Colostomy & Ileostomy
Indications, problems and preference

By Waleed Omar
Professor of Colorectal surgery, Mansoura University.
Disclosure

I have no disclosures.
Presentation outline

• Stoma: Definition and classifications.

• Rationale and indications.

• Stoma Problems.

• What should we do?

• Colostomy Vs Ileostomy.

• Is there another solution?
Stoma

- Greek in origin means “mouth”
- Intestinal stoma: opening of the intestinal tract onto the abdominal wall.
Classification
According to:

- Anatomy
  - Colostomy
  - Ileostomy
  - Urostomy

- Duration
  - Temporary
  - Permanent

- Configuration
  - End
  - Loop
  - Others
Rationale

- Defunction to allow healing of distal anastomosis or reconstruction
- Decompression for distal obstruction

- Prevent or reduce complications

- Reduce mortality
Indications (general)

• **Protecting anastomosis**
  • Anastomosis at risk due to general condition (immunosuppression, shock, peritonitis..etc)
  • Oftnely after certain procedures: Low anterior resection (TME for cancer).
    Restorative proctocolectomy (UC, FAP).

• **Protecting repair**
  • Anal sphincter repair
  • Complex fistula
  • Colorectal Trauma

• **Infection**
  • Fournier gangrene
  • Pelvic sepsis
  • Bowel perforation
## Indications  
*acc. to disease*

<table>
<thead>
<tr>
<th>Disease</th>
<th>Presentation</th>
<th>Rationale</th>
<th>Configuration</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal cancer</td>
<td>Rectal cancer (LAR)</td>
<td>Defunction (anastomosis protection)</td>
<td>Loop ileostomy or colostomy</td>
<td>Usually Temporary</td>
</tr>
<tr>
<td></td>
<td>Very low cancers</td>
<td>A part of APR</td>
<td>End colostomy</td>
<td>Permanent</td>
</tr>
<tr>
<td></td>
<td>Obstruction</td>
<td>Decompression</td>
<td>End or loop colostomy</td>
<td>Usually Temporary</td>
</tr>
<tr>
<td></td>
<td>Perforation</td>
<td>Defunction</td>
<td>End or loop colostomy</td>
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<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverticular disease</td>
<td>Elective fistula</td>
<td>Defunction (anastomosis protection)</td>
<td>Loop ileostomy or colostomy</td>
<td>Usually Temporary</td>
</tr>
<tr>
<td></td>
<td>Perforation</td>
<td>Defunction</td>
<td>End or loop colostomy</td>
<td>Usually Temporary</td>
</tr>
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## Indications

**acc. to disease**

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<thead>
<tr>
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<th>Configuration</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulcerative colitis</td>
<td>Acute colitis</td>
<td>Defunction (after subtotal colectomy)</td>
<td>End ileosotomy</td>
<td>Temporary or permanent</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>Chronic disease</td>
<td>Eradication of disease (after panproctocolectomy)</td>
<td>End Ileostomy</td>
<td>Permanent</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>Elective</td>
<td>Defunction (after ilealpouch surgery)</td>
<td>Loop ileostomy</td>
<td>Temporary</td>
</tr>
</tbody>
</table>
## Indications *acc. to disease*

<table>
<thead>
<tr>
<th>Disease</th>
<th>Presentation</th>
<th>Rationale</th>
<th>Configuration</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crohn’s disease</td>
<td>Crohn’s colitis</td>
<td>Defunction</td>
<td>Loop or split ileosotomy or colostomy</td>
<td>Temporary or permanent</td>
</tr>
<tr>
<td>Small bowel dis</td>
<td>Defunction</td>
<td></td>
<td>Loop or end or split ileostomy</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>Eradication of disease (after panproctocolectomy)</td>
<td></td>
<td>End ileostomy</td>
<td>Permanent</td>
</tr>
<tr>
<td>Septic complication Or perianal disease</td>
<td>Defunction</td>
<td></td>
<td>Loop or end ileostomy</td>
<td>Usually Temporary</td>
</tr>
</tbody>
</table>
## Indications acc. to disease

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<th>Presentation</th>
<th>Rationale</th>
<th>Configuration</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>Colon or rectum</td>
<td>Defunction</td>
<td>Ileosotomy or colostomy</td>
<td>Usually temporary</td>
</tr>
<tr>
<td></td>
<td>Anal sphincter</td>
<td></td>
<td></td>
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<tr>
<td>Functional</td>
<td>Fecal Incontinence</td>
<td>Defunctioning anus</td>
<td>End colostomy</td>
<td>Permanent</td>
</tr>
<tr>
<td></td>
<td>Sphincter repair</td>
<td>Defunction</td>
<td>Loop ileostomy or colostomy</td>
<td>Temporary</td>
</tr>
</tbody>
</table>
Stoma problems

21-70% overall rate of complications


≥50% develop at least one complication within one year.

- Shabbir et al, Colorectal dis 2010.
Risk for stoma problems

• Emergency procedures.
• Obesity.
• Female gender.
• Age.
• Type of stoma $>10\text{mm}$.
• Eversion(sprout) $>10\text{mm}$.
• Diabetes.
• Others...

According to:

Cottam et al, Colorectal dis 2007
Shabbir et al, Colorectal dis 2010
## Stoma problems

<table>
<thead>
<tr>
<th>Category</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early</strong></td>
<td><strong>Late</strong></td>
</tr>
<tr>
<td>Stoma related</td>
<td>Poor location</td>
</tr>
<tr>
<td></td>
<td>Prolapse</td>
</tr>
<tr>
<td></td>
<td>Retraction *</td>
</tr>
<tr>
<td></td>
<td>Stenosis</td>
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<tr>
<td></td>
<td>Ischemic necrosis</td>
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<tr>
<td></td>
<td>Parastomal hernia</td>
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<tr>
<td></td>
<td>Detachment</td>
</tr>
<tr>
<td></td>
<td>Fistula</td>
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<tr>
<td></td>
<td>Wrong limb exteriorized</td>
</tr>
<tr>
<td></td>
<td>Gas and odor</td>
</tr>
<tr>
<td>Peristomal skin</td>
<td>Excoriation</td>
</tr>
<tr>
<td></td>
<td>Dermatosis</td>
</tr>
<tr>
<td></td>
<td>Dermatitis</td>
</tr>
<tr>
<td></td>
<td>Parastomal varices</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
</tr>
<tr>
<td>Systemic</td>
<td>High output/loss of fluid (dehydration) *</td>
</tr>
<tr>
<td></td>
<td>Bowel obstruction</td>
</tr>
<tr>
<td></td>
<td>Nonclosure</td>
</tr>
<tr>
<td>Closure related</td>
<td>Leakage*</td>
</tr>
<tr>
<td></td>
<td>Incisional hernia</td>
</tr>
<tr>
<td>Quality of life</td>
<td>↓ ↓</td>
</tr>
</tbody>
</table>

* May be developed late
What should we do?

- **Patient selection (risk assessment).**
- **Prevention is always better than treatment.**
  - Adequate surgical technique:
    - Positioning
    - Bowel perfusion
    - Length
    - Tension
    - Fascial opening
    - Sprouting
    - Suturing
What should we do?

- **Follow the guidelines (at least the strong recommendations level 1)**

**PRACTICE PARAMETERS**

**Clinical Practice Guidelines for Ostomy Surgery**

Samantha Hendren, M.D., M.P.H • Kerry Hammond, M.D. • Sean C. Glasgow, M.D. • W. Brian Perry, M.D. • W. Donald Buie, M.D. • Scott R. Steele, M.D. • Janice Rafferty, M.D.

Prepared by the Clinical Practice Guidelines Committee of the American Society of Colon and Rectal Surgeons

Dis Colon Rectum 2015; 58: 375–387
DOI: 10.1097/DCR.000000000000347
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Guidelines for ostomy creation (only strong recommendations) 1

1. When feasible, laparoscopy is preferred to ostomy formation via laparotomy. 1C

2. Whenever possible, both ileostomies and colostomies should be fashioned to protrude above the skin surface. 1C

3. Lightweight polypropylene mesh may be placed at the time of permanent ostomy creation to decrease parastomal hernia rates. 1B

4. Ileostomy patients, postoperative care pathways may prevent hospital readmission for dehydration. 1C
Guidelines for ostomy closure (only strong recommendations) 1

1. Stapled and hand-sutured techniques are both acceptable for loop ileostomy closure. 1B

2. Ostomy-site skin reapproximation should be performed when feasible, and pursestring skin closure may have advantages compared with other techniques. 1B

3. Laparoscopic Hartmann reversal is a safe alternative to open reversal in experienced hands. 1C
Guidelines for ostomy complications (only strong recommendations) 1

1. Parastomal hernia repair should typically be performed by using mesh reinforcement or by relocating the stoma. 1C

2. Prosthetic mesh may be used during parastomal hernia repair with low short-term risk of intestinal erosion or mesh infection. 1C

3. Laparoscopic parastomal hernia repair with mesh may be a safe alternative to open mesh repair. 1C
So, Colostomy or Ileostomy?
Colostomy Vs Ileostomy

Ileostomy or colostomy for temporary decompression of colorectal anastomosis (Review)


www.cochranelibrary.com
• 5 RCT included.

• 20 outcomes measures:
  ◦ A - General outcomes: mortality, wound infection, time interval between formation and closure of the stoma, length of hospital stay, reoperation and colorectal anastomotic dehiscence.
  ◦ B- Stoma construction: time of formation, stoma prolapse, stoma retraction, stoma necrosis, parastomal hernia, parastomal fistula and stoma stenosis.
  ◦ C- Stoma closure: bowel leakage, time of stoma closure, incisional hernia and postoperative bowel obstruction.
  ◦ D - Functioning stoma: patient adaptation, skin irritation and postoperative ileus.

• Only stoma prolapse was significantly less with ileostomy.

• No other significant difference.

• Conclusion: From the current data included in this review, it is not possible to express a preference for use of either loop ileostomy or loop colostomy for fecal diversion from a colorectal anastomosis.
Colostomy Vs Ileostomy

Loop ileostomy versus loop colostomy for fecal diversion after colorectal or coloanal anastomosis: a meta-analysis

F. Rondelli • P. Reboldi • A. Rulli • F. Barberini • A. Guerrisi • L. Izzo • A. Bolognese • P. Covarelli • C. Boselli • C. Becattini • G. Noya
• 12 comparative studies; 5 RCTs, 7 comparative non randomized (3 prospective & 4 retrospective)

• Outcomes measured:
  ◦ A—General: wound infection and dehydration.
  ◦ B—Stoma Construction: necrosis, prolapse, retraction, parastomal hernia, stenosis, sepsis, and hemorrhage.
  ◦ C—Stoma closure: occlusion, wound infection, anastomotic leak or fistula, and hernia.
  ◦ D—Stoma function: skin irritation and occlusion.

• Hernia and prolapse are less with Ileostomy.

• Dehydration is less with colostomy.

• No other significant differences.

• The conclusion reached from this meta-analysis is that the superiority of one treatment over another cannot be definitively declared; however, the authors here endorse LI over LC.
Colostomy Vs Ileostomy

**Conclusion**

Loop ileostomy is preferred over transverse loop colostomy for temporary fecal diversion in most cases. *Weak recommendation* based on moderate-quality evidence, 2B.
Is there another solution?
Another solutions?

- **Ghost ileostomy**

**ORIGINAL CONTRIBUTION**

**Ghost Ileostomy in Anterior Resection for Rectal Carcinoma: Is It Worthwhile?**

Lorenzo Mori, M.D. • Matteo Vita, M.D. • Francesco Razzetta, M.D. • Piercarlo Meinero, M.D. • Giovanni D’Ambrosio, M.D.

Department of General Surgery, Azienda Sanitaria Locale No. 4 Chiavarese, Lavagna, Genova, Italy
Another solutions?  

**Ghost ileostomy**

- 168 LAR with TME for rectal cancer.
- 20/168 had leaks
  - 13/20 ileostomy by local anesthesia.
  - 5/20 successful conservative measures.
  - 2/20 peritonitis required colostomy.

- **91% without Stomas**

High risk patients were excluded
Another solutions?

- **Ghost ileostomy**

**Does ghost ileostomy have a role in the laparoscopic rectal surgery era? A randomized controlled trial**

Francesco Saverio Mari · Tatiana Di Cesare · Luciano Novi · Marcello Gasparini · Gianmauro Berardi · Giovanni Guglielmo Laracca · Andrea Liverani · Antonio Brescia
Another solutions?  

- **Ghost ileostomy**

  - No patients with leak needed laparotomy (n=3)
  - High risk patients were excluded
Another solutions?

- Tube ileostomy

**Tube ileostomy for faecal diversion in elective distal colorectal anastomosis: a systematic review and pooled analysis**

S. Nachiappan*,†, U. Datta‡, A. Askari*† and O. Faiz*†

*Surgical Epidemiology, Trials and Outcome Centre (SETOC), St Mark’s Hospital and Academic Institute, Harrow, Middlesex, UK, ‡Department of Surgery and Cancer, Imperial College, St Mary’s Hospital, London, UK and †Imperial College Medical School, London, UK

Received 27 October 2014; accepted 9 February 2015; Accepted Article online 9 May 2015

doi:10.1111/codi.12997
Another solutions?  

- **Tube ileostomy**

  - No difference in anastomotic leakage.
  - Less morbidity (Mostly peristomal cellulitis)

  - But only retrospective comparative studies, no RCT
Another solutions?

- **Transanal decompression tube**


**REVIEW**

Prophylactic transanal decompression tube versus non-prophylactic transanal decompression tube for anastomotic leakage prevention in low anterior resection for rectal cancer: a meta-analysis

Yun Yang¹ · Ye Shu² · Fangyu Su³ · Lin Xia² · Baofeng Duan⁴ · Xiaoting Wu²
Another solutions?  

- 7 studies only 2 RCT  
- Conclusion: TDT might reduce the rate of Anastomotic Leakage.

- **But there was no difference in the RCTs**
Conclusion

• Stoma has several indications.

• Morbidity rates are high.

• Prevention of morbidities is always better than treatment:
  • Patient selection.
  • Adequate surgical technique.

• According to available evidence there is no difference between colostomy and ileostomy
  • Ileostomy might have a very slight edge over colostomy

• Ghost ileostomy, tube ileostomy and transrectal tube decompression may become options.
Thank you..

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