Original Article

Temporary Loop Ileostomy: Prospective Study of Indications and Complications

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ABSTRACT

Objective: To assess the indications and complications of temporary loop ileostomy.

Methods: This was a prospective cohort study conducted at Isra University Hospital, Hyderabad, Pakistan between February 2003 and August 2006. All patients who had temporary loop ileostomy during that period were included in this study. The indications and various postoperative complications were noted during postoperative hospital stay and subsequently during follow up till stoma were closed.

Results: Fifty six patients fulfilled the selection criteria during the study period. Typhoid (enteric) perforation was the most common indication of loop ileostomy accounting for about two thirds of all cases. Other indications were iatrogenic, covering ileostomy for rectal cancers, following resection anastomosis, tuberculosis, blunt abdominal trauma, anastomosis leak and rectovaginal fistula. Post operative skin excoriation was the most common complication while poor siting, transient edema, retraction and high output were other less common complications.

Conclusion: Temporary loop ileostomy is the stoma of choice for temporary faecal diversion as most of its complications are manageable conservatively. (Rawal Med J 2007;32:159-162).

Key words: Loop ileostomy, anastomosis, fistula, typhoid.
INTRODUCTION

Despite the major advancements in the field of intestinal surgery, construction of intestinal stoma is still a common and frequently performed procedure. It is mandatory to apply meticulously sound surgical principles in order to achieve good results. Stoma formation can be temporary or permanent. The construction of intestinal stomas is a major part of a surgical procedure. A stoma should be formed by a surgeon who is not only technically skilled but also understands the potential metabolic and mechanical problems associated with an ileostomy or colostomy. As most of the complications are preventable, careful preoperative planning by the surgeon in conjunction with an enterostomal therapist is important to minimize the incidence of complications and to help prepare the patient psychologically.¹ Diverting stomas are used to divert the fecal stream away from distal bowel in order to allow a distal anastomosis to heal as well as to relieve obstruction in emergency situations. Though it is a life saving procedure it carries significant number of complications. The purpose of this study was to find out the indications and complications of temporary loop ileostomy.

PATIENTS AND METHODS

This prospective cohort study was carried out at Isra University Hospital, Hyderabad, Pakistan from February 2003 to August 2006. All patients who had temporary loop ileostomy during that period were included in this study after getting the written informed consent. The age, gender and indications were recorded. Various complications were noted during postoperative hospital stay and subsequently during follow up till stoma were closed. Psychological and biochemical complications were excluded from the
study. As no formal enterostomal therapist is available in our set up, the preoperative counseling and psychological preparation of patient for stoma was done by operating surgeon.

A circular disc of skin 2cm in diameter was excised and a cruciate defect was created in the rectus sheath. After splitting the rectus muscle, posterior rectus sheath and peritoneum was incised. The defect in the abdominal wall was dilated to admit the tip of two fingers. A suitable section of ileum was chosen and delivered through the defect in the abdominal wall. The loop was oriented so that afferent limb of the loop was cephaled. Any sort of ileal rotations, mesenteric fixation or tension on delivered loop were avoided. The loop of the small bowel was secured to the subcutaneous margins of the defect by 2/0 Polyglycolic acid sutures. After opening the ileum, the loop was everted and sutured with skin. No support rod or bridge was used.

Complications were divided into early complications (up to 30 days after operation) and late complications (more than 30 days after operation). Ileostomy was considered to be retracted when it was 0.5cm or more below the skin surface and required intervention. Prolapse was diagnosed if the stoma increased in size after maturation and required change of appliance or surgical treatment. Poor siting was defined as any ileostomy which subsequently was found in a skin crease and was associated with difficulties in fixing a stomal appliance. High output was defined when the ileostomy output was more than 1 liter in 24 hours. Detachment was recorded if any part of the ileostomy had detached from the subcutaneous junction. The data was analyzed using SPSS 11.0 software program and statistical significance of data was evaluated by applying the Pearson Chi-Square test.
RESULTS

Over the study period, 56 patients (39 males and 19 females) underwent diversionary loop ileostomy. The mean age was 36±12.58 years with range of 12 to 61 years. Typhoid (enteric) perforation was the most common indication accounting for 37 (66%) patients having loop ileostomies. The next common indication was iatrogenic perforation in 10.7% (6/56) of the cases. Four of these occurred following dilatation and curettage (D & C) and one each occurred during colonoscopy and retrieval of intra-abdominal retained small artery forceps. Other less common indications were tuberculosis, blunt abdominal trauma, anastomosis leak and rectovaginal fistula (table 1).

Table 1. Indications of loop ileostomy (n = 56).

<table>
<thead>
<tr>
<th>Indication</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid perforation</td>
<td>37</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>06</td>
</tr>
<tr>
<td>Gangrenous bowel following intestinal obstruction</td>
<td>03</td>
</tr>
<tr>
<td>Covering ileostomy for low anterior resection</td>
<td>03</td>
</tr>
<tr>
<td>Anastomosis leak</td>
<td>02</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>02</td>
</tr>
<tr>
<td>Blunt abdominal trauma</td>
<td>02</td>
</tr>
<tr>
<td>Rectovaginal fistula</td>
<td>01</td>
</tr>
</tbody>
</table>

Poor siting of stoma was the most common early complication noted in four patients (7.1%). All these stomas were made in patients with emergency operations. This problem was satisfactorily managed by involving stoma care therapist. Transient oedema of ileostomy was seen in three patients. All these three patients has distended oedematous bowel. This oedema subsequently decreased once the stoma started working postoperatively. Three patients had retraction, one of these three required surgical correction as a local procedure. The other two were managed non-surgically by using proper stoma appliances. Three patients had superficial bleeding from the ileostomy site.
wound. Bleeding in two patients was controlled by local measures and other patient required suturing under local anesthesia. Post operative skin excoriation was the most common late complication observed in 12 (21.4 %) patients. High out put and poor siting were seen in four patients each immediate post operative period (table 2).

Table 2. Complications of loop ileostomy.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin problems</td>
<td>12</td>
</tr>
<tr>
<td>Poor siting (Stoma in crease)</td>
<td>04</td>
</tr>
<tr>
<td>High out put fluid</td>
<td>04</td>
</tr>
<tr>
<td>Bleeding</td>
<td>03</td>
</tr>
</tbody>
</table>

The typhoid related ileostomies had four fold complication rate as compared to those observed with non-typhoid related ileostomies (table 3). This difference in complication rates was found statistically significant on applying Pearson Chi Square test.

DISCUSSION

An intestinal stoma is an opening of the intestinal tract or urinary tract into the abdominal wall. The first surgical stoma was created more than 200 years ago.2 The earliest stomas were actually unintentional ones, enterocutaneous fistulas resulting from penetrating abdominal injuries or complications of intestinal diseases such as incarcerated hernias.2 The most common indication in this study was enteric (typhoid) perforation. Delayed presentation, marked sepsis and poor nutritional status were the common factors in these patients, so preference was given to temporary loop ileostomy over primary closure. Inflammatory bowel disease and diversion loop ileostomy for colorectal diseases are other common indications.3 Unlike the west, typhoid is still a common cause of ileal perforation in our country.4,5
Table. 3. Comparison of complications in typhoid and non typhoid related ileostomies

<table>
<thead>
<tr>
<th>Typhoid status</th>
<th>Presence of complications</th>
<th>No complications</th>
<th>Pearson Chi Square value</th>
<th>df</th>
<th>Asymp. sig (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid</td>
<td>24 (64.9%)</td>
<td>13(35.1%)</td>
<td>5.592</td>
<td>1</td>
<td>0.018</td>
</tr>
<tr>
<td>Non Typhoid</td>
<td>6 (16.2%)</td>
<td>13(83.8%)</td>
<td>5.592</td>
<td>1</td>
<td>0.018</td>
</tr>
</tbody>
</table>

Complication rates of temporary loop ileostomy range between 5-100%.\(^2\) These rates vary due to varying length of follow-up.\(^6\) Age of the patient, urgency of surgery, diagnosis and time of presentation are the factors associated with high levels of morbidity and mortality.\(^7\) In this study, the overall complication rate was 53.6%. Majority of these were treated conservatively and only two patients required surgical intervention. One had ileostomy retraction which was corrected under local anaesthesia and other had fistula which was re-explored. A complication rate of 41% associated with loop ileostomy construction, with 6% of all patients requiring surgical intervention has been reported.\(^1\) Others had a complication rate of 25% related to loop ileostomy construction and all required surgical intervention.\(^9\) Complication rate of 5.7-10.8% have been reported.\(^10,11\) There are many factors suggested to predispose to stoma complications like high body mass index, inflammatory bowel diseases, use of steroids and immunosuppressant drugs, diabetes mellitus, old age, emergency surgery, surgical technique and surgeon experience.\(^12\) Skin excoriation was found to be a major late complication in this study, as has been reported in earlier local studies.\(^4,5\)
In emergency situations, it is important to at least mark the future stoma site on the abdominal skin before the incision. Ileostomy should be avoided near a bony prominence, waist line, skin folds, scars and umbilicus, because all these interfere with appliance management and might subject the patient to complications. It is important to create a smooth pouching surface to allow proper appliance care when enterostomal therapist is not available. A retrospective study of 1790 patients reported significantly lower incidence of early complications (within 30 days of operation) in patients who received counselling and evaluation by enterostomal therapist and were preoperatively marked for proper stoma site.\textsuperscript{13} Another study reported a six fold decrease in stoma complications when enterostomal therapists were involved in the treatment of stoma patients.\textsuperscript{14} However, others showed that the counseling by enterostomal therapist was not associated with reduction of the complication rate.\textsuperscript{12} Many surgeons consider loop ileostomy as preferred method for temporary faecal diversion. Loop ileostomy is considered generally easier to manage and is not associated with a greater rate of complications (in its construction and closure) than loop colostomy.\textsuperscript{15,16} In conclusion, we found typhoid perforation to be the commonest indication for temporary loop ileostomy and is the stoma of choice when temporary faecal diversion is required. The complications could be managed conservatively with the application of proper user friendly stoma appliances.

REFERENCES


