GI Stoma

SUPERVISED BY: DR. EMAD ABU RAJOUH

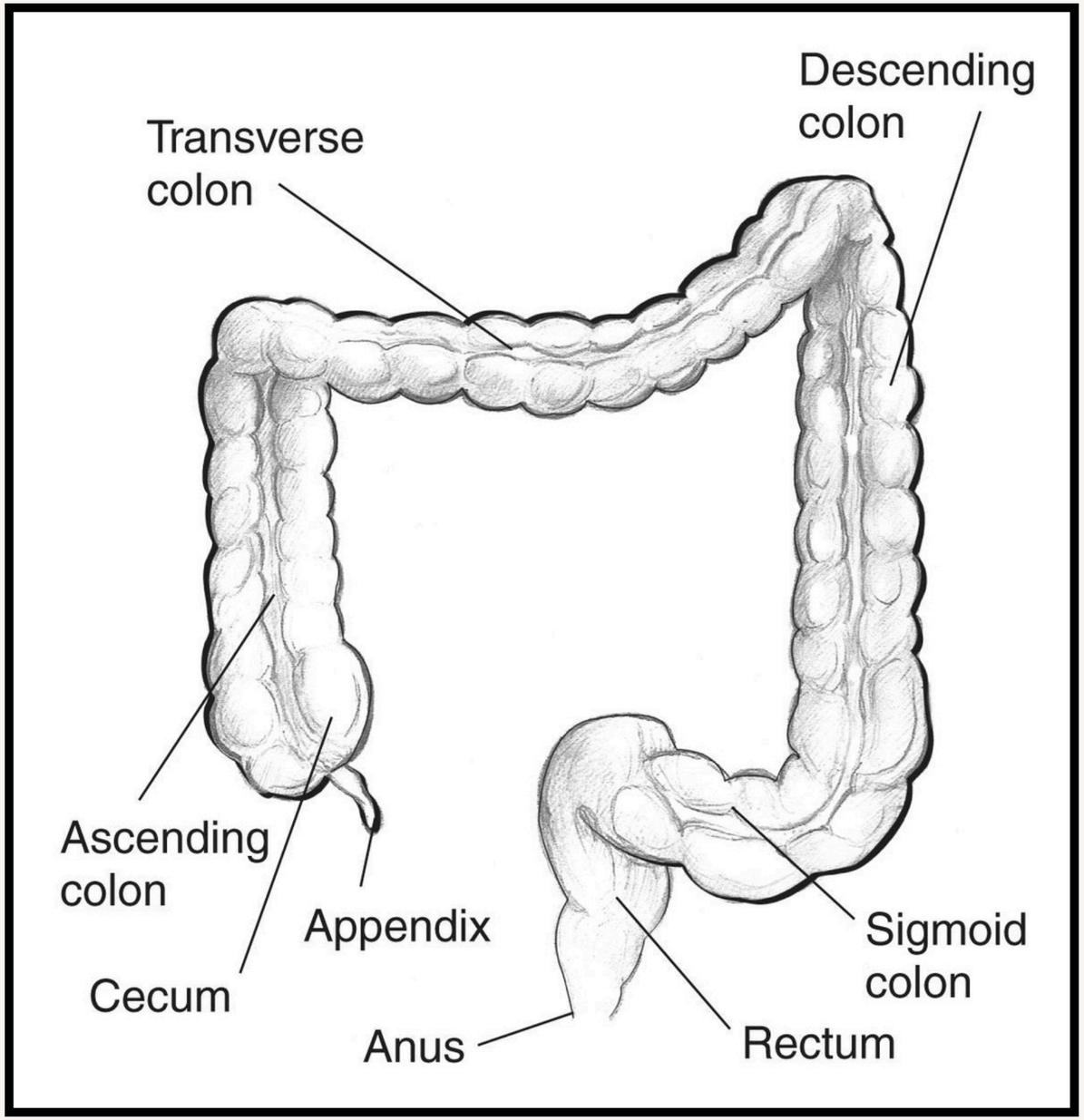
PRESENTED BY:

-Ali Albtoosh

-Majd Ayman

-Abdallah Alqudah

-Abdurrahman Nawaf


Descending colon
Transverse colon
Ascending colon
Appendix
Cecum
Sigmoid colon
Anus
Rectum

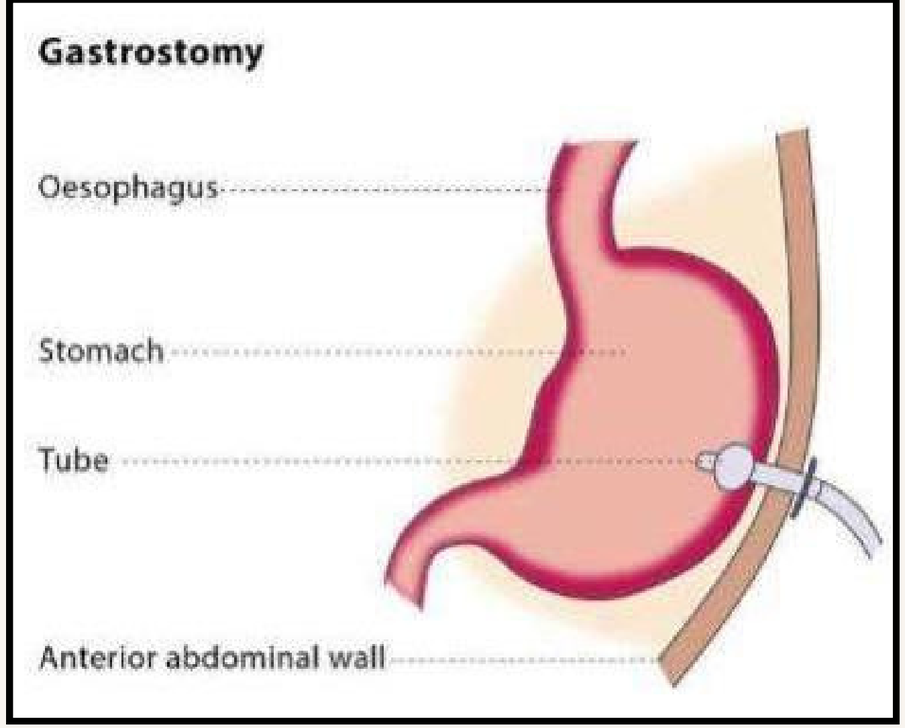
WHAT IS A STOMA ?

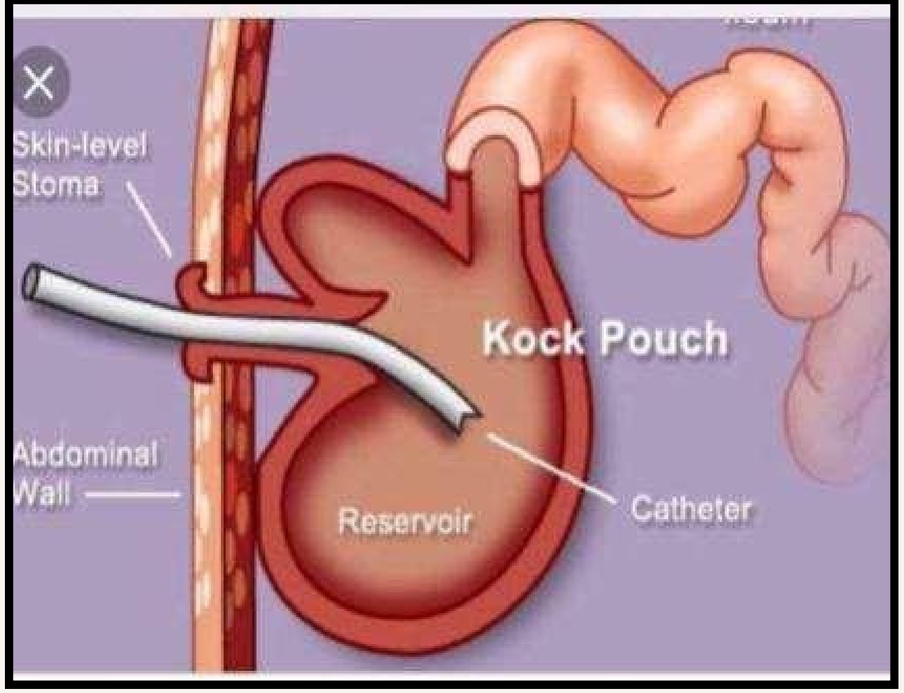
DEFINITION

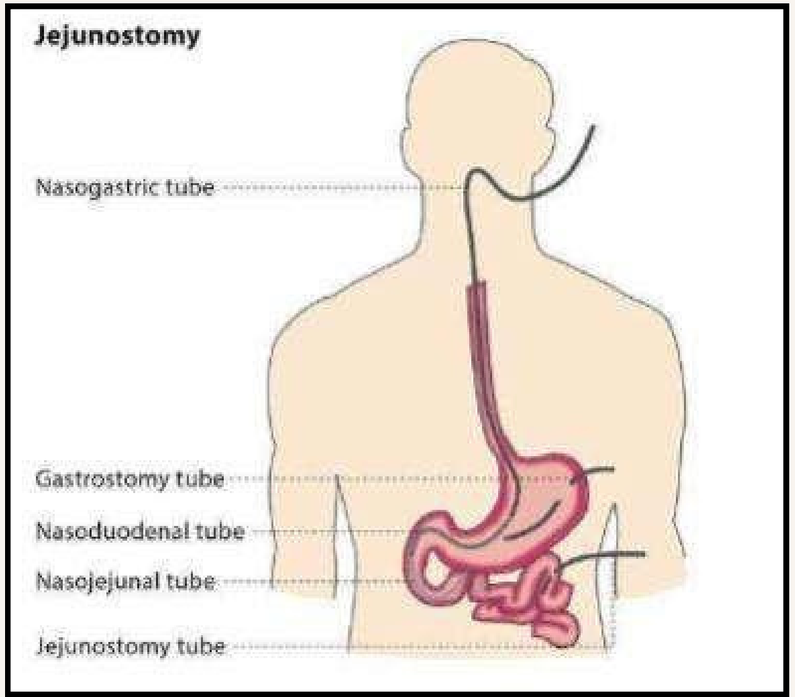
- **Stoma** : an artificial opening in the abdominal wall, which connects a hollow viscus(bowel, urinary tract) to the outside environment/ to divert faeces or urine to the exterior which is collected in an external appliance
- **Ostomy** : operation that connects the GI tract to abdominal wall skin.

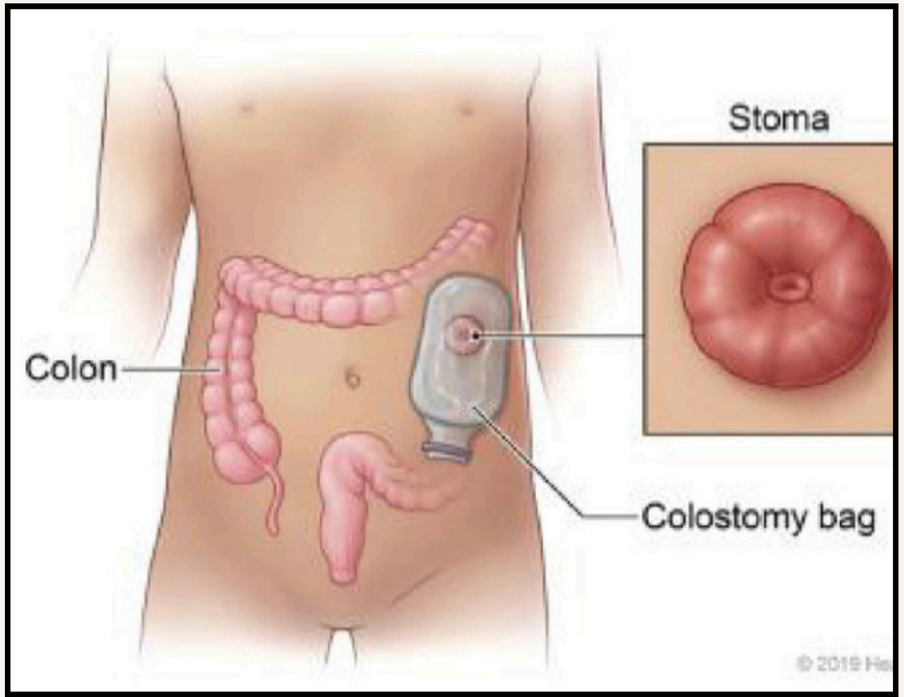
DEFINE THE FOLLOWING TERMS

- **Gastrostomy**: G-tube through the abdominal wall to the stomach for drainage or feeding
- **Jejunostomy**: J-tube through the abdominal wall to the jejunum for feeding
- **Colostomy**: Connection of colon mucosa to the abdominal wall skin for stool drainage.
- **Kock pouch “Continent ileostomy”**: Pouch is made of several ileal loops, Patient must access the pouch with a tube intermittently.


Gastrostomy
Oesophagus
Stomach
Tube
Anterior abdominal wall


Skin-level Stoma
Kock Pouch
Abdominal Wall
Reservoir
Catheter


Jejunostomy
Nasogastric tube
Gastrostomy tube
Nasoduodenal tube
Nasojejunal tube
Jejunostomy tube


Stoma
Colon
Colostomy bag

TYPES ACCORDING TO:

1According to the length of time to be used:

Temporary (created for a few weeks) After 8-12weeks ,contrast study done via the stoma →distal bowel is normal →reverse the stoma by anastomosis.

- **Permanent**(after APR) When there is no distal bowel segment remaining after resection or when for some reason the bowel cannot be re-joined.

2- According to the Origin :

- **Colostomy**: formed from any part of the large bowel

- **Ileostomy**: formed from any part of the mid or distal small bowel

- **Gastrostomy** : between anterior stomach and anterior abdominal wall often for stomach drainage or direct feeding

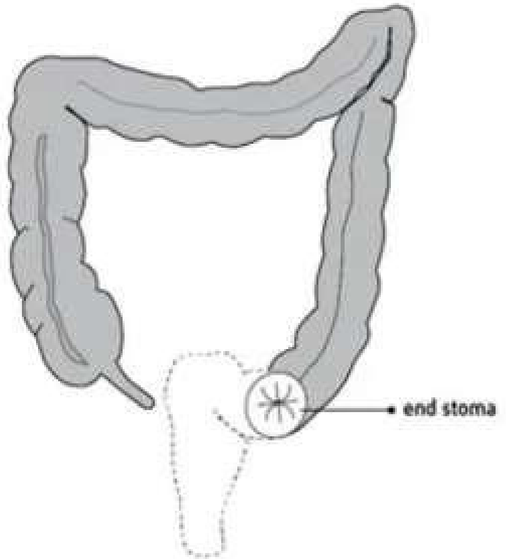
3- According to the Method of construction:

- **End stoma** : single barrel(one opening)

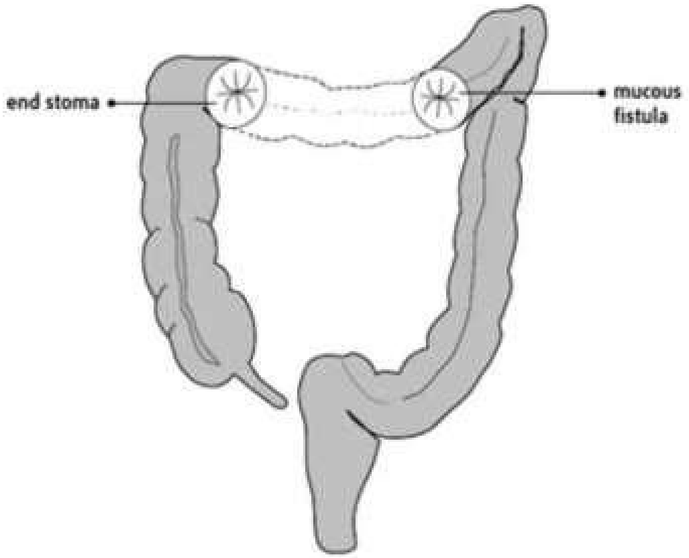
- **Loop stoma** : two openings connected to the same mucosa (not skin)

- **Double barrel** : two openings that are not joined.

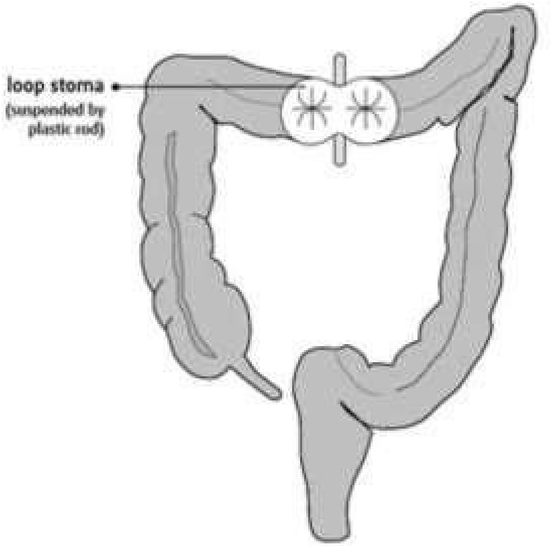
End Stoma

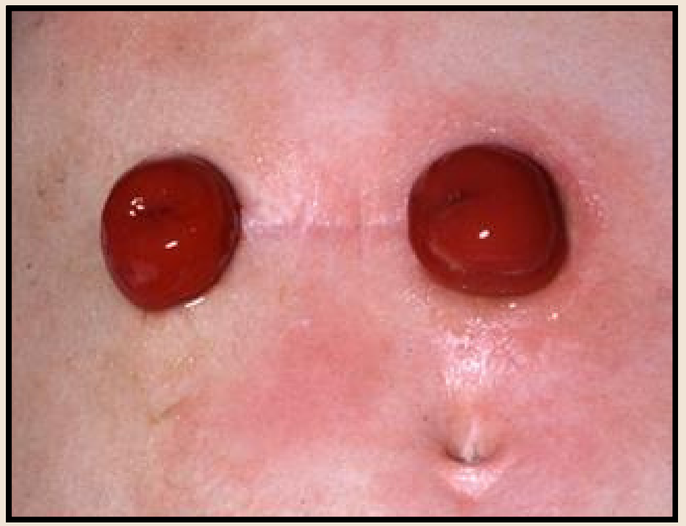


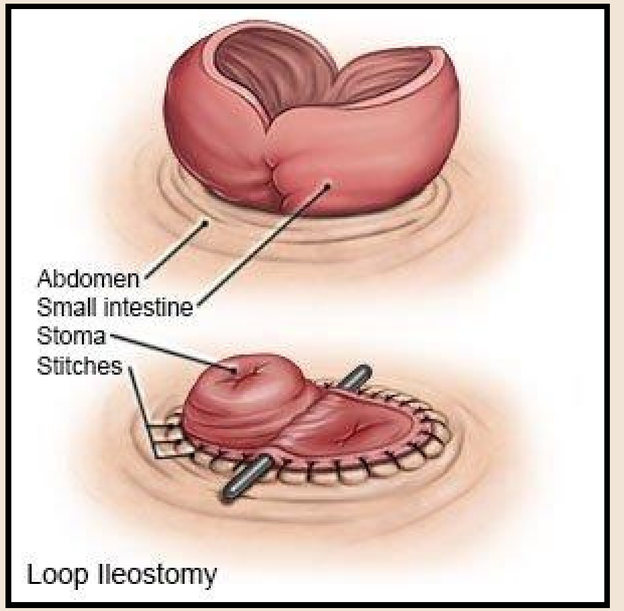
End Stoma with a Mucous Fistula
(Double-barrel Colostomy)

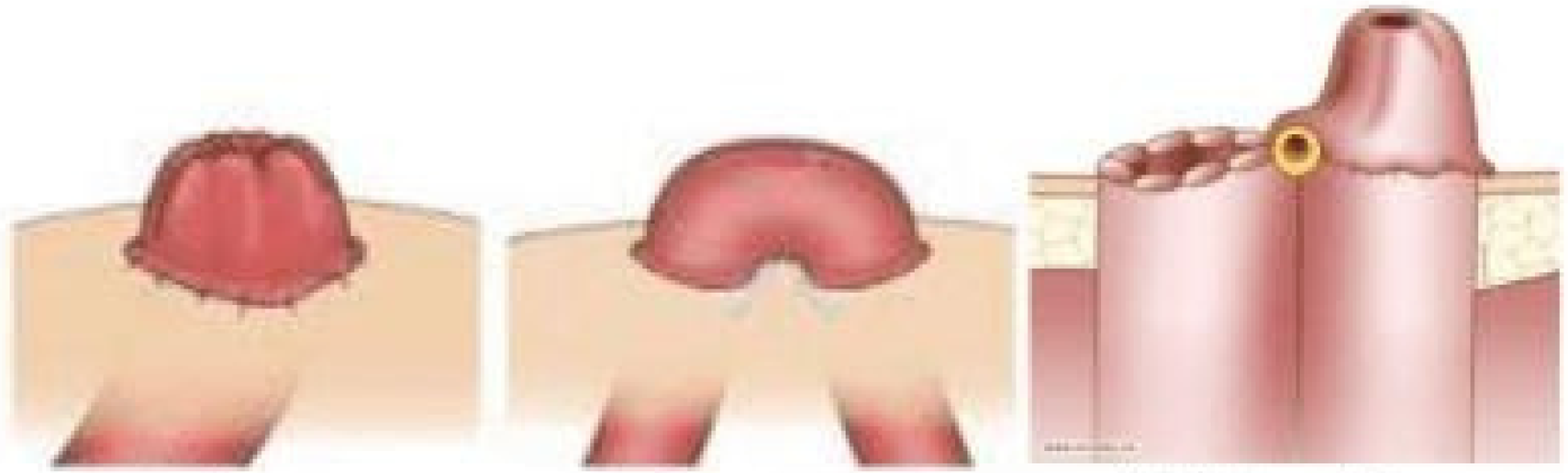


Loop Stoma
(Loop Colostomy)









End stoma | Loop stoma | Double-barrel stoma

INDICATIONS FOR STOMA AS PROCESSES:

1. Diversion of Bowel:

- Defunction a distal anastomosis
- Previously contaminated bowel

2.Exteriorization of bowel:

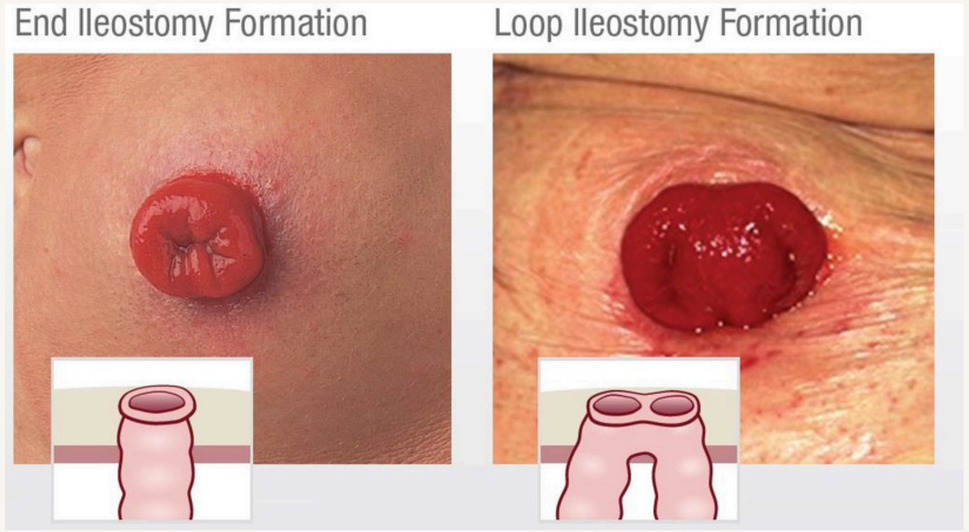
- perforated or contaminated bowel, e.g. distal abscesses/fistula
- permanent stoma, e.g. APER.
- Feeding, e.g. percutaneous endoscopic gastrostomy (PEG).
- lavage

3. Decompression:

- cancers: colon cancer, rectum cancer...
- pyloric stenosis
- intestinal obstruction

1. ILEOSTOMY:

•Definition: is an spouted artificial opening (usually in RIF) made in the any part of the mid or distal small intestine to divert feces and flatus out- side the abdomen (fluid Output: continuous) where they can be collected in an external appliance.



- **The best site is usually through the lateral edge of the rectus sheath, above and medial to the bony prominence**

- **When creating an ileostomy , surgeons often aim to postion the stoma slightly protruding above the skin level (spouted), typically around 2-3 cm ,and not flush with the skin.**

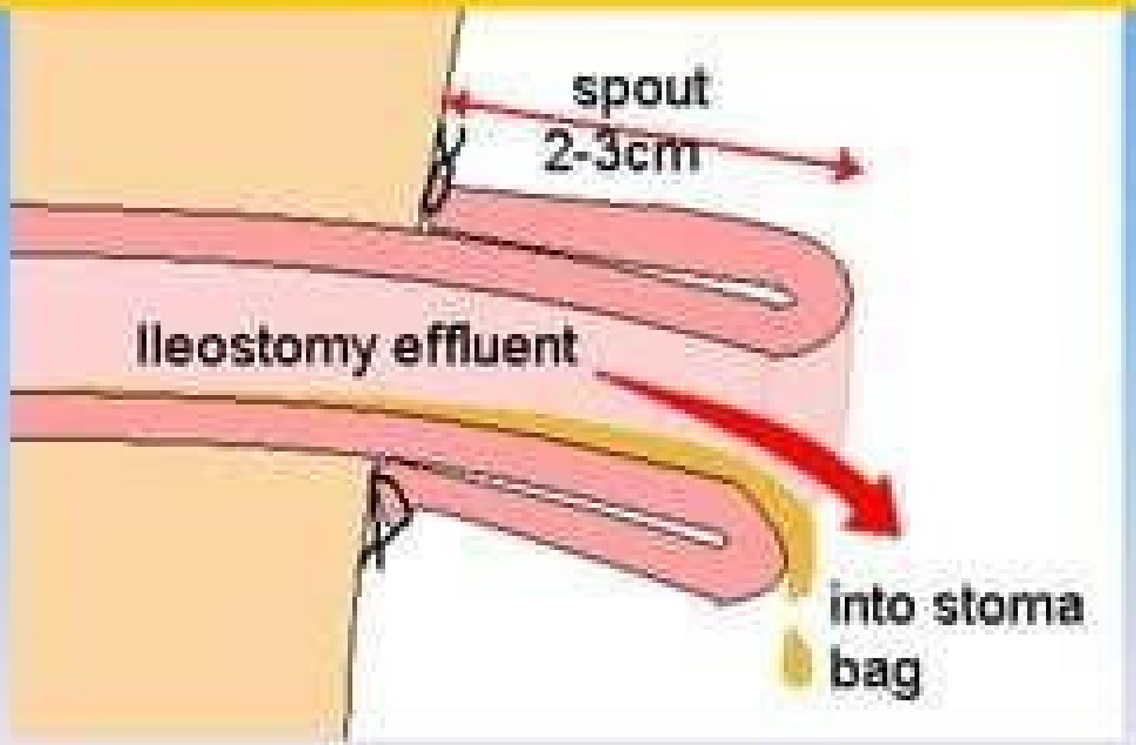
There are several reasons for this practice :

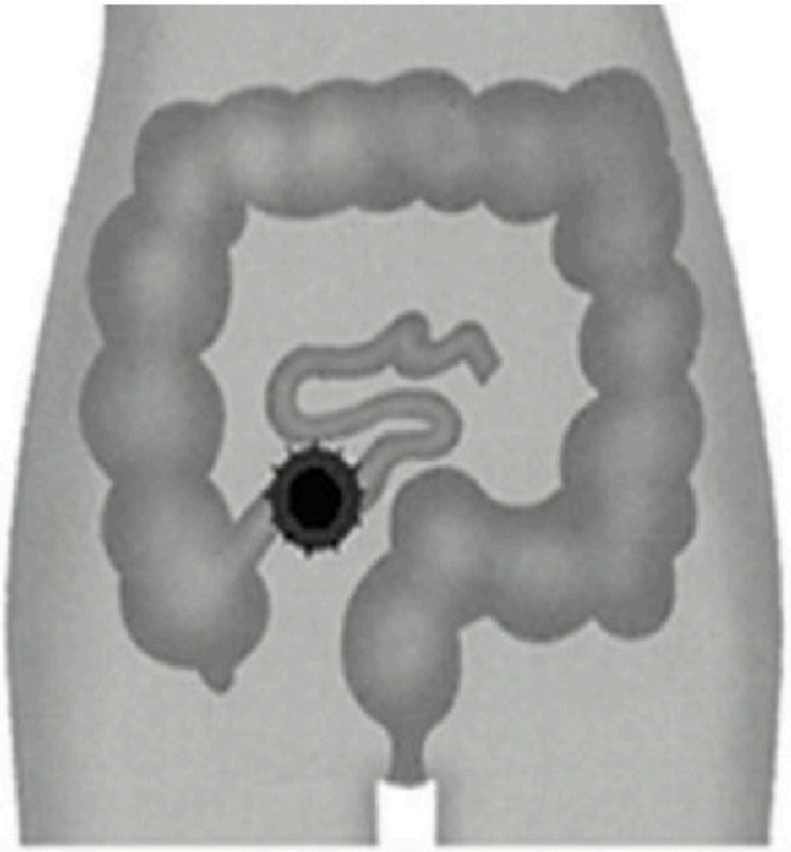
1-minimizing skin irritation

2-easier appliance attachment

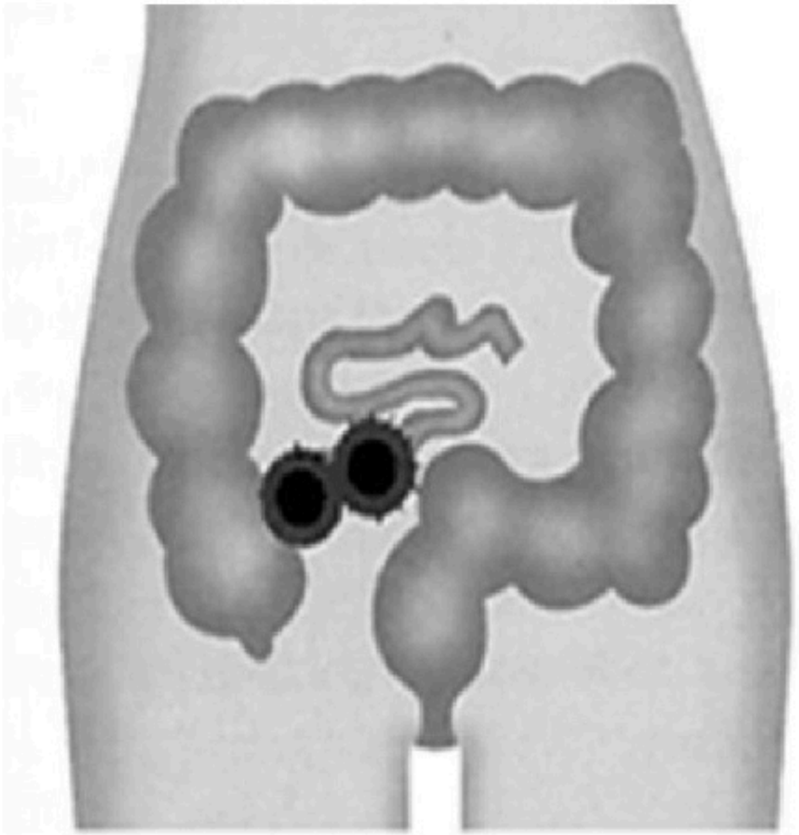
3-facilitating output flow

Principles of stoma formation





End Ileostomy



Loop Ileostomy

INDICATIONS:

1.Main indications of Ileostomy were enteric perforation (55.10%), and intestinal tuberculosis (20.40%).

2.To evacuate stool from the body if the entire colon has been removed such as in colorectal cancer, Crohn's disease, ulcerative colitis, and familial adenomatous polyposis.

3.Extensive bowel injury, which precludes primary anastomosis like longstanding peritonitis, intestinal obstruction, radiation enteritis, ischemia, inflammatory bowel diseases, tubercular and enteric colitis in the developing world and rectal causes

1-LOOP ILEOSTOMY (TEMPORARY):

•often used for non-functioning low rectal anastomosis or an ileal pouch.

•A knuckle of ileum is pulled out through a skin trephine in the right iliac fossa.

•in these cases, the stoma will have two openings, although they'll be close together and you may not be able to see both.

•The advantages of a loop ileostomy over a loop colostomy are the ease with which the bowel can be brought to the surface and the absence of odour

Loop ileostomy

2-END ILEOSTOMY (CAN BE PERMANENT OR TEMPORARY, BUT MOST LIKELY PERMANENT):

•sometimes required after total proctocolectomy or in patients with obstruction or After a subtotal colectomy without anastomosis when it may later be reversed.

•The ileum is normally brought through the rectus abdominis muscle.

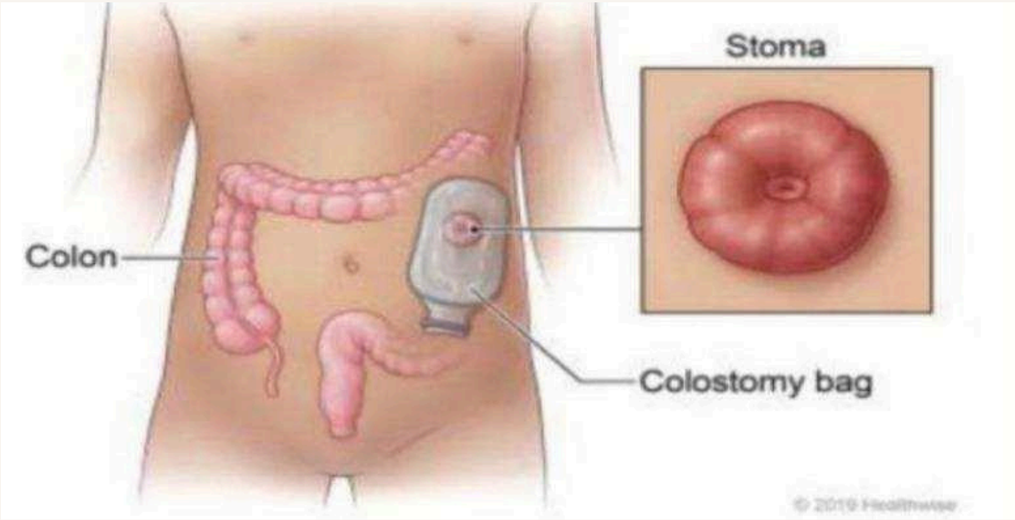
•While ileostomy output can amount to 4 or 5 liters: per day, losses of 1-2 liters are more common.

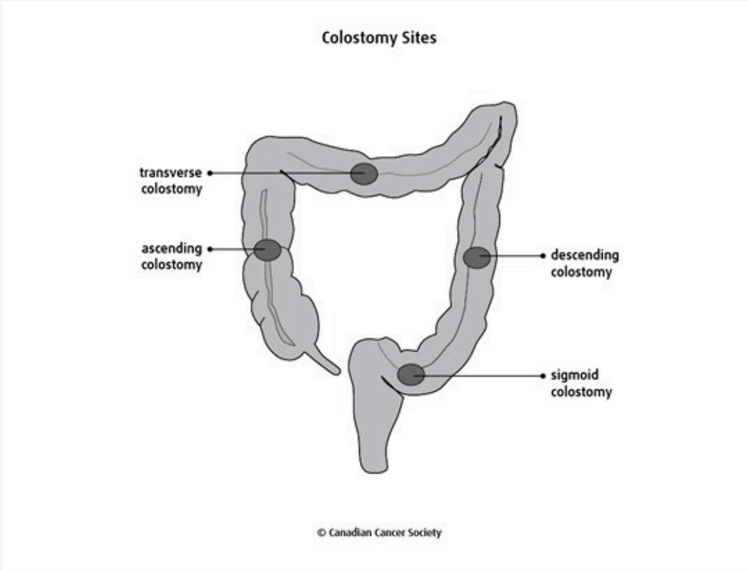
- consistent ileostomy output in excess of 1.5 liters Is usually associated with dehydration and sodium depletion in the absence of intravenous therapy.

End ileostomy

2.COLOSTOMY:

•Definition: is a flush artificial opening (usually in LIF) made in the colon to divert feces and flatus outside the abdomen (solid or semisolid Output: episodic, not continuous, Bad odor) where they can be collected in an external appliance.

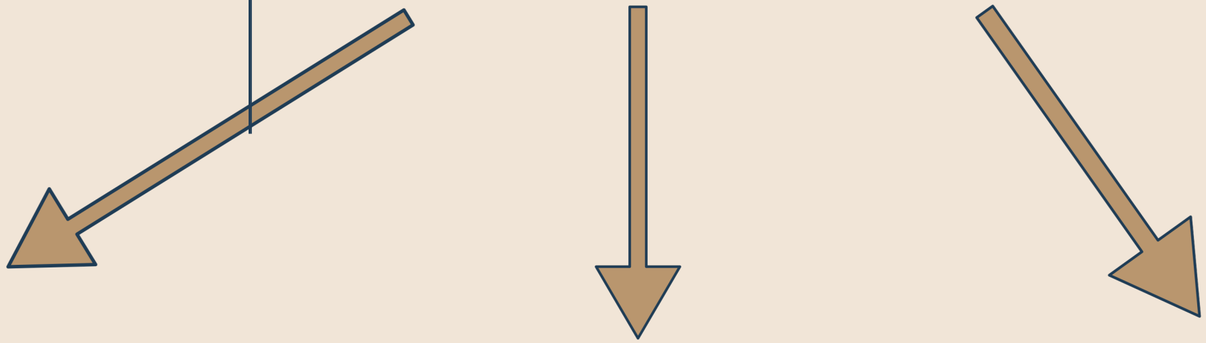




Indication:

1.Main indications of colostomy were penetrating injuries (50.88%).
2.Intestinal obstruction with secondary to benign or malignant cause, perforation with peritonitis or associated inflammation, as in diverticulitis, UC. 3.Birth defect, such as a blocked or missing anal opening, called an imperforate anus.

Types of colostomy



LOOP COLOSTOMY

END COLOSTOMY

Double barreled colostomy

LOOP COLOSTOMY :TEMPORARY

•Temporary loop colostomy is made by bringing a mobilized loop of colon to the surface ,where it is held in place by a plastic bridge passed through a mesenteric window created just at the junction with the colon .

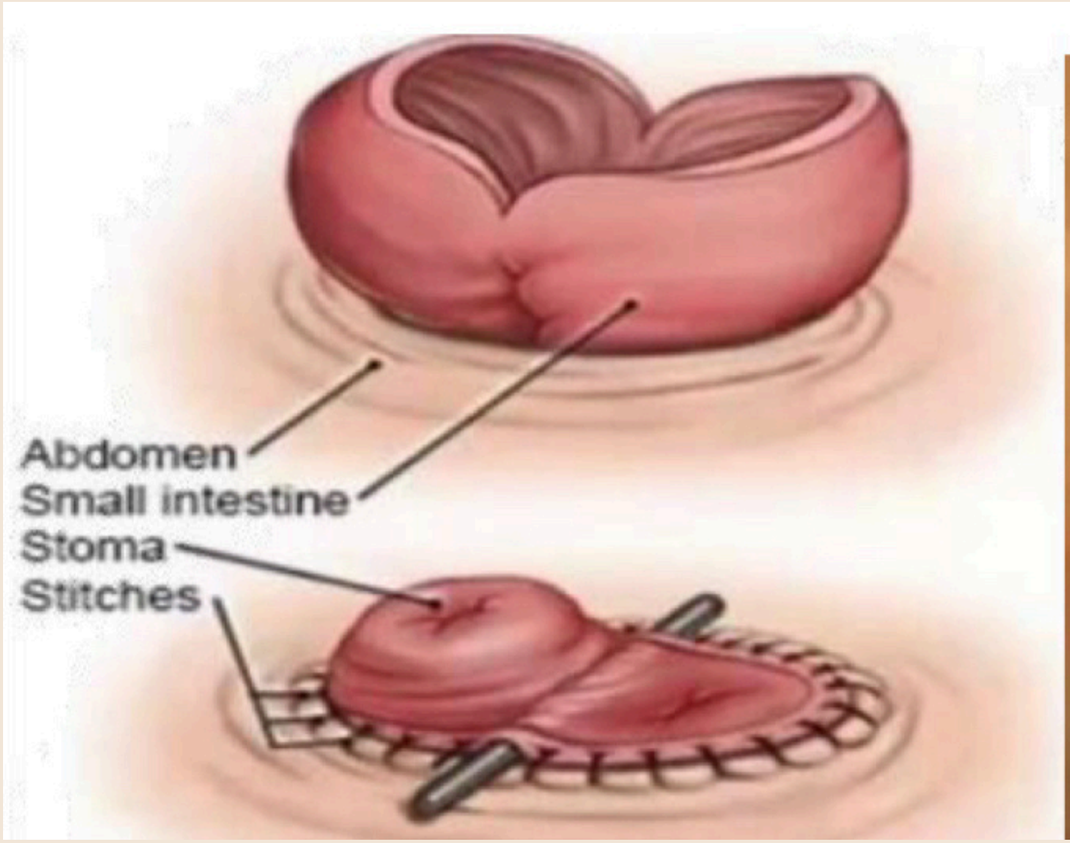
•Once the abdomen has been closed, the colostomy is opened, and the edges of the colonic incision are sutured to the adjacent skin margin.

•When firm adhesion of the colostomy to the abdominal wall has taken place, the bridge can be removed.

•Following healing of the distal lesion for which the temporary stoma was constructed, the colostomy can be closed.

-Colostomy closure is most easily and safely accomplished if the stoma is mature, typically after the colostomy has been established for two months.

•Mostly Done on the transverse colon (Temporary) Done in emergencies

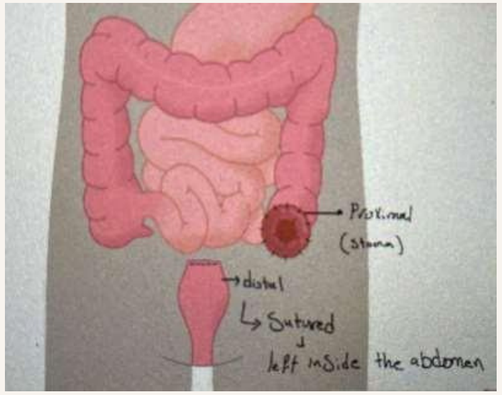


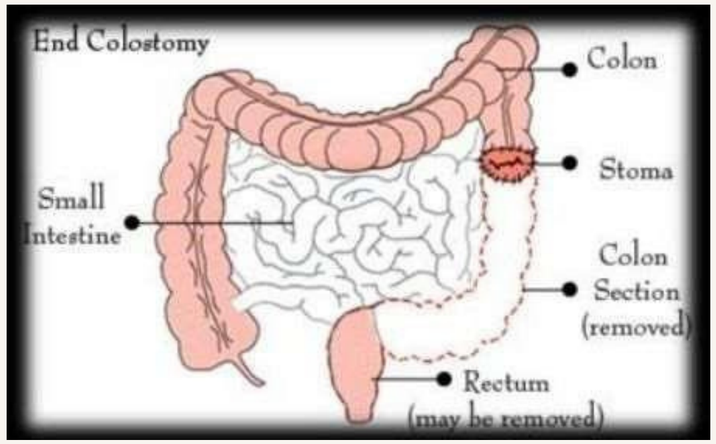
Loop colostomy

END COLOSTOMY: PERMANENT

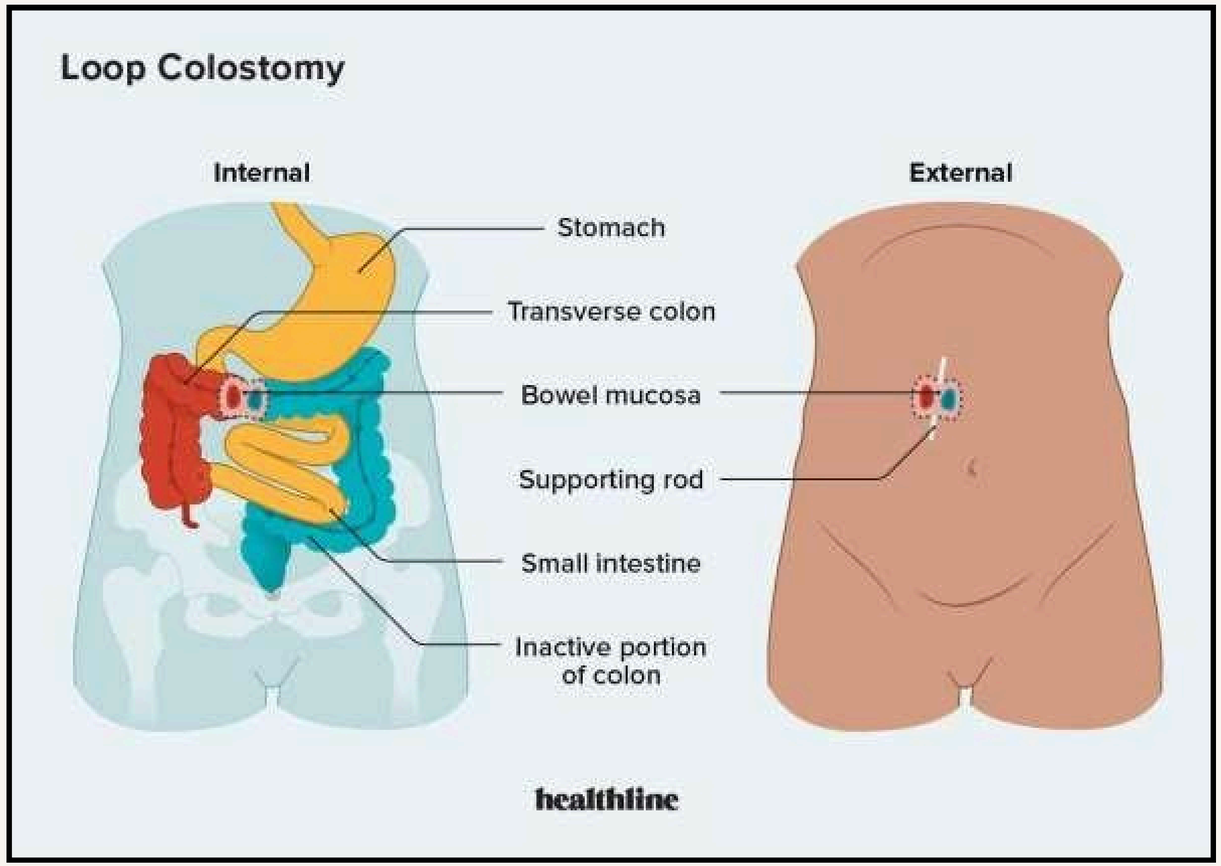
•This is formed after an abdominoperineal excision of the rectum or as part of a Hartmann's procedure . The colonic margin is then sutured to the adjoining skin.
The best site is usually through the lateral edge of the rectus sheath, above and medial to the bony prominence.

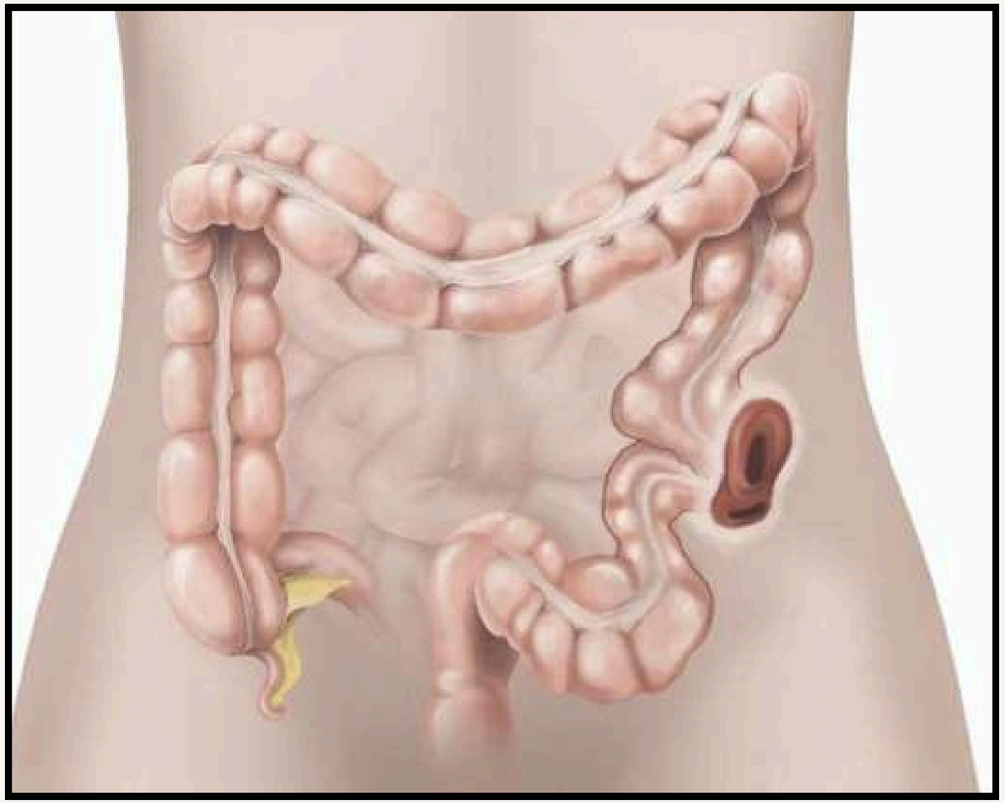
•Single opening and more easily than loop colostomy





The stoma has 2 opening : both proximal and distal ends.

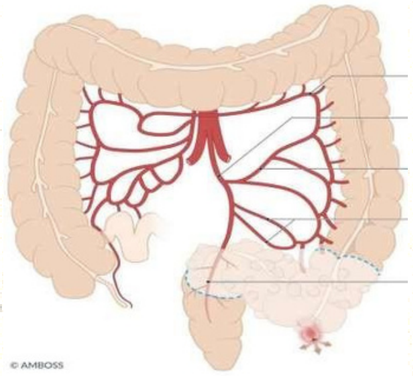


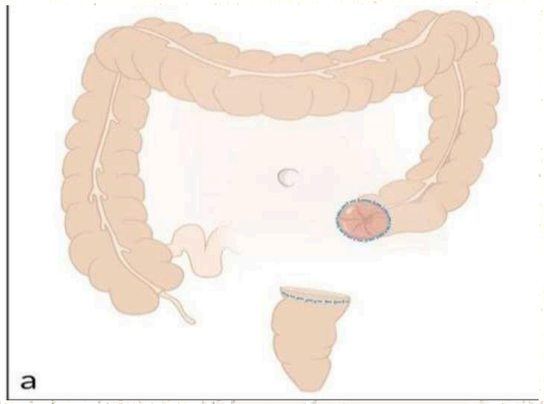


HARTMANN’S PROCEDURE

Surgical resection of rectosigmoid colon followed by creation of end colostomy with closure of the rectal stump .

•An emergent procedure to treat bowel perforation, infection(diverticulitis),obstruction or colon cancer





DOUBLE – BARRELED COLOSTOMY

- The double-barreled colostomy involves the creation of two separate stoma on the abdominal wall by dividing the bowel completely (by skin not mucosa).

- The proximal (nearest) stoma is the functional end which is still connected to the gastrointestinal tract and will therefore drain stool.

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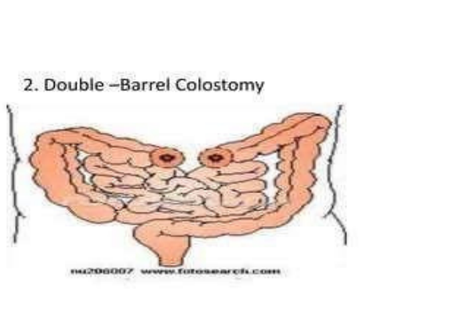
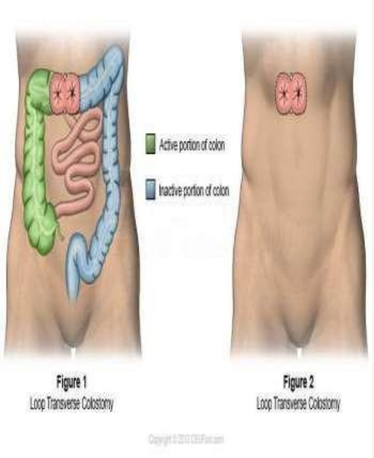
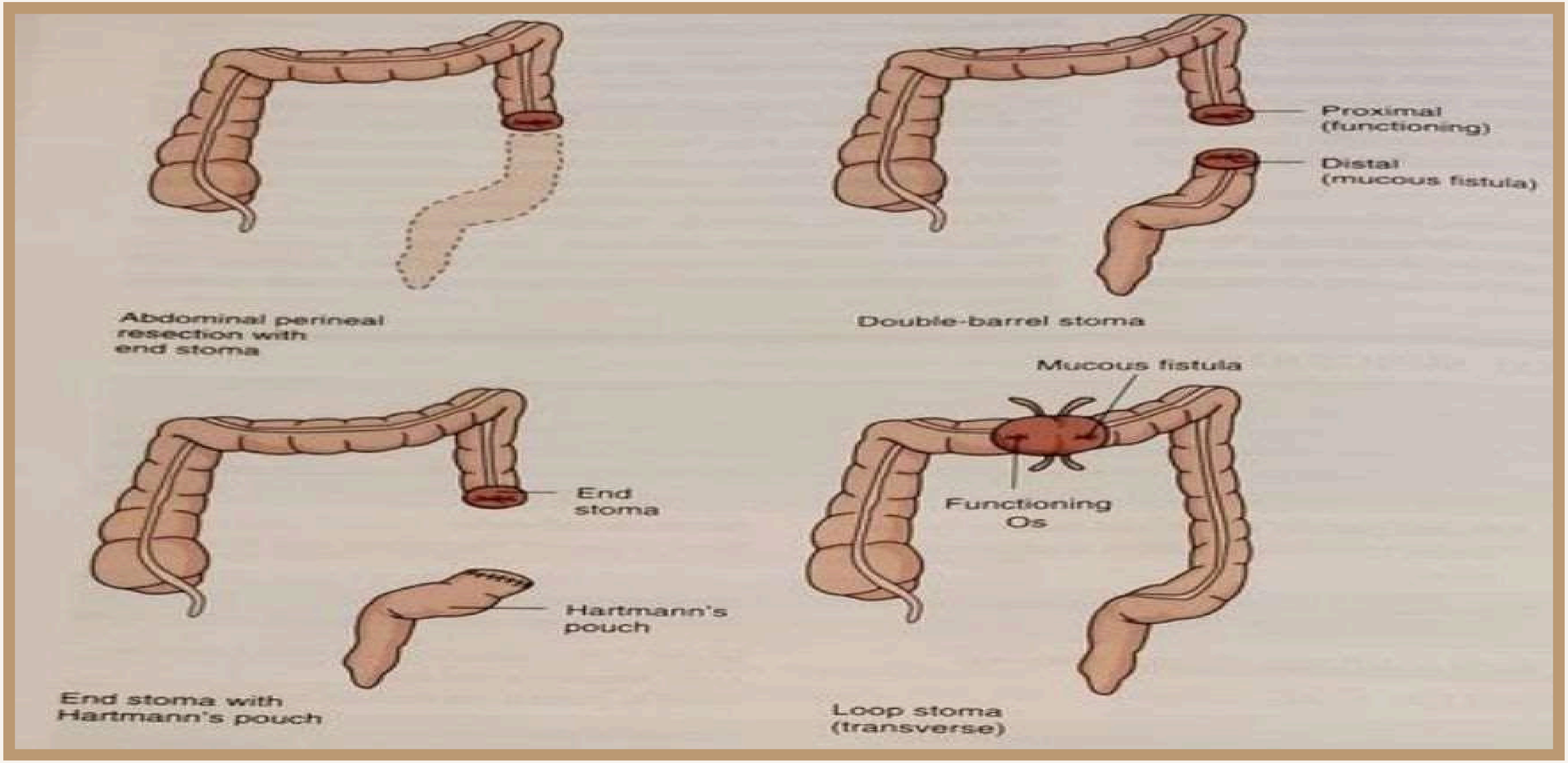


- The distal stoma is connected to the rectum and is called a mucus fistula as it drains small amounts of mucus material.
- This type of surgery is often performed to rest an area of the bowel and may later be closed via further surgery.




Abdominal perineal resection with end stoma
Double-barrel stoma
Proximal (functioning)
Distal (mucous fistula)
End stoma
Hartmann's pouch
End stoma with Hartmann's pouch
Mucous fistula
Functioning Os
Loop stoma (transverse)

STOMA BAGS AND APPLIANCES

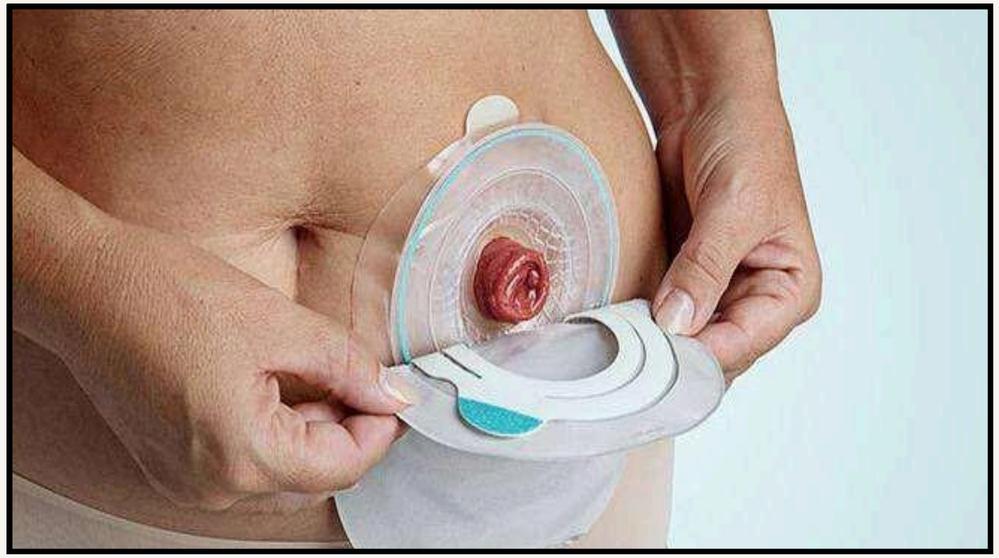
•stoma output is collected in disposable adhesive bags. •ileostomy appliances

tend to be drainable bags, which are left in place for 48

hours, while colostomy appliances are simply changed two or three times each day.

•A wide range of such bags is currently available. Many now incorporate an

adhesive backing, which can be left in place for several days.



COMPARISON BETWEEN ILEOSTOMY AND COLOSTOMY

	Ileostomy	Colostomy
Site	RIF	LIF
Shape	Spouted	Flush
Effluent	Fluid _small bowel	Solid ,semi solid contents _large bowel
Output	Continuous	Episodic
Appliances	Drainable _every 48 h	Disposable changed 3 _2 times a day
Electrolytes disturbance	More common	Less common
Skin irritation	More common	Less common
Bad odor	Less	More

COMPLICATION

1.bleeding/hemorrhage:

•can be defined as either early or late complications.

•Its occurrence may depend on surgical factors, comorbidities of the subject, or intrinsic factors of the stomal complex.

.2Ischemia and necrosis:

•Most frequently occurs as an early complication related to insufficient arterial supply at the stomal site .

•Ischemia and subsequent necrosis of the

stoma, however, can also occur late following total prolapse of the ostomy

.3Retraction:

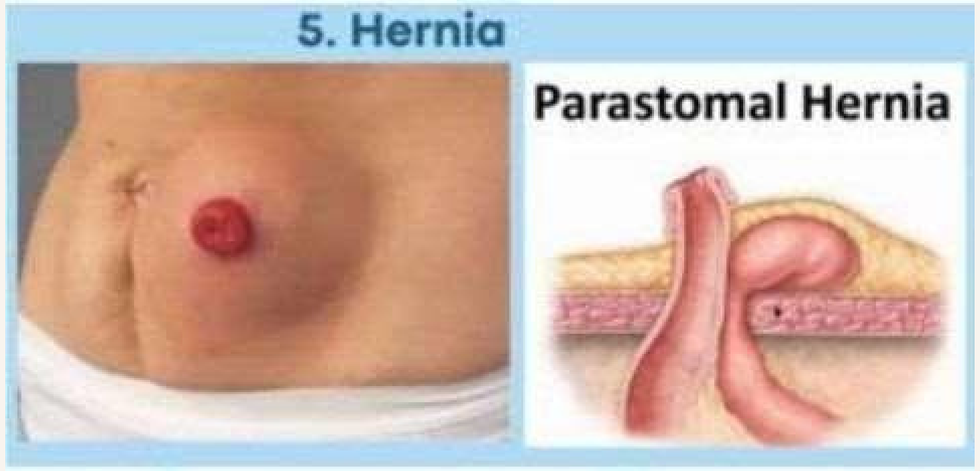
•it represents one of the most frequent early complications . •It can be defined the underlying viscera applies inward tension on the stoma such that it carries the surrounding skin with it.

.4Stenosis:

•Late complication defined by reduction of the stomal lumen at the peristomal skin or muscular fascia.

.5Hernia:

•Late complication defined by dislocation of the stomal loop due to failure of the abdominal wall, which occurs as a result of complete or partial detachment of the aponeurotic fascia.



.6Prolapse:

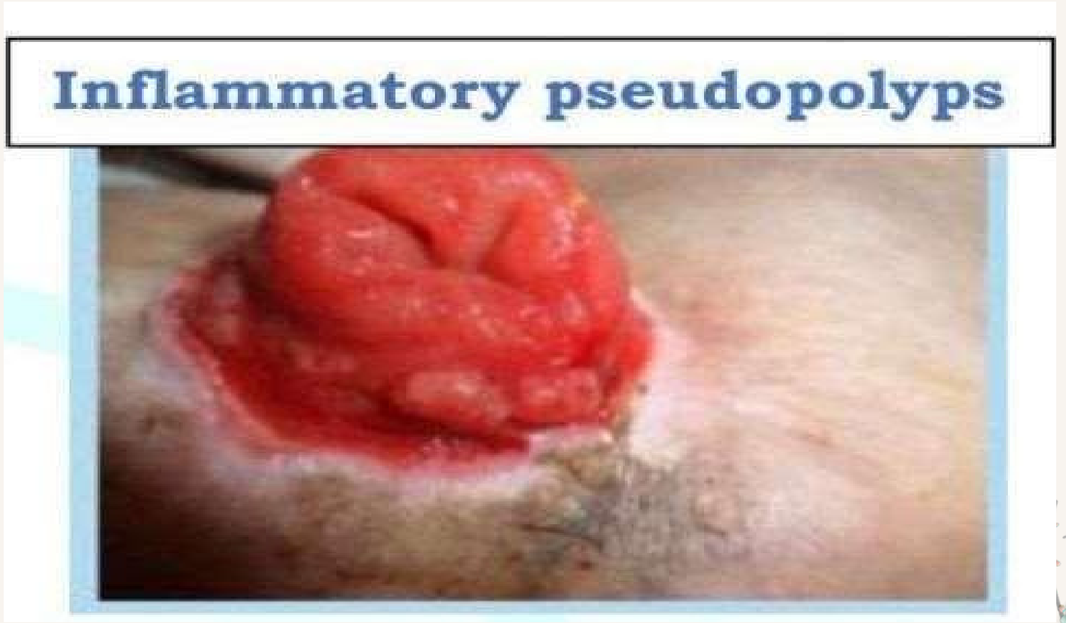
•Late complication defined as excessive protrusion of the stomal loop beyond the abdominal skin plane.

.7Fistula:

• Clinically defined as the formation of a neo-pathway that connects two cavities or one cavity with the outside.

.8Inflammatory pseudopolyps:

•These are hyperplastic, fibrinoproliferative formations with a benign character, localized at the level of the mucosa of the ostomy



9.•Dehydration

10.•Obstruction

•may occur intra-abdominally or at the site where the stoma exits the fascia .

-both only on ileostomy(9+10)

Gastrostomy

An opening in the stomach made surgically, usually connecting the stomach to the outside of the abdomen so that a feeding tube or gut decompression can be passed into the stomach

INDICATIONS:

.1Neurological deficit that lead to abnormal swallowing disorders e.g cerebral palsy ,multiple sclerosis.

.2Esophageal stricture or atresia

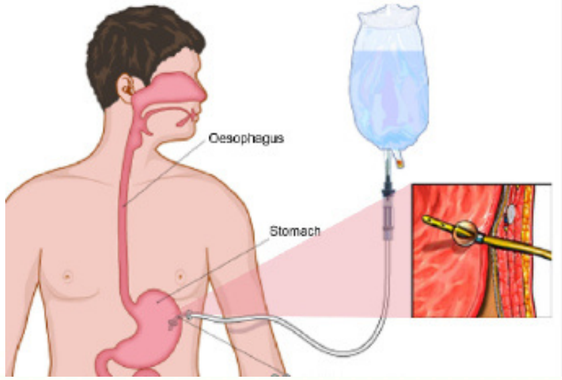
.3Esophageal cancer

.4Major neck surgeries

.5Decompression of gastric outlet obstruction.

.6Any condition which requires prolonged tube feeding for >4 weeks.

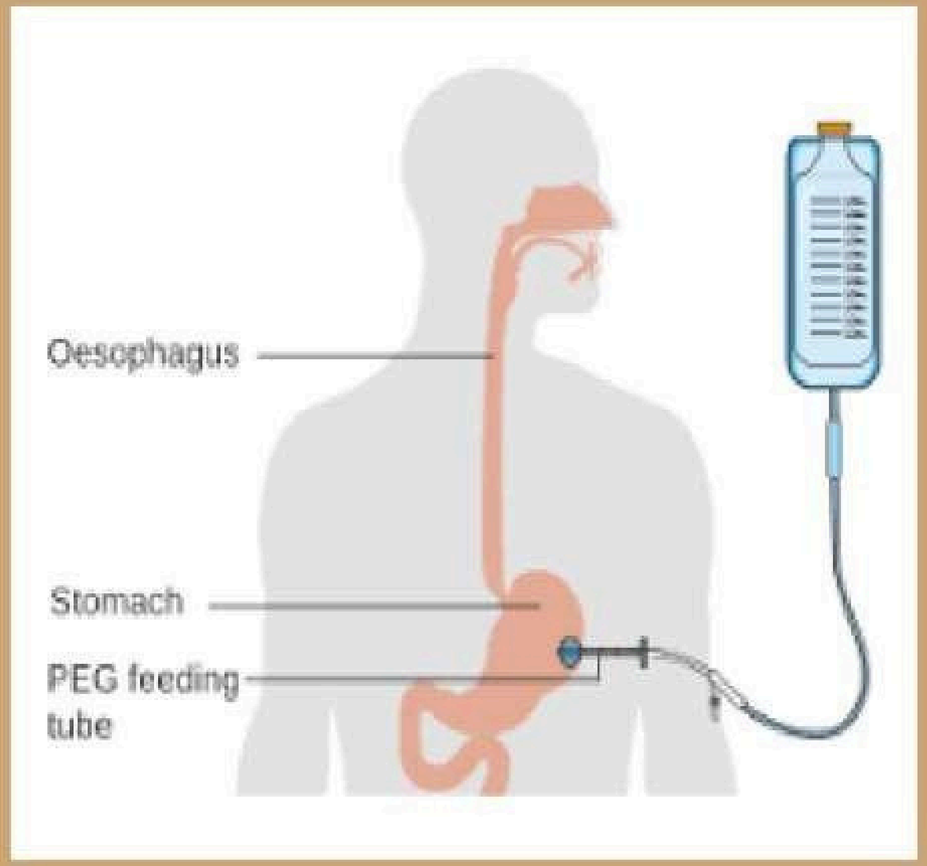
.7Esophageal fistula



TYPES:

.Open gastrostomy

.Percutaneous endoscopic gastrostomy (PEG)

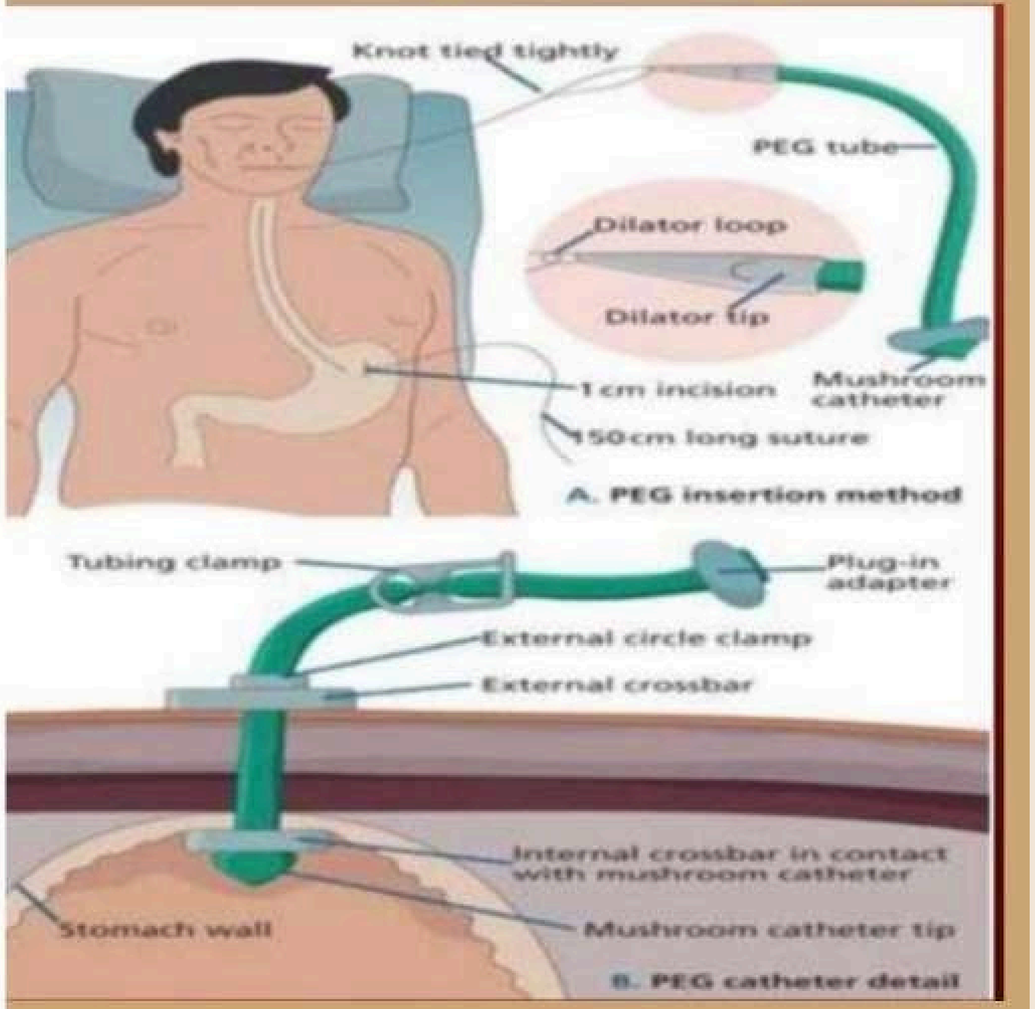


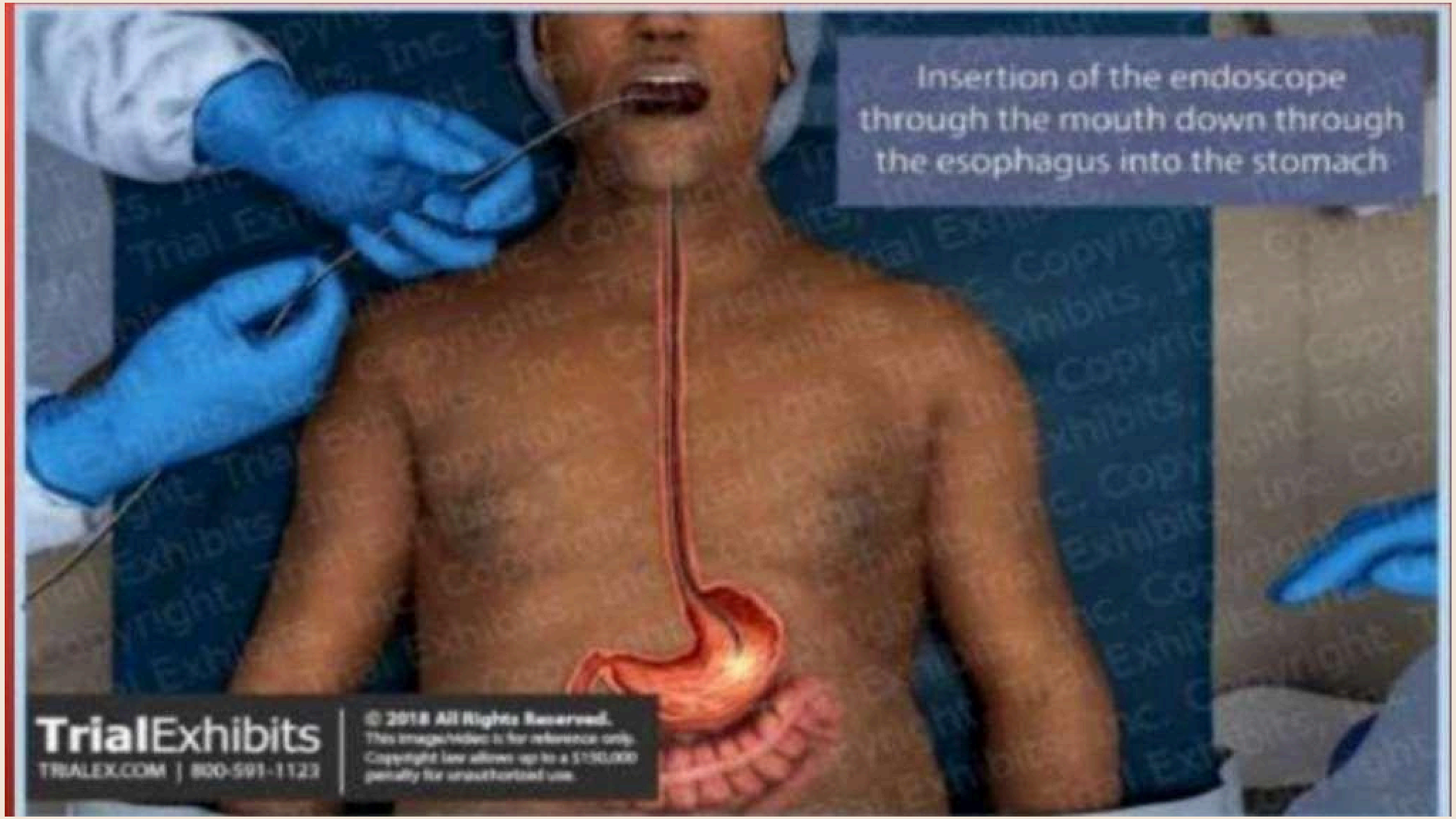
PEG :

.The principle of a sutureless approximation of the stomach to the anterior abdominal wall has allowed the pull technique.

.Reduced morbidity and mortality compared to open

.The fiber optic endoscope is passed into stomach and directed towards the anterior abdominal wall




Insertion of the endoscope through the mouth down through the esophagus into the stomach
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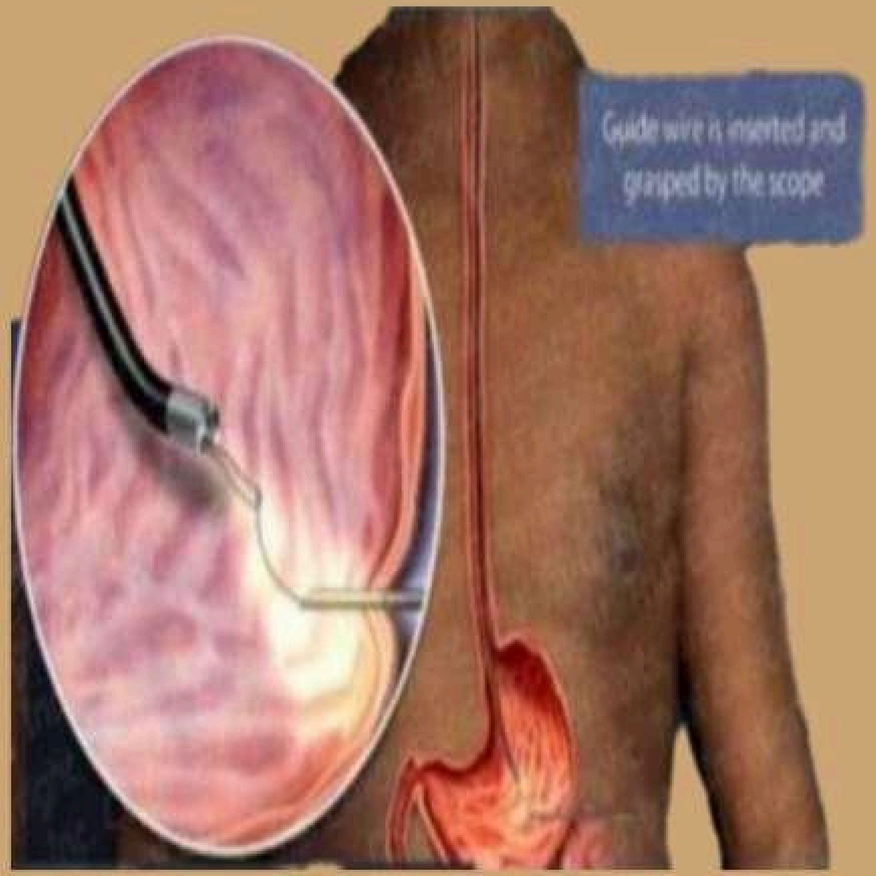
CONT:

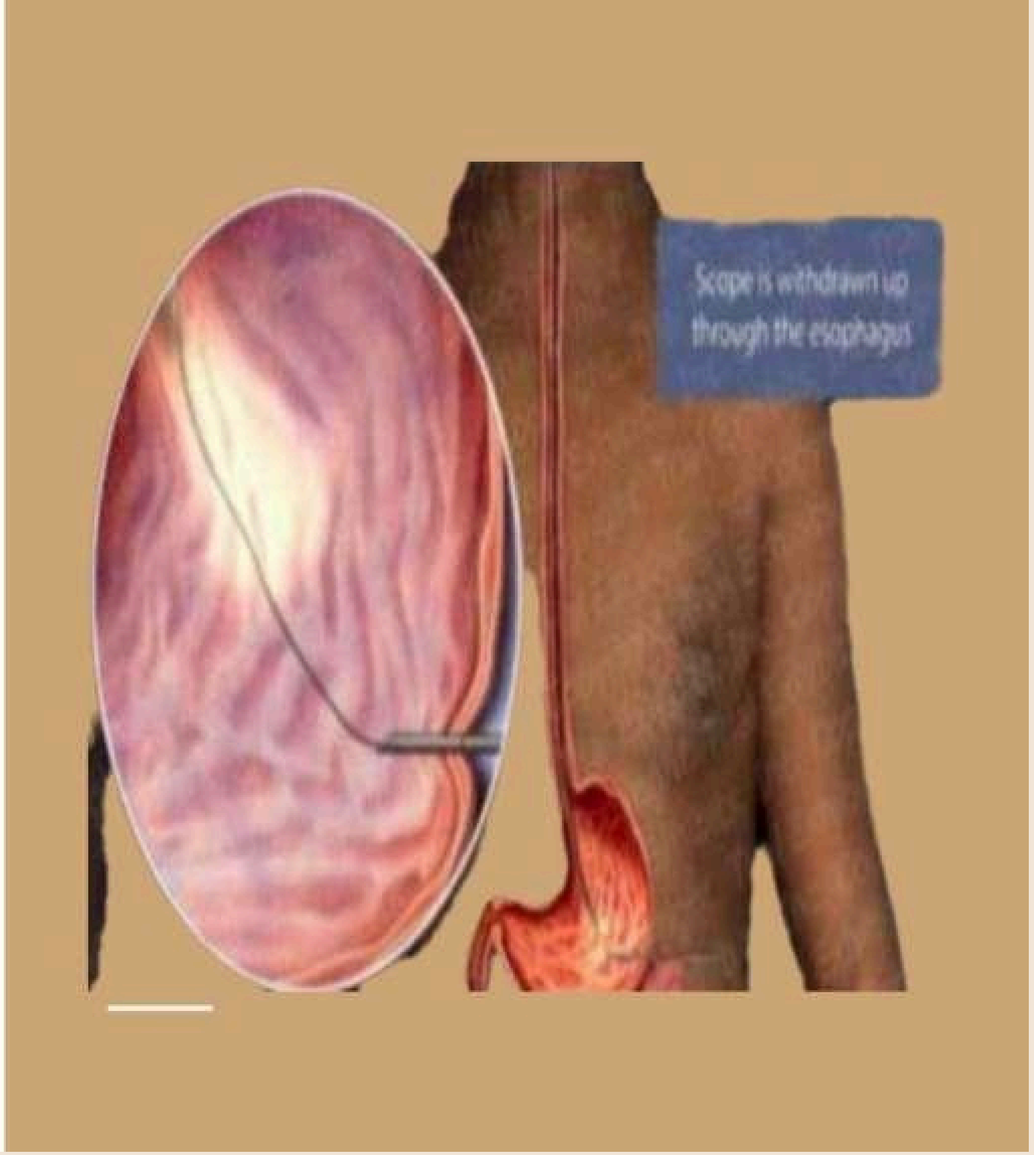
.The second operator identify it by trans illumination and guide it to the ideal site of placement of the tube

.A cannula is passed by the abdominal operator percu5aneously into the stomach ,he then pass thread through the cannula



CONT:

.This thread is grasped under direct vision by endoscipist using biopsy forceps and drawn back through the mouth



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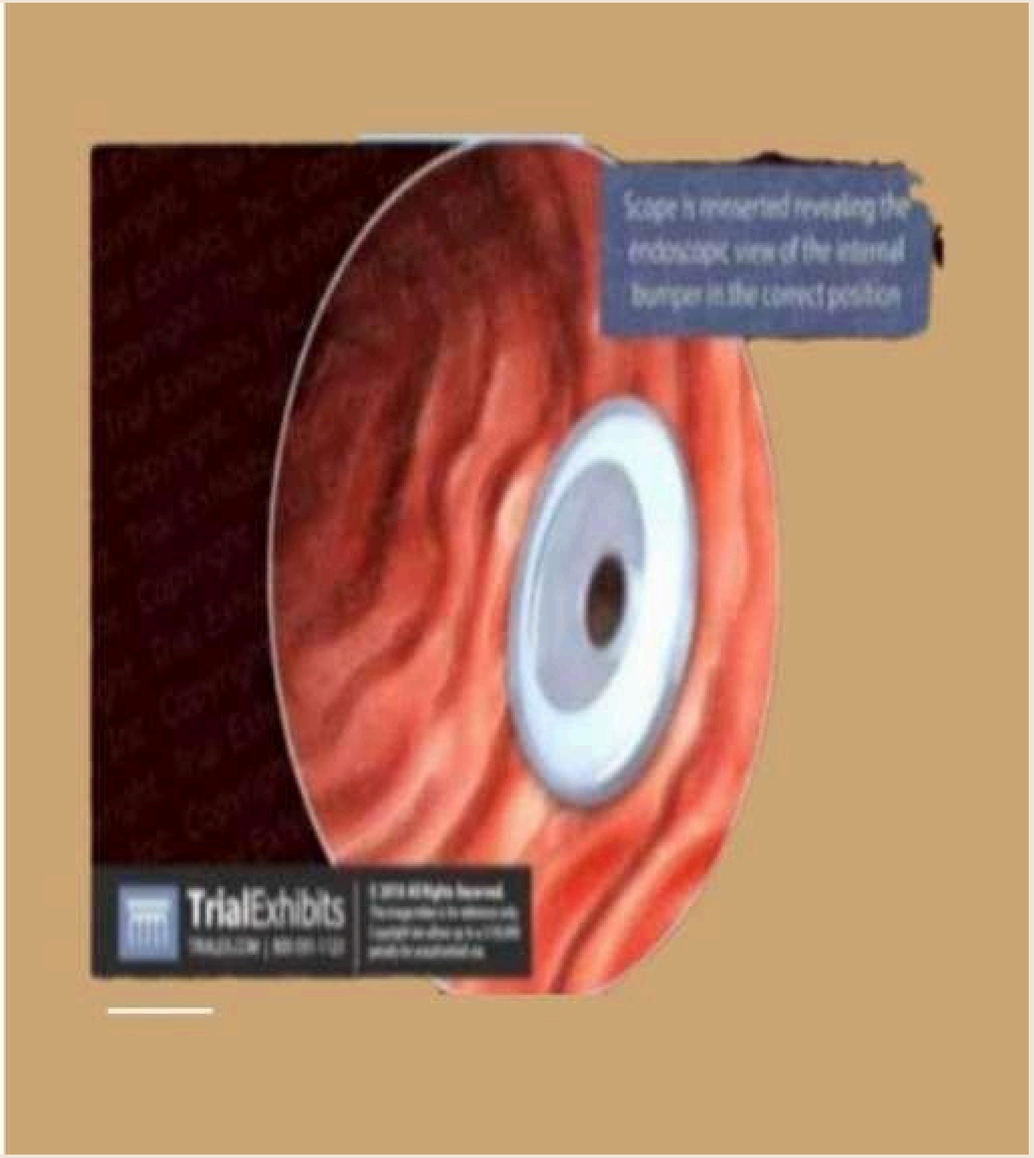
.The gastrostomy tube is securely anchored to the thread which is pulled by the abdominal operator delivering it through the mouth,esophagus, stomach and through the anterior abdominal wall

.The tube secured on the skin with nylon



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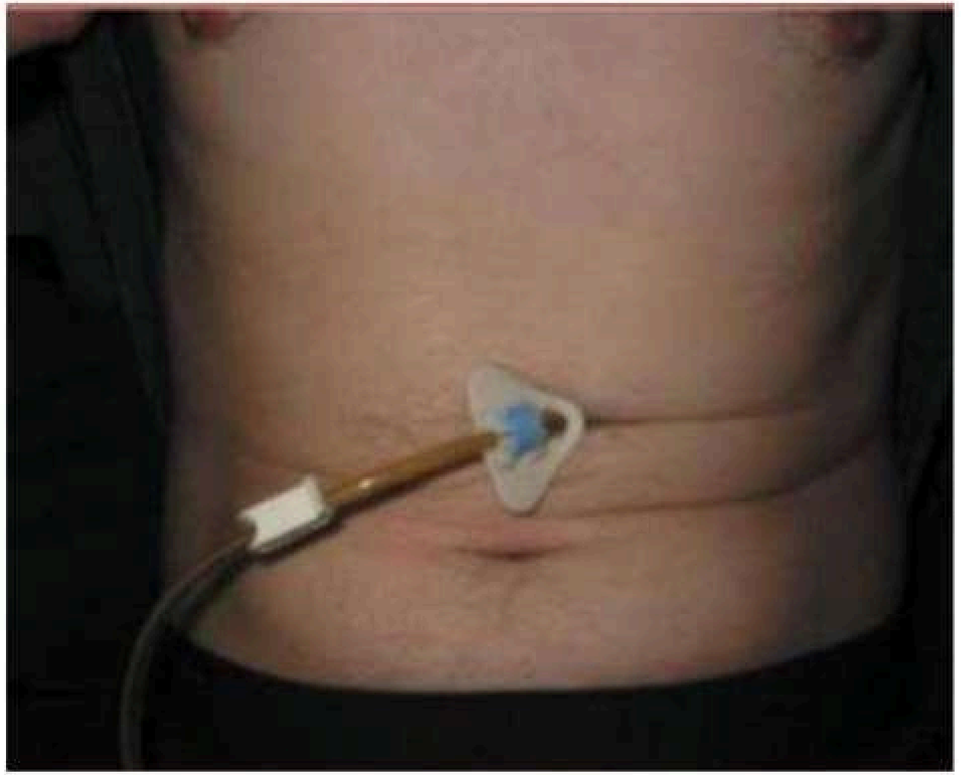


COMPLICATIONS:

.1Infection

.2Trauma to other structures e.g colon

.3Hemorrhage

.4Leackage

.5Blockage

.6Aspiration pneumonia

.7Displacement of tube

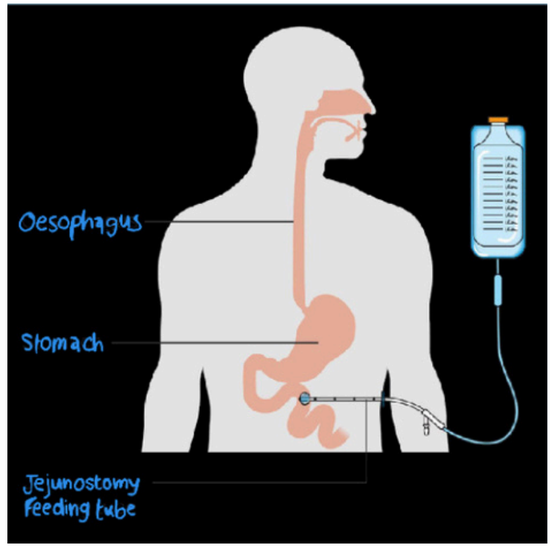
Jejunostomy

Definition

- jejunostomy tube (J-tube) is a soft, plastic tube placed through the skin of the abdomen into the midsection of the small intestine. The tube delivers food and medicine until the person is healthy enough to eat by mouth.

Indication

- Gastric outlet obstruction
- gastric enteral feeding is contraindicated
- Central nervous system disorders
- chronically ill



There are many techniques used for jejunostomy :

1. Longitudinal Witzel
2. Transverse Witzel
3. Open gastrojejunostomy
4. Needle catheter technique
5. Percutaneous endoscopy
6. Laparscopy

STEPS :

.Expose the upper jejunum ,laparascopically or through a small left upper quadrant transverse incision.

.Trace the bowel proximally to the duodenojejunal flexure.

.Select loop 20-10cm distal to this point so that it will easily reach the aterior abdominal wall.

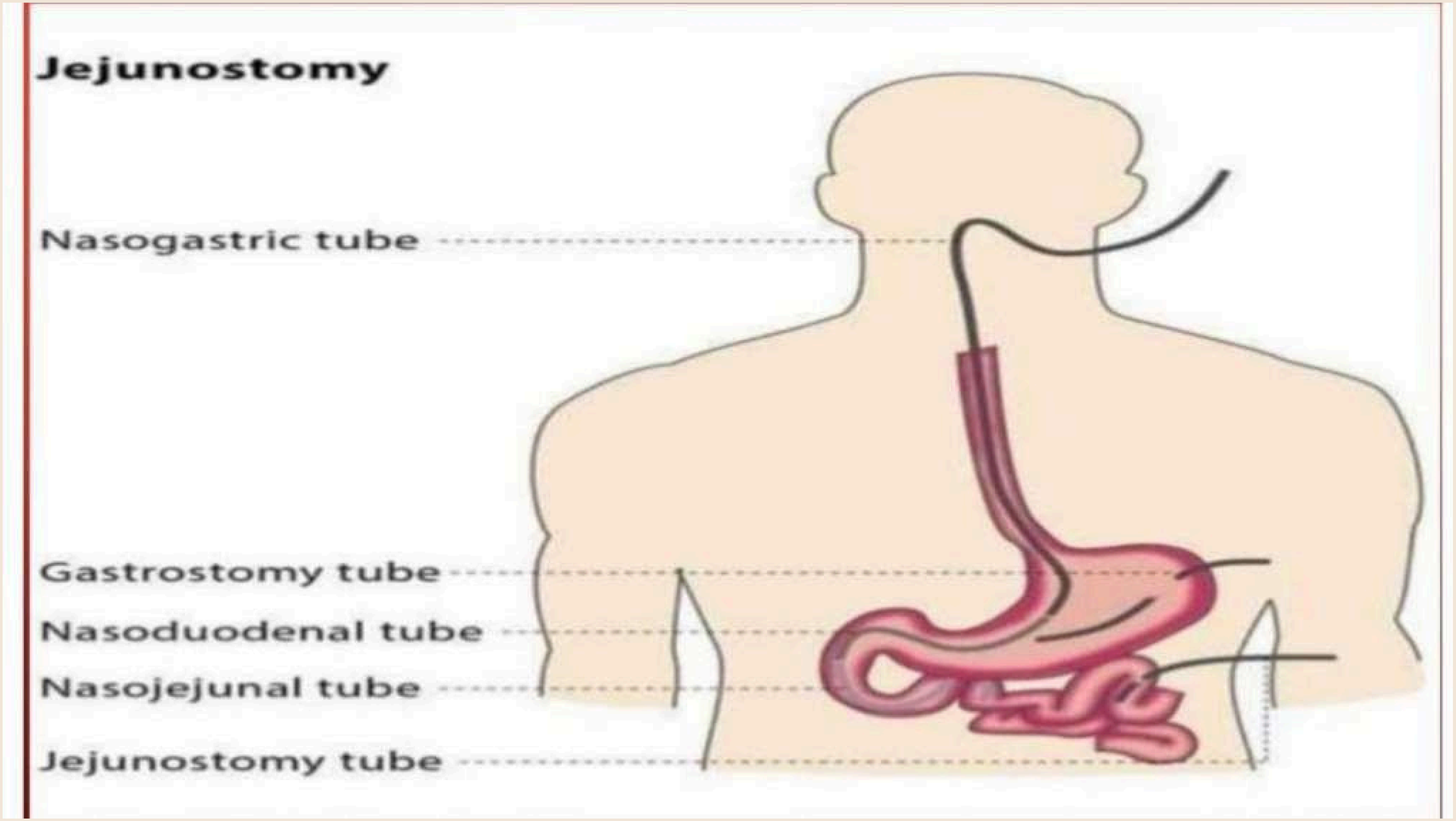
.Insert vircly purse -string suture on antimesenteric border.

CONT:

.Make a tiny enterotomy in the center of purse - string and introduce 9Fr feeding jejunostomy tube

.Tighten the purse string around the tube

.To exclude the enterotomy from the peritoneal cavity ,suture the bowel to the parietal peritoneum at four points around the entry site of tube


Jejunostomy
Nasogastric tube
Gastrostomy tube
Nasoduodenal tube
Nasojejunal tube
Jejunostomy tube

COMPLICATIONS:

1. Minor bleeding from the site
2. Local infection
3. Granulation tissue formation
4. Tube dislocation
5. Obstruction or migration of the tube
6. Intra abdominal abscess
7. Enterocutaneous fistula
8. Leakage from the catheter
9. Perforation of the small intestine
10. Electrolyte disorders
11. Vitamin,mineral and elemant deficiencies

Esophagostomy

Definition

- This procedure can be performed as a temporizing procedure for an esophageal perforation when a primary repair cannot be performed
- Cannot use in excessive vomiting (contraindication)

Indications

• include esophageal perforation in patients too ill to tolerate thoracotomy,

•detection of esophageal perforation or suture line breakdown at a time too late to permit primary repair

•benign or malignant obstruction of the esophagus associated with persistent pneumonitis

COMPLICATIONS:

1. Vomiting

1. Scratching at the tube bandage

1. Patient removel of the tube

1. Inflammation

1. Infection at the wound site and mechanical issues

EXAMINATION OF STOMA:

1. Introduction
2. Inspection:

*Before removing the bag:

<Site

<Scar/Dressing of the surgery

<Bag content:

Ileostomy: whitish -yellow flluid

Colostomy : feculent solid or semi solid

Urostomy :urine

Ask the examinar if you can remove the bag to complete your examination

.After removinf the bag:

<Size

<Shape

<Presence of Bridge?

<No.of openinge

<Type

<Surrounding skin changes

<Complications:

Inspection

Ask patient to cough (parastoma hernia)

COTN :

Palpation (wear gloves)

.Insert your index finger inside the lumen and assess :

<Stenosis

<Lumen (single vs.double)(confirming inspection)

<Bowel wall

<Impacted faeces

.Remove your finger and assess:

<Color of the content

<Consistency of faeces

<Blood

Surrounding skin:

1. **Tenderness**
2. **Oedema**
3. **Hotness**

Put the bag back ,cover and thank the patient

Thank You