

# GASTROINTESTINAL

## STOMA



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# DEFINITIONS

## Ostomy

Operation that connects the GI tract to abdominal wall skin or the lumen of another hollow organ; a man-made fistula

## STOMA

A surgical opening (from the body surface) into a hollow viscus

## Gastrostomy & jejunostomy

A surgical procedure by which a tube is situated in the lumen or the stomach, primarily to administer nutrition(feeding)

## Colostomy & ileostomy

An artificial opening made in the colon or small Intestine to divert feces and flatus outside the abdomen where they can be collected in an external appliance.



# INDICATION OF STOMA

## 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

The most  
Commonly performed  
intestinal stomas include  
colostomy and ileostomy



# CHOOSING SITE FOR STOMA

- preoperatively, the stoma site is marked on the skin while the patient is **standing** and **sitting**.

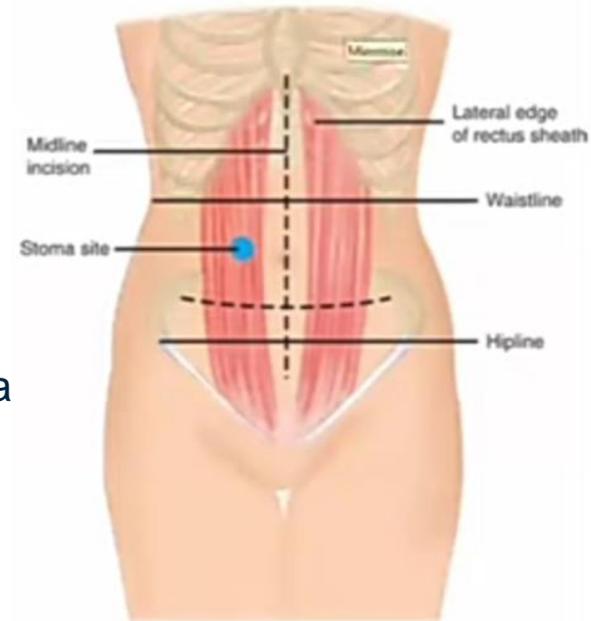
✓ 5 cm from umbilicus.

✓ Away from scars or skin creases.

✓ Away from bony prominences or waistline of clothes

✓ Site that is easy for patient to access - not under a large fold of fa

✓ Stoma must be within the rectus abdominis



# T Y P E S

## ACCORDING TO :

### **Length of time to be used:**

- Temporary stoma
- Permanent

### **Origin:**

- Esophagostomy
- Gastrostomy
- Jejuostomy
- Ileostomy
- Colostomy

### **Method of construction:**

- End stoma: single
- Loop stoma: tow openings connected to the same mucosa (not skin)
- Double barrel

# Esophagostomy

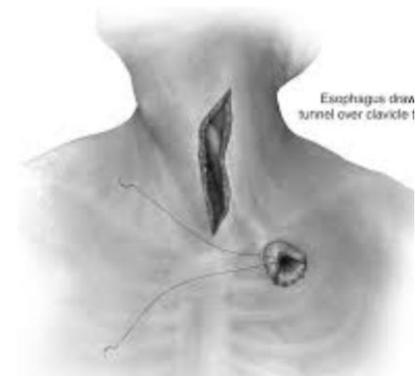
- This procedure can be performed as a temporizing procedure for an esophageal perforation when a primary repair cannot be performed.
- Can **NOT** use in excessive vomiting

## Indications :

- 1] Esophageal perforation in patients too ill to tolerate thoracotomy
- 2] Detection of esophageal perforation or suture line breakdown at a time too late to permit primary repair.
- 3] Benign or malignant obstruction of the esophagus associated with persistent pneumonitis.

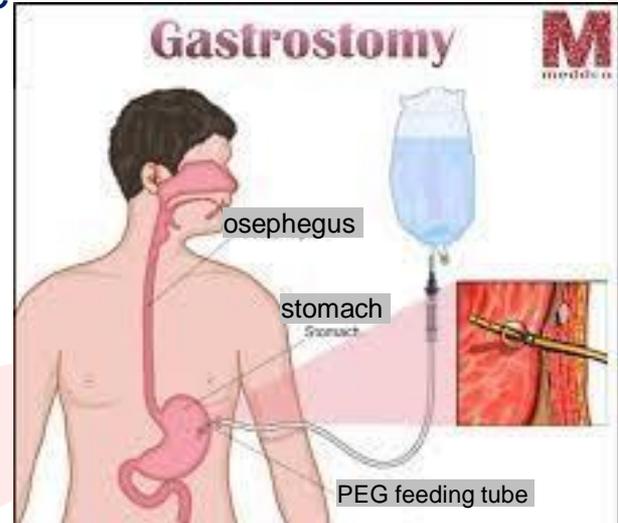
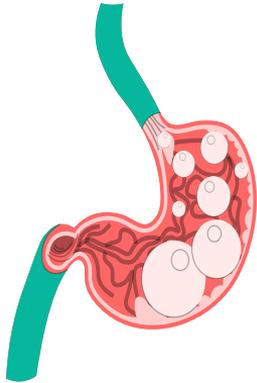
## Complications :

- 1] Vomiting
- 2] Scratching at the tube and bandage
- 3] Patient removal of the tube
- 4] Inflammation
- 5] Infection at the wound site and
- 6] Mechanical issues



# gastrostomy

surgical procedure used to insert a tube, often referred to as a "G-tube", through the abdomen and into the stomach. Gastrostomy is used to provide a route for tube feeding if needed for four weeks or longer, and/or to vent the stomach for air or drainage



# Indications

- Neurological swallowing disorders e.g cerebral palsy, multiple sclerosis etc
- Esophageal stricture or atresia
- Esophageal cancer
- Gastric outlet or small bowel obstruction
- Major neck surgeries
- Any condition which requires prolonged tube feeding for > 4weeks

# Types :

- Open gastrostomy 
- Percutaneous endoscopic gastrostomy (PEG)

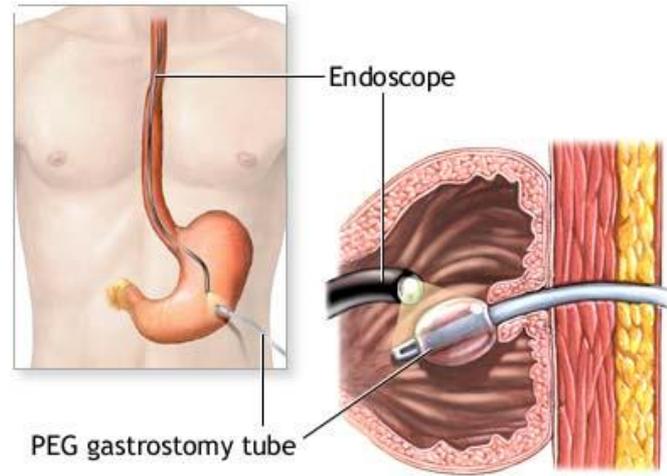
# Open gastrostomy

(or surgical gastrostomy) is applied by minimal vertical midline incision (3 cm), just below the xyphoid process, under local anesthesia. The gastrostomy tube is inserted to the stomach, fixed by a double purse-string suture in the gastric wall and pulled to the anterior abdominal wall.



# Percutaneous endoscopic gastrostomy (PEG)

Is a sutureless approximation of the stomach to the anterior abdominal wall by the pull technique.



# Technique :

- Insertion of the endoscope through the mouth down into the stomach .
- Inflate the stomach with air .
- Insertion of 25 gauge needle ( as the needle is inserted, the surgeon pulls back on the needle to make sure no blood or air returns , bubbles indicate that the needle reaches the stomach .
- Insertion of 16 gauge needle along side the 25 gauge needle (safe tract technique) then the 25 needle is removed .
- Guide wire is the inserted and held by the scope , then the scope is withdrawn up through esophagus .
- Guidewire is pulled back, pulling the gastrostomy tube down through the esophagus and the abdominal wall .
- Scope is reinserted revealing the endoscopic view of the internal bumper in the correct position .
  
- [https://youtu.be/VZ\\_2ZKgaKPU?si=jaJ1bxQTEjz8FPe](https://youtu.be/VZ_2ZKgaKPU?si=jaJ1bxQTEjz8FPe)

## Percutaneous Endoscopic Gastrostomy (PEG Tube) Insertion



# Complications

**Trauma**

**Leakage**

**Blockage**

**Infection**

**Hemorrhage**

**Displacement of tube**

**Aspiration pneumonia**

# Jejunostomy

A jejunostomy is a surgical procedure that creates an artificial opening into the jejunum by jejunostomy tube (J-tube) , The tube delivers food and medicine until the person is healthy enough to eat by mouth, often in the left upper quadrant of the abdomen.

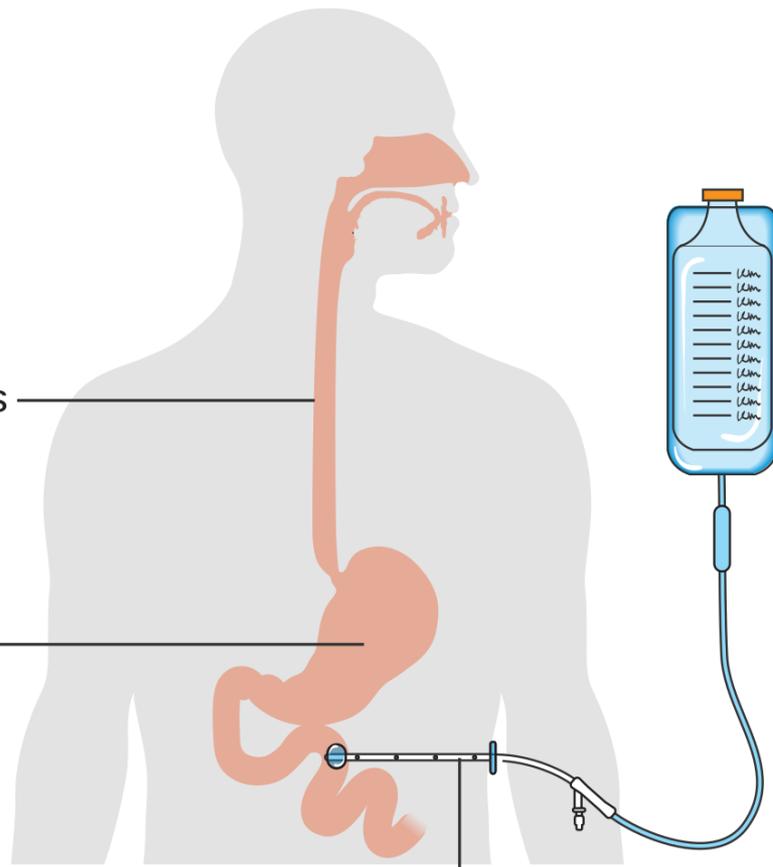
➤ **jejunostomies are performed for various medical reasons, including:**

- **Enteral Nutrition:** Employed when oral intake is unfeasible, necessitating a route for enteral nutrition.
- **Obstruction or Surgical Limitations:** Deployed in cases of gastrointestinal obstruction or when surgical procedures preclude access to the stomach.
- **Critical Illness and Trauma:** Essential for situations where enteral nutrition is preferred over parenteral routes.

Oesophagus

Stomach

Jejunostomy  
feeding tube



## Stoma Characteristics:

1. The stoma, typically situated in the left upper quadrant, exhibits a size smaller than colostomies or ileostomies.
2. A flush-with-skin appearance is common, and a pink or red signifies robust vascularization.

## Types :

**Witzel Tunnel:** A common technique involving creating a tunnel in the abdominal wall through which the jejunum is brought to the surface.

**Stamm Technique:** Another method that involves making an opening directly into the jejunum and securing it to the abdominal wall.

# Ileostomy

## Definition:

is a **surgical procedure that involves creating an artificial anus by connecting the ileum to an opening in the abdominal wall** . The ileum, or end of the small intestine, is passed through this opening and stitched into place.

## Character:

- Spouted opening 2-3cm
- Usually in RIF
- Fluid output and continuous in nature (succus entericus)
- Cause electrolyte disturbances



**The best site is usually through the lateral edge of the rectus sheath, above and medial to the bony prominence , with consideration of skin folds to prevent issues like leakage and skin irritation.**

**When creating an ileostomy, surgeons often aim to position the stoma slightly protruding above the skin level (spouted), typically around 2-3 centimetres, 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:** The protruding nature of the stoma helps direct the flow of output away from the skin, preventing it from pooling around the stoma and causing irritation.

# Types:

## 1. Loop ileostomy (Temporary)

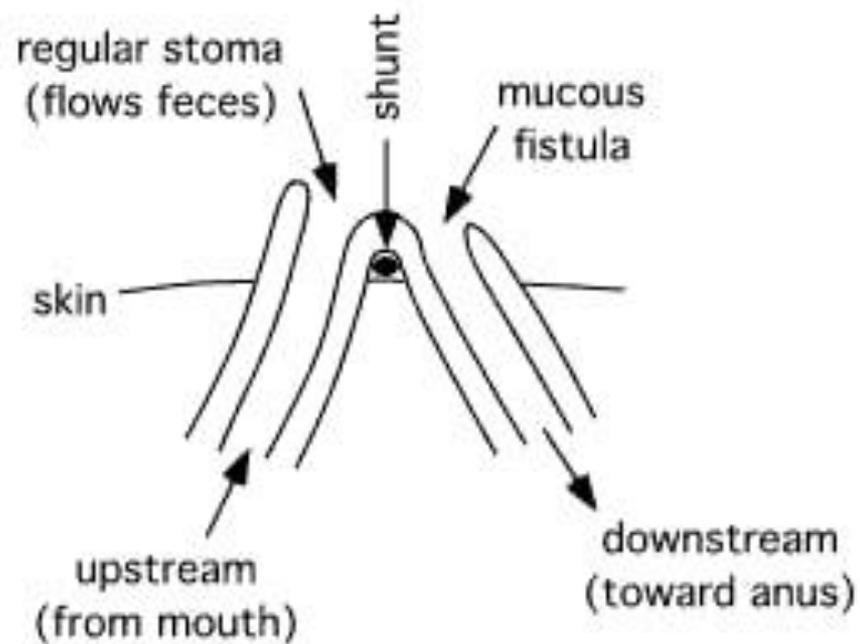
- often used for defunctioning a low rectal anastomosis or an ileal pouch.
- **Loop Formation:** The surgeon brings a loop of the small intestine to the surface of the abdomen, creating two openings in the abdominal wall: one for the stool to exit (stoma) and another for mucus secretion.
- **Temporary Nature:** Unlike an end ileostomy (permanent), a loop ileostomy is designed to be reversible. After a period of diversion, the surgeon can reconnect the loop, restoring normal bowel continuity.



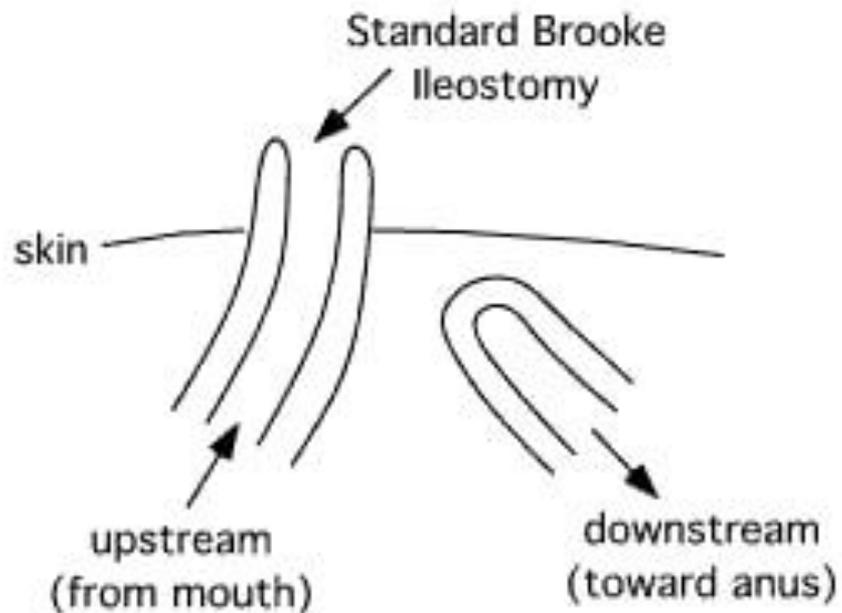
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2. **End ileostomy** (Can be permanent or temporary, but most likely permanent)
    - The surgeon brings the end of the ileum to the surface of the abdomen to create the stoma. The other end of the small intestine is either closed off or removed.
    - An end ileostomy has a single opening on the abdomen through which stool passes.



### Loop Ileostomy



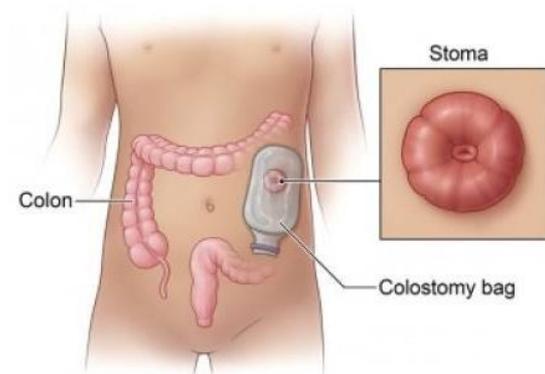
### End Ileostomy



# Colostomy

## Definition :

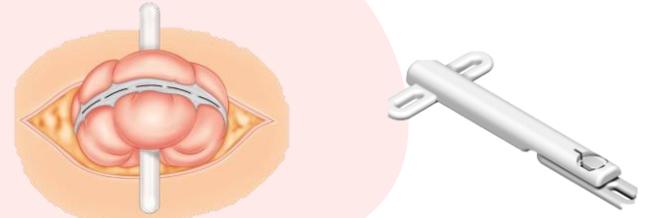
- is an flush artificial opening (usually in LIF) made in the colon to divert feaces and flatus out- side the abdomen (solid or semisold Output: eposidic, not continous, Bad odor) where they can be collected in an external appliance.



# Types :

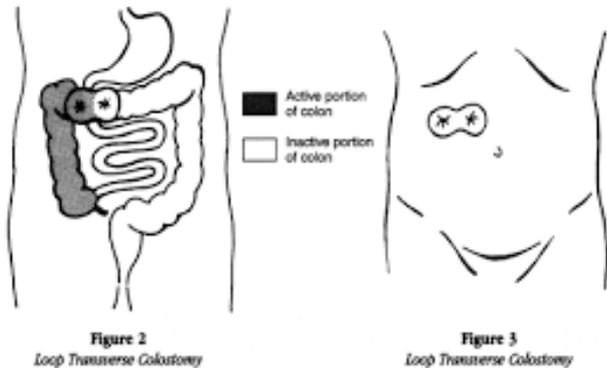
## 1. Loop colostomy (Temporary)

- Temporary loop colostomy is made by bringing a mobilised 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.

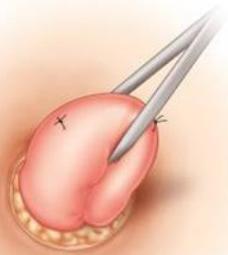


# 1. Loop colostomy (Temporary)

- Colostomy closure is most easily and safely accomplished if the stoma is mature, typically Loop colostomy (Temporary) after the colostomy has been established for two months.
- Mostly Done on the transverse colon (Temporary) Done in emergencies
- The stoma has 2 openings (Both proximal and Distal ends)



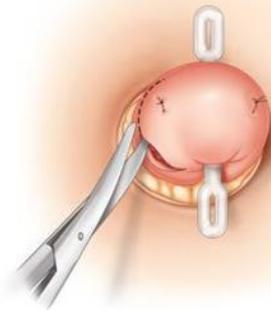
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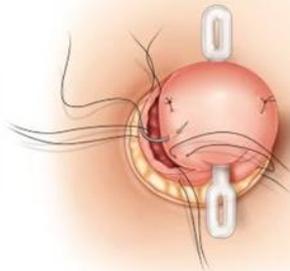
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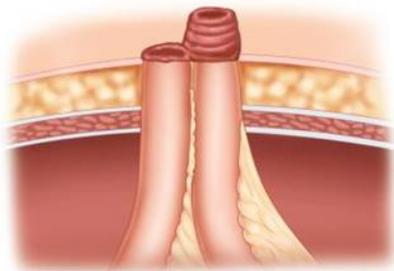
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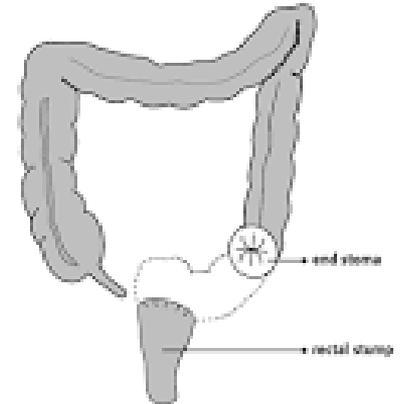
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# Types :

## 2. End colostomy

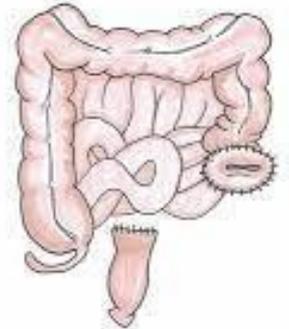
- This is formed after an abdominoperineal excision of the rectum or as part of a Hartmann's procedure.
- The colonic margin is then sutured to the adjoining skin.
- The best site is usually through the lateral edge of the rectus sheath, above and medial to the bony prominence.
- Single opening & More easily than loop colostomy
- It could be permanent or temporary



# Hartmann's Procedure

is often an emergency operation to remove an obstruction, persistent infection or cancer before it can spread. When a portion of the bowel is removed under these conditions, the remaining portions can't be safely reattached at that time.

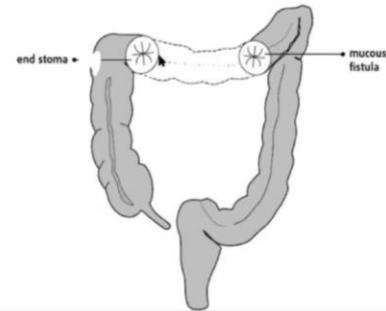
- Potentially reversible 3-4 months later.
- Patients are often elderly & frail or bowel condition does not allow anastomosis.



# Types :

## 3. Double - barrelled colostomy (Temporary)

- The double-barreled colostomy involves the creation of two separate stomas 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.
- The distal stoma is connected to the rectum and called **mucus fistula** , it drains small amount of mucous material.
- This type of surgery is often performed to rest an area of the bowel and may later be closed via further surgery.



**Loop stoma**



**Double - barrelled stoma**



# INDICATIONS

1. Main indications of colostomy were penetrating injuries (50.88%), and intestinal obstruction.
2. Intestinal obstruction with associated inflammation, as in diverticulitis, UC.
3. Birth defect, such as a blocked or missing anal opening, called an imperforate anus.
4. Colorectal cancer .
5. Colostomy is performed in scenarios of large bowel obstruction secondary to benign or malignant cause, perforation with peritonitis, rectovaginal fistulas and perianal sepsis.

# STOMA BAGS AND APPLIANCE

- 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.



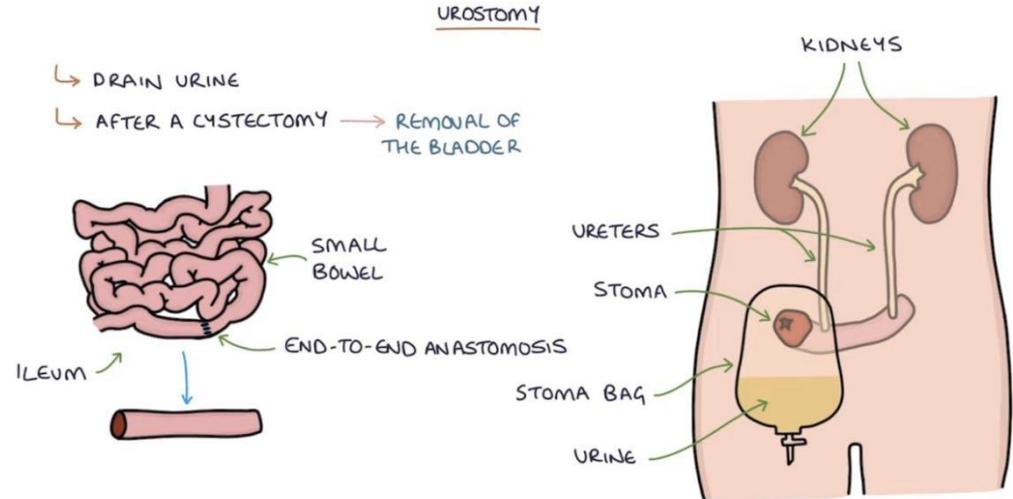
	<b>ileostomy</b>	<b>colostomy</b>
<b>Site</b>	RIF	LIF
<b>Shape</b>	spouted	flush
<b>Effluent</b>	Fluid – small bowel	Solid , semi-solid cotents – large bowel
<b>Output</b>	Continous (higher)	Episodic (lower)
<b>Appliances</b>	Drainable- every 48 h	Disposable - changed 2-3 times a day
<b>Electrolytes disturbance</b>	More common	Less common
<b>Skin irritation</b>	More common	Less common
<b>Bad odor</b>	Less	More
		

# Urostomy

- Also called ileal conduit, Loops of stapled-off ileum made into a pouch, anastomosed to the ureters, and then brought to the abdominal wall skin to allow drainage of urine in patients who undergo removal of the bladder (cystectomy).

- **Indications :**

- bladder cancer.
- a birth defect like spina bifida or bladder exstrophy.
- damage to nerves that control your bladder.
- chronic bladder inflammation.
- spinal cord injury.



# COMPLICATIONS

## Early

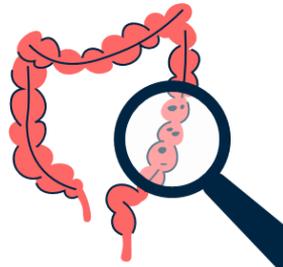
1. Ischemia
2. Bleeding
3. Retraction
4. Skin irritation

## Late

1. Prolapse
2. Parastomal hernia
3. Recurrent disease
4. Bowel obstruction



Patients who are at greater risk of developing stoma related complications are those of **old age, obese, diabetic** and those **who taking steroids** or **immunosuppressant drugs**



# COMPLICATIONS

Bleeding/hemorrhage	Can be defined as either early or late complications. Blood loss can occur either from the peristomal suture, peristomal bleeding, or from the viscera itself, intra-stomal bleeding.	
Ischemia & necrosis	Most frequently occurs as an early complication related to insufficient arterial supply at the stomal site	
Retraction	It represents one of the most frequent late complications.	
Stenosis	Late complication defined by reduction of the stomal lumen at the peristomal skin or muscular fascia, such that normal effluent leakage is not ensured.	
Parastomal Hernia	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	

# COMPLICATIONS

Prolapse

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



Fistula

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



Trauma

Injuries caused by traumatic events on the stoma.



Inflammatory  
Pseudopolyps

These are hyperplastic, fibrino-proliferative formations with a benign character, localized at the level of the mucosa of the ostomy.



# Examination of Stoma

## 1. Introduction

## 2. Inspection

### ■ Before removing the bag

- Site
- Scar / Dressing of the surgery
- Bag contents
  - Ileostomy : whitish-yellow fluid
  - Colostomy : feculent solid or semi-solid
  - Urostomy: Urine

### ■ After removing the bag:

- Size
- Shape
- Presence of Bridge ?
- No. of openings
- Type
- Surrounding Skin changes

- Complications by inspection => Ask patient to cough ( Parastomal Hernia )

# Examination of Stoma

## 3- 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
  - Tenderness
  - Oedema
  - Hotness

## 4- Put the bag back, cover and thank the patient

# Reversal of Stoma (Temporary stomas)

- Should be done After 2 months of the surgery.
- Patient is admitted 5 days before reversal.
- Bowel preparation with laxatives and antibiotics + Fluid diet.
- Ba. Enema should be done to the distal part to ensure absence of obstruction.

