Intestinal Stomas

(1) Colostomy
**Definition:** It is an artificial opening made between the large bowel and skin, to divert faeces and flatus to the exterior, where it can be collected in an external appliance. Effluent is usually solid.

(1) Temporary Colostomy.
**Indications:**
1. Distal Obstruction.
2. Defunction a low rectal anastomosis after Anterior resection of the rectum.
3. Following traumatic injury to the rectum or colon.
4. During operative treatment of a high fistula in ano.
5. Fulminant Colitis (IBD).

Site of the colon used:
A segment which has a mesentery:
1. Transverse colon. (Disease involve Lt. side of the colon)
2. Sigmoid colon. (Disease involve the rectum or rectosigmoid junction)

Types of temporary colostomies:
1. **Loop colostomy:** bringing a loop of bowel to the surface where it is held in place by a plastic or glass rod passed through the mesentery. Firm adhesion of the colostomy takes place after 7 days then the bridge can be removed.

Closure: follows the surgical cure or healing of the distal lesion for which the temporary stoma was constructed (a distal loopogram) is best performed to check there is no distal obstruction or any problem at the site of previous surgery). Also the stoma should be mature (at least 2 months after establishment of the colostomy).

Steps of loop colostomy:
# GA is important since since traction on the mesentery causes pain and nausea.
# A transverse incision 8-10cm long, with removal of a disc of skin, is made for transverse colon (in the Rt. upper abdomen midway between the umbilicus and xiphisternum over the rectus abdominus muscle and extending laterally to the lateral border of the rectus muscle), while for the sigmoid colon (in the Lt. iliac fossa with a muscle cutting incision).
# Cut down all layers including the rectus muscle which is divided transversely ligating and dividing the epigastric artery.
# The most proximal loop of colon is prepared by removing the omentum from its anterior surface (only in Transverse colon), then a small hole is made in the mesocolon through which a rubber tube is passed to facilitate delivery of the colon through the incision.
# The laparotomy wound should be closed at this stage.
# The colonic loop is held by an underlying glass rod or by a colostomy bar or skin bridge incised initially. The colon is then opened on its antimesocolic border longitudinally (along the taenia coli).
# Sutures are used to fix the colonic serosa to the abdominal wall, and colonic mucosa to the surrounding skin.
# The finished loop colostomy should allow one finger to pass down on each side.

2- **Double Barrelled colostomy:** the colon is divided so that both ends can be brought separately to the surface with a skin bridge intervening. 
**Advantage:** ensures that the distal segment (colon, rectum) is completely defunctioned (Absolute Rest).

3- **Hartmann’s Procedure:** This includes a proximal End Colostomy with a distal closed colonic segment. This procedure can be used when resecting a tumour of the Lt. site of the colon or in Complicated diverticular disease.

(2) **Permanent Colostomy**

**Indications:**
1- Rectal carcinoma excision( A-P resection) ----- End colostomy
2- Inoperable rectal or colonic carcinoma ----- Loop colostomy
**Technique of End Colostomy:**

The best site is through the lateral edge of the rectus sheath 6cm above and medial to the anterior superior iliac spine. The colon is stitched in place immediately by sutures placed between the colonic margin and the surrounding skin, i.e; it is usually sutured flush to the skin. The point at which the colon is brought to the surface must be carefully selected to allow a colostomy bag to be applied without impinging on a bony prominence. An important point after the colostomy has been made is to close the lateral space between the intraperitoneal segment of the colon and the peritoneum of the pelvic wall to prevent internal herniation and strangulation of the bowel.

A sigmoid colostomy is usually brought out at the Lt. iliac fossa.

A Transverse colostomy is usually brought out in the Rt. Hypochondrium.

**Complications of Colostomy construction:**

1- Prolapse. (it leads to dysfunction, it is not important in temporary colostomy which sooner or later will be closed, only in permanent cases which will need refashioning or resiting)

2- Retraction. (due to tension and infection)

3- ParaColostomy Hernia.( especially in end terminal colostomy). Treatment should include resiting the colostomy and the hernia defect closed.

4- Bleeding.

5- Necrosis and gangrene of the distal end. (due to loss of viability due to interference with its blood supply, too much ligation of mesenteric vessels).

6- Stenosis of the colostomy orifice. (occurs at the mucocutaneous junction, due to infection and cellulitis which is followed by scarring). Treatment should include refashioning of colostomy site with excision of skin disc.

7- PeriColostomy Abscess and Fistula. (occurs when a misplaced suture that fixes the colon to the deeper layers of the abdominal wall instead of passing through the serosa, passes through the whole thickness of the bowel). The abscess bursts and forms a fistula. Treatment should include laying the track open and leaving it to granulate.

8- Colostomy diarrhea.
(2) Ileostomy

**Definition:** It is an artificial opening made between the ileum and skin of the abdominal wall, to divert intestinal contents to the exterior, without a sphincter to control the timing of its emptying. Effluent is usually liquid.

(1) End Ileostomy.

**Indications:** In cases where total proctocolectomy is done.
1- Ulcerative colitis.
2- Crohn’s disease.
3- Familial polyposis Coli.

(2) Loop Ileostomy.

**Indications:** as an alternative of a loop colostomy for Defunctioning (for protection)
1- Low rectal anastomosis following a anterior rectal resection procedure.
2- Ileoanal pouch procedure following Total proctocolectomy.

**Technique of Ileostomy:**
The ileostomy opening should be 5cm lateral to the umbilicus and brought out through the lateral edges of the rectus abdominus muscle. It is usually made in the Rt. Iliac fossa. It should be spouted.

**Complications of Ileostomy:**
1- Prolapse.
2- Retraction.
3- ParaIleostomy Hernia.
4- Bleeding.
5- Necrosis and gangrene of the distal end.
6- Stenosis of the Ileotomy orifice.
7- Skin reaction around the stoma. (Excoriation, erosion, sloughing)
8- Fluid and electrolyte imbalance. (Ileostomy Flux).
**Caecostomy**

**Indication:**
1- Trauma to the caecum.
2- Closed loop syndrome. (In desperately ill patients with advanced obstruction)

**Site:** Rt. Iliac fossa.

**Types of Bowel Stomas**
1- End (terminal).
2- Loop.
3- Double Barrel. (Two ends brought to the surface separately with a skin bridge intervening)
4- Paul-Miculikz. (Two ends brought to the surface together where the adjacent serosal surfaces are hitched by sutures, and adjacent mucosal surfaces are sutured)
5- Separation proximal faecal fistula from a distal mucous fistula.

**Criteria taken into consideration when positioning a stoma:**
1- Away from any bony prominence. (Anterior superior iliac spine, Symphysis pubis)
2- Away from the umbilicus.
3- Away from any previous surgical incision.
4- Visible when the patient stands.
5- Comfortable for the patient.
## How to differentiate a colostomy from ileostomy?

<table>
<thead>
<tr>
<th></th>
<th>Colostomy</th>
<th>Ileostomy</th>
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<tbody>
<tr>
<td><strong>Site</strong></td>
<td>Rt. upper abdomen</td>
<td>Rt. iliac fossa</td>
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<tr>
<td></td>
<td>Lt. iliac fossa</td>
<td></td>
</tr>
<tr>
<td><strong>Discharge</strong></td>
<td>Formed faeces or faeculent fluid</td>
<td>Fluidy</td>
</tr>
<tr>
<td><strong>Color of discharge</strong></td>
<td>Brownish or Blackish</td>
<td>Brownish, Greenish - Yellowish</td>
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<tr>
<td><strong>Odor of discharge</strong></td>
<td>Very offensive (excessive gases)</td>
<td>Less offensive</td>
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<tr>
<td><strong>Stoma</strong></td>
<td>Large</td>
<td>Small</td>
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<td></td>
<td>Constructed flush or slightly elevated from the skin</td>
<td>Constructed as a nipple like projection above the skin</td>
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<tr>
<td><strong>Reaction of the</strong></td>
<td>Usually normal</td>
<td>Erythematous, oedematous (from enzymatic digestion)</td>
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<td><strong>surrounding skin</strong></td>
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## Types of stoma appliances:

1- **Two piece** (Bag and ring are separate). **Advantage:** less trauma to the stoma from frequent changing.

2- **One piece** (Bag and ring are matted). **Disadvantage:** higher chance of trauma to the stoma with granulomas and bleeding, excoriation and ulcerations around the stoma.