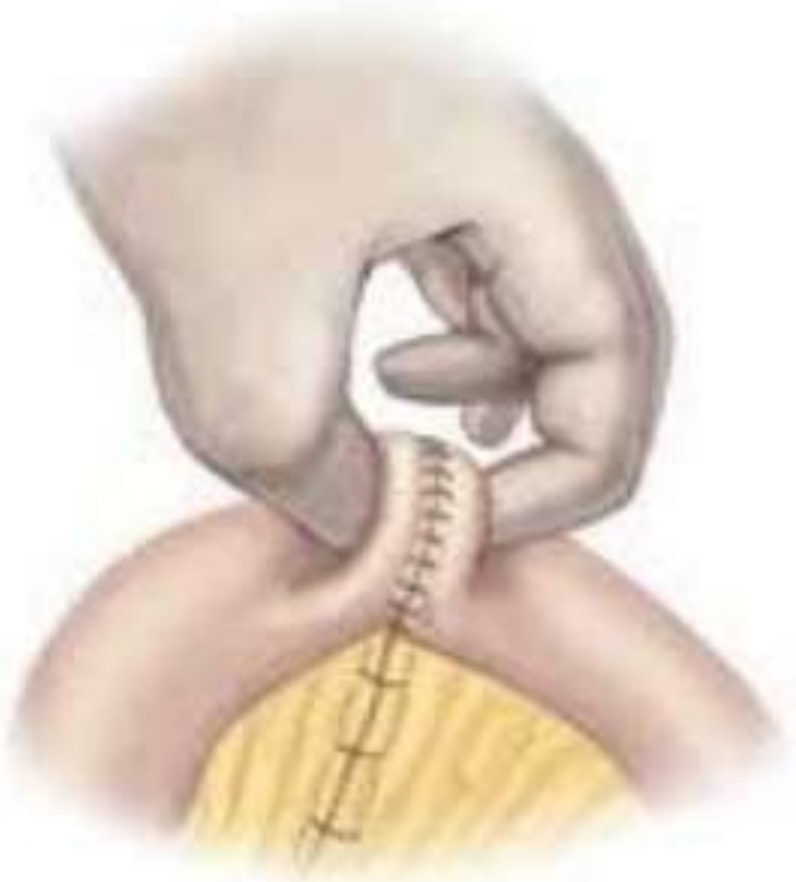
- 3-0 R/B vicryl.
- Single layer seromuscular extramucosal.
- Single layer full thickness.



Negotiating calibre

- Oblique division.
- Cheatling.
- Side to side anastomosis.
- End to side anastomosis.
- Closer bites from narrow side & wider bites from wider side.
- Partial closure of wider side.

Patency test.



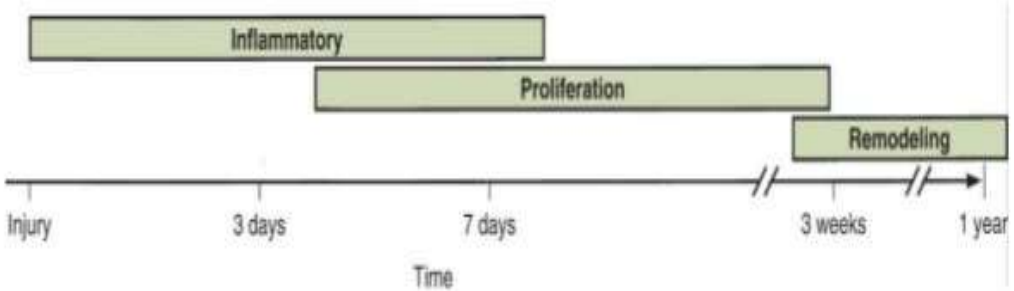
Leak test

Healing of anastomosis

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

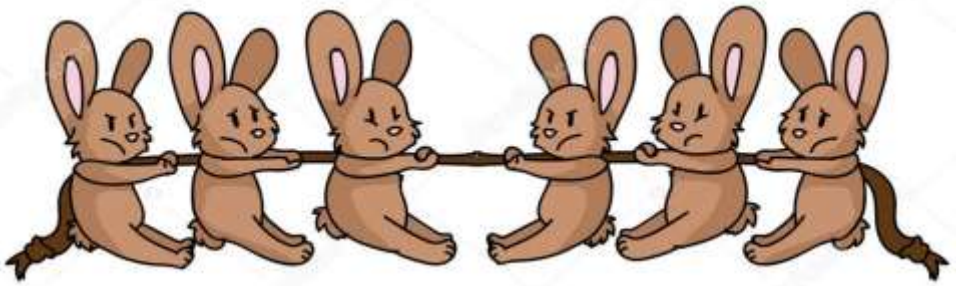
Intestinal healing

- 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.

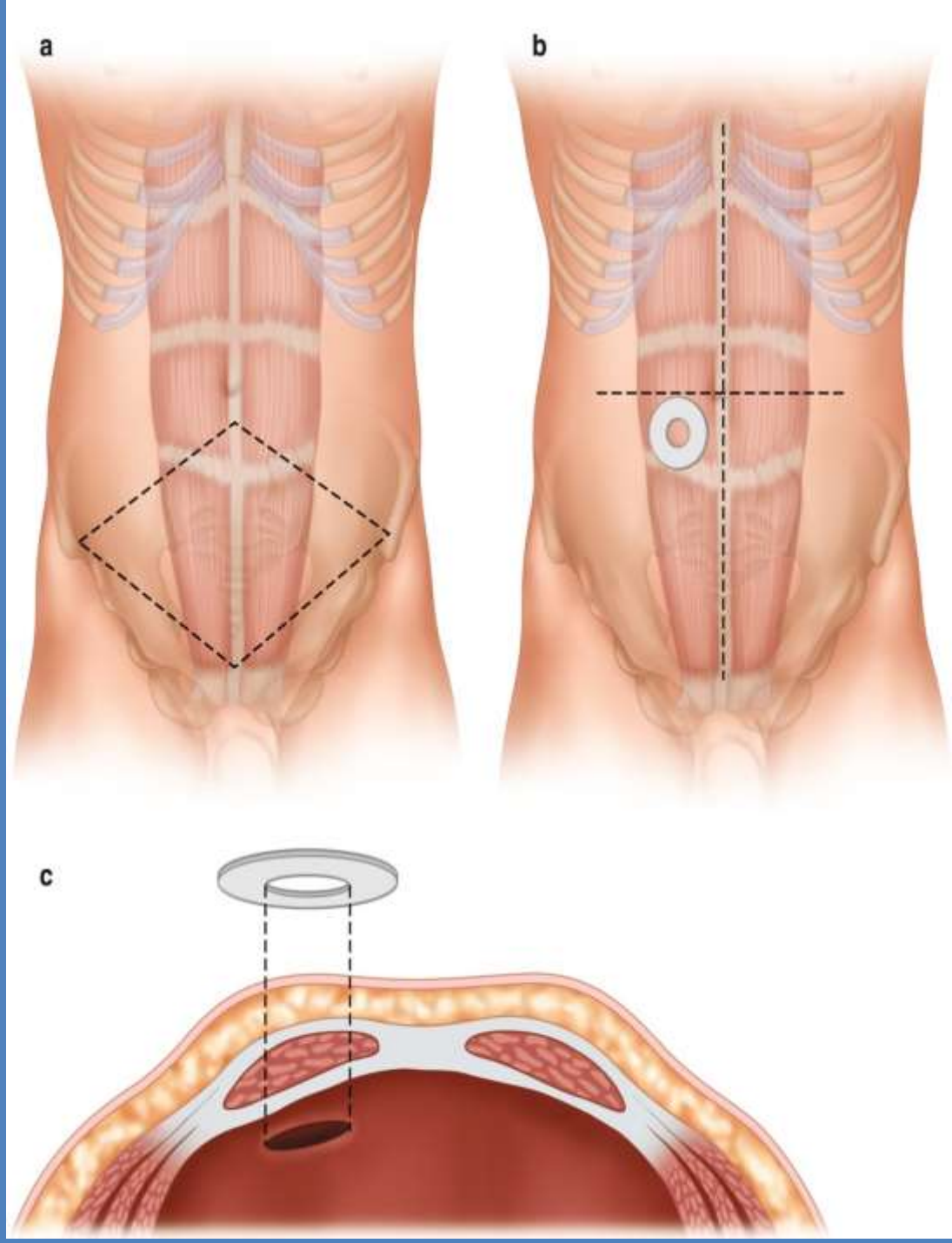


Indications of stoma

- Anastomosis below pertoneal reflection
- Obstruction
- Perforation
- Immunosupression
- Comorbidities
- Haemodynamic instability
- Peroperative severe blood loss
- Hypoalbuminemia-< 2.1 gm/dl
- Sepsis
- Long time steroid
- ……..

Stoma triangle-

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



Two-Piece Ostomy Bag

One-Piece Ostomy Bag

Anastomotic leakage

- Small intestine,
- Ileocolic &
- Ileorectal anastomosis- safe.

- Oesophageal,
- Pancreaticoenteric
- Colorectal anastomosis

-considered high risk.

Anastomotic leakage
Predisposing factors

General factors-

- Nutritional deficiency (protein, vitamin C and zinc)
- Old age.
- Impaired blood flow.

Local factors-

- Tension.
- Inadequate vascular supply.
- Poor surgical technique-
  - unprepared bowel ends.
  - handling of tissues,
  - excessive use of diathermy,
  - insertion and ligation of sutures,
  - contamination of anastomotic site.

Timings of leak

- 3-45 days postop.
- 2 peaks-
    - Clinically the median is 7 days postop.
    - Radiologically the median is 16 days postop.
- 12% diagnosed >30 days after operation.

Presentation-

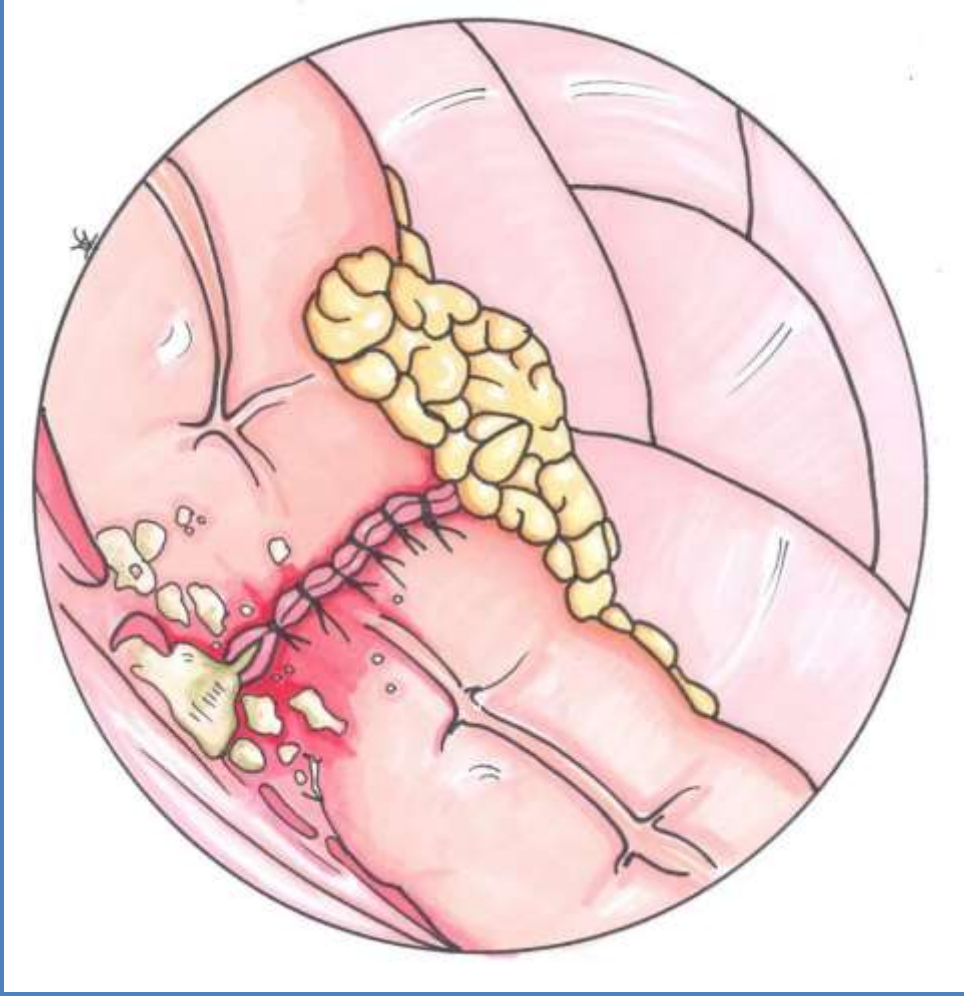
- GI contents may be identified in the wound or at a drain site.
- An intraabdominal abscess or more serious septic complication may develop.
- Prolonged ileus, unexplained fever or tachycardia, sudden collapse postoperatively or development of an internal fistula.

Confirmation-

- can be done by performing X-ray using contrast medium- Gastrograffin .

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.



Surgery

- Thorough peritonial lavage with cefuroxime and warmed saline.
- Identification of leak.
- Resection of the area.
- Exteriorization.
- Rarely anastomosis.
- Re anastomosis is done after 3 months.

Fistulas

Management-

In the presence of a fistula management depends on the state of the patient and the fistula output.

When volume is small (<500ml/24hr) and the patient well, initial treatment is conservative(NPO,NG suction, I/V fluid, Antibiotic, Octreotide.)

If such treatment fails or the output is high (>500ml/24hr) or there is associated sepsis, intervention is necessary- surgery.

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