Gut Exteriorization in Emergency Laparotomies

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Abstract

Background: To evaluate the causes and management of emergency exteriorization.

Methods: In this descriptive observational study ninety eight patients undergoing emergency laparotomy were included. In all these patients either gut exteriorization or primary anastomosis was done. On arrival in emergency initial resuscitation was performed. Usually Hollister or Convatec colostomy bags with wafers and Stoma adhesive paste was used and bags were applied. In loop colostomies and ileostomies, either perforation was exteriorised as such (posterior gut wall intact) or posterior wall repaired and then exteriorised at the same place. The afferent limb of loop ileostomy was everted to minimise local skin complications. Double barrel ileostomy was essentially an end ileostomy with mucous fistulae (two ends at same site) done. Ileocolostomy also had the same principle. Primary anastomosis was done with single layer extramucosal stitches.

Results: Out of 98 emergency laparotomies for gut related pathology majority (74.49%) were males. The mean age of patients was 36 ±12.59 years with range of 07 – 75 years of age. Ileostomy was the most commonly performed (57.1%) procedure. Typhoid perforation (37.4%) and tuberculosis (28.91%) were the commonest indications.

Conclusion: Infective disease is the most common indication for emergency gut exteriorization.

Key Words: Emergency; Gut exteriorization

Introduction

Gut exteriorization is a surgically made intestinal opening on anterior abdominal wall. Its common forms include colostomy and ileostomy. History of gut exteriorization dates back to 1710 when Littre of Paris made first ventral colostomy for imperforate anus. After World War I a mortality rate of 60% due to primary repair of colonic injuries dropped to 30% in World War II due to the introduction of colostomy. Ileostomy gained popularity for ruptured appendix and appendicular abscess. Shock, marked blood loss, significant faecal contamination, associated injuries, time till presentation and multiplicity of injury are widely accepted factors favouring stoma formation than primary repair which leads to significant mortality and morbidity owing to friable tissue that cannot hold a suture.

The number of abdominal stomas made each year is declining in UK and West where indications for faecal diversion include inflammatory bowel disease, familial adenomatosis polyposis, colorectal cancer, non gastrointestinal obstructing tumors, pelvic sepsis, trauma, diverticulitis, fistula, ischemic bowel disease, radiation enteritis, pseudomembranous enterocolitis, fecal incontinence and paraplegia.  In 3rd world countries it is still a common occurring for infective etiologies. Stoma actually serves the purpose of decompression, lavage, diversion and exteriorization in the set of odds and can be temporary or permanent. Major indications of ileostomy include diffuse bowel pathology that precludes primary anastomosis like gross peritonitis, intestinal obstruction, radiation enteritis, ischemia and inflammatory bowel diseases and rectal causes. Colostomy is made in colonic obstruction (primarily due to cancer of distal colon / rectum), perforation with peritonitis, recto-vaginal fistulas and perianal sepsis. In the present study, an attempt was made to identify common indications and complications associated with intestinal stoma in a tertiary care set-up. This insight will help us decrease the problems associated with this commonly performed general surgical procedure.

Patients and Methods

In this descriptive observational study ninety eight patients undergoing emergency laparotomy were included. In all these patients either gut exteriorization or primary anastomosis was done. On arrival in emergency initial resuscitation was performed. Usually Hollister or Convatec colostomy bags with wafers and Stoma adhesive paste was used and bags were applied. In loop colostomies and ileostomies, either perforation was exteriorised as such (posterior gut wall intact) or posterior wall repaired and then exteriorised at the same place. The afferent
limb of loop ileostomy was everted to minimise local skin complications. Double barrel ileostomy was essentially an end ileostomy with mucous fistulae (two ends at same site) done. Ileocolostomy also had the same principle. Primary anastomosis was done with single layer extramucosal stitches.

Results
Out of 98 emergency laprotomies for gut related pathology, majority (74.49%) were males. The mean age of patients was 36 ±12.59 years with range of 07 - 75 years of age. Ileostomy was the most commonly performed (57.1%) procedure (Table 1). Typhoid perforation (37.4%) and tuberculosis (28.9%) were the commonest indications (Table 2).

<table>
<thead>
<tr>
<th>Type of stoma</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jejunostomy</td>
<td>10</td>
<td>10.2</td>
</tr>
<tr>
<td>Ileostomy</td>
<td>56</td>
<td>57.1</td>
</tr>
<tr>
<td>Colostomy</td>
<td>17</td>
<td>17.34</td>
</tr>
<tr>
<td>Primary</td>
<td>15</td>
<td>15.30</td>
</tr>
<tr>
<td>Anastomosis</td>
<td></td>
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</tr>
</tbody>
</table>

Table 2: Indications of Gut exteriorization (n=83)

<table>
<thead>
<tr>
<th>Indications</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid perforation</td>
<td>31</td>
<td>37.34</td>
</tr>
<tr>
<td>Tuberculosis of intestine</td>
<td>24</td>
<td>28.91</td>
</tr>
<tr>
<td>Blunt trauma abdomen</td>
<td>20</td>
<td>24.09</td>
</tr>
<tr>
<td>Fire arm injuries</td>
<td>12</td>
<td>14.45</td>
</tr>
<tr>
<td>Mesenteric ischemia</td>
<td>3</td>
<td>3.61</td>
</tr>
<tr>
<td>Carcinoma</td>
<td>2</td>
<td>2.41</td>
</tr>
<tr>
<td>Sigmoid volvulus</td>
<td>2</td>
<td>2.41</td>
</tr>
<tr>
<td>Intussusceptions</td>
<td>2</td>
<td>2.41</td>
</tr>
<tr>
<td>Adhesion obstruction</td>
<td>2</td>
<td>2.41</td>
</tr>
</tbody>
</table>

Discussion
In 18th century intestinal perforations were managed by closing any open abdominal wound. This treatment plan was lead to high mortality rates. The earliest stomas were actually fistulas that developed spontaneously following bowel perforation. Temporary faecal diversions is argued to decrease the incidence and severity of sepsis following an anastomotic leak. Gut exteriorization is an effective option for treating a variety of gastrointestinal and abdominal conditions.

Compared to ulcerative colitis in western world, the main indications of ileostomy is enteric perforation (37.3%) and intestinal tuberculosis (28.9%), in present study. This was in contrast to a study reported from Services Hospital, Lahore in which main indication was tuberculous perforation (58%), accounting for two thirds of all cases and second was typhoid perforation (31%). Other less common included iatrogenic perforation, rectal cancer, blunt abdominal trauma ,penetrating abdominal trauma, rectovaginal fistulas and volvulus. Memon et al also reported typhoid perforation in 43% patients as a major cause of exploratory laparotomy. Similar results were shown in another study in which most common indication of ileostomy construction is typhoid perforation (81.13%), followed by tuberculosis (9.43%). In an Indian study the most common type of stoma made was loop ileostomy (64%) followed by sigmoid colostomy (11%) and transverse loop colostomy (9%). In a study done in RahimYar Khan, the most common indication for ileostomy was enteric (typhoid) perforation (52.9%) similar to our study. In another study, the most common indication for loop ileostomy was typhoid perforation (81.13%) followed by tuberculosis (9.43%) being common diseases in India. In a western study demonstrating causes and complications of ileostomy, the query returned 496 patients with 54% males, 60% were operated due to inflammatory bowel disease, 89 (18%) for cancer, 16 (3%) for diverticular disease and 95 (19%) for other diagnosis in contrast to the literature available in our setup.

Typhoid ileal perforation usually occurs in 2nd or 3rd week of illness and early treatment can prevent perforations. Simple as compared to lengthy surgery improves survival in typhoid perforation. Tuberculous abdomen is quite common in our part of the world. The incidence of perforated tuberculous ulcer in operated cases varies from 10.5 – 39% whereas the incidence of intestinal stricture and ileoceacal mass were 66% and 20% respectively. In the present study, loop or double barrel ileostomy were procedures of choice in perforated tuberculous ulcers or ileoceacal mass with stricture formation. In the present study, loop or double barrel ileostomy for multiple typhoid perforation were performed. The high incidence of unrecognized abdominal tuberculosis and typhoid leading to acute abdomen in our subcontinent is alarming and requires further research. In case of colostomies, main indication was penetrating injury, representing increasing violence in our society. Blunt
trauma by roadside accidents, volulosis also resulted in colostomies.

Conclusion
1. Main indications of stoma included enteric perforation and intestinal tuberculosis
2. Early identification and treatment of tuberculosis and enteric fever and avoidance of trauma, can reduce gut exteriorization.

References