



## Study of the Incidence of Ileostomy Related Complications Following Typhoid Perforations in a Tertiary Care Hospital

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### Abstract

**Aim:** Study the incidence of ileostomy related complications following typhoid perforations in a tertiary care hospital

**Introduction:** Fecal diversion is a procedure done to provide either permanent opening for evacuation of effluent, or a temporary diversion in order to protect distal anastomosis in presence of severe sepsis, or poor general condition. Most commonly done procedure for fecal diversion following typhoid perforation is ileostomy. Deep knowledge of the possible complications is necessary to an early recognition: this is essential to reduce the related morbidity and to improve the acceptance of the stoma. In fact, ileostomy is often badly tolerated by the patient and a complication may even worsen the already poor quality of life.

**Materials and Methods:** 67 patients of typhoid perforation peritonitis admitted in surgical wards of, S.G.M. Hospital Associated with S.S. Medical College, Rewa (M.P.) from July 2009 to June 2010 were included in the study.

After resuscitation, patients were subjected to laparotomy and depending upon the condition perforation was either repaired primarily or ileostomy was made.

Postoperatively peristomal area was cleaned with water, and zinc + Vaseline paste was applied to prevent any skin irritation/excoriation from ileostomy effluent. Patients and attendant were explained about stomal and peristomal care.

Complications were noted during hospitalization and during follow up.

Most patients accepted ileostomy well and after they fully understood ileostomy care and were satisfied regarding their functioning and care of stoma, were discharged.

Patients were called on monthly basis for follow-up and to assess the function of stoma and the complications associated with it. During the follow-up patients with poor nutrition status, anemia, poor weight gain were admitted and nutritional status was corrected.

**Results:** Ileostomy prolapse was the main stomal complication i.e. 7.27% followed by retraction 9.10%; while in peristomal complication, peristomal dermatitis was the most common complication 40.0% followed by skin excoriation i.e. 30.90%.

**Keywords:** Ileostomy, care, Complication, perforation.

## Introduction

An ileostomy is a surgically created opening of the ileum on the abdominal skin surface allowing the elimination of stoma effluent.

The creation of intestinal stomas for diversion of enteric contents is an important component of the surgical management of several gastro enterologic disease processes. Despite the frequency with which these procedures are performed, complications of stoma creation remain common, despite extensive measures aimed at reducing them. Early postoperative complications (those seen less than one month postoperatively) can lead to significant cost, both financially and psychologically, and incur significant morbidity. Commonly seen early postoperative stomal complications include improper stoma site selection, vascular compromise, retraction, peristomal skin irritation, peristomal infection/abscess/fistula, acute parastomal herniation and bowel obstruction, and pure technical errors.

Typhoid and tuberculosis being the frequent causes of acute enteric perforations, remains a public health problem in our part of world. There are different surgical treatments for typhoid perforation currently in practice.<sup>1</sup> Ileostomy is a life saving procedure, particularly in those cases where there is fulminant enteritis and peritonitis of long duration. Ileostomy remains a necessary procedure mainly on a temporary basis.<sup>2,3</sup>

Although surgical procedures for the construction of intestinal stomas are common, potential morbidity looms along every step of the way. Extreme care and meticulous attention to technical detail should be employed to minimize the likelihood of postoperative complications and optimize stoma function. Reoperations for complications are required in 15 to 20% of patients with intestinal stomas<sup>1</sup>, emphasizing the impact of postoperative complications.

## Materials and Methods

The present study was carried out in 67 patients of typhoid perforation peritonitis admitted in surgical wards of, S.G.M. Hospital Associated with S.S.

Medical College, Rewa (M.P.) from July 2009 to June 2010.

On admission the diagnosis of perforation peritonitis was made on history, clinical ground. Patients were interrogated and detailed history was obtained from patient and his/her attendant regarding age, sex, occupation, socio-economic status, religion, pain in abdomen, vomiting, constipation, fever, its nature and duration.

History regarding systemic diseases like diabetes, hypertension, asthma, tuberculosis, chest pain, drug history; addiction. Thorough examination is done each cases, pulse, blood pressure, respiration, dehydration, pallor is recorded.

Abdominal examination was done with special attention to distention, tenderness, guarding, rigidity, abdominal girth, free fluid in peritoneal cavity, obliteration of liver dullness, bowel sound. Per rectal examination was done to find out any evidence of pelvic abscess, bulging of anterior rectal wall, bogginess.

The diagnosis of typhoid perforation was made on the basis of-

1. Clinical features, classical history of persistent fever with complains of constipation and/or diarrhea, anorexia, sudden pain in abdomen associated with distension of abdomen and vomiting, signs of peritonitis, guarding rigidity supported by widal test, and X-ray abdomen showing gas under diaphragm and ground glass opacity.

The patients resuscitated with crystalloids, colloids, and blood transfusion. Patient were kept nil per OS, nasogastric suction done, and all were catheterized and preoperative antibiotics were given. Patients were assessed based upon the general condition of patient's nutritional status, socioeconomic status, haemoglobin status, availability of blood transfusion.

Patients investigation with Hb%, TLC and DLC, Blood grouping cross match, Blood sugar, urea, Urine: routine and microscopic, X-ray: chest and abdomen standing.

If general condition of patients was good, they were subjected to exploratory laparotomy. All

patients were given general anesthesia and abdomen was opened through midline incision. Those who were in shock disoriented having poor general condition IPD was done and then subsequent exploratory laparotomy was done after the general condition of patients improves.

Peritoneal fluid and contents were cleared and peritoneal spaces were drained and peritoneal lavage was done. GIT was thoroughly examined for adhesions, condition of gut, number of perforations, size, edges of perforation and its distance from ileocecal junction.

The various operative procedures performed include-

1. Simple closure of perforation in two layers.
2. Resection and anastomosis of gut bearing perforation.
3. Proximal loop ileostomy.
4. Simple closure of perforation with ileotransverse anastomosis.

Decision to perform primary loop ileostomy was undertaken in patient with-

1. Poor general condition
2. Poor nutritional status
3. Gross peritoneal contamination.
4. Unhealthy edematous bowel.
5. Multiple ileal perforation.
6. Perforation close to ileocecal junction.

7. Gut which showed friability on taking sutures.

Ileostomy was done one feet proximal to the perforation after closing the perforation. Ileostomy was done in right side of lower abdomen away from the bony prominences, skin creases and umbilicus in spinoumbilical line. It was situated on lateral border of rectus muscles. Size of the stoma was kept 4-5cm projecting from the skin. Stoma was everted and fixed to rectus sheath and subcutaneous tissue.

Abdomen was closed in layers, rectus with vicryl and skin with silk. Two intraperitoneal drains were placed in pelvic cavity and sub hepatic space. Mid line drain at incision site was used in patient with heavy fecal contamination.

Patients were routinely examined for post operative complications and were dealt with accordingly. Ileostomy related complications were noted and incidence of complications was calculated. Complications were dealt with accordingly.

## Results

In our study most of the patients were male with M:F ratio 3.78:1. Typhoid perforation was common among 21-30 years age group (40.29%) and most common in second and third decade of life. Youngest child was 8 years old and oldest was 65 years old man.(Table no. 1)

**Table No. 1 Age and Sex Distribution of Patients**

S. No.	Age (Yrs)	Sex Distribution				Patients	
		Male	%	Female	%	No.	%
1	< 10 yrs.	1	1.49	1	1.49	2	2.98
2	11 – 20	11	16.41	5	7.46	16	23.88
3	21 – 30	24	35.82	3	4.47	27	40.29
4	31 – 40	7	10.44	2	2.98	9	13.43
5	41 – 50	6	8.95	1	1.49	7	10.44
6	> 50	4	5.97	2	2.98	6	8.95
<b>Total</b>		<b>53</b>	<b>79.10</b>	<b>14</b>	<b>20.89</b>	<b>67</b>	<b>100.0</b>

In our study most of the perforation occurred in third week 38.80%, followed by second week

31.34%. In 8.95% cases perforation occurred in fourth week. (Table no. 2)

**Table No. 2** Distribution of case on the basis of fever perforation interval

S. No.	Fever perforation interval (in days)	No. of Cases	Percentage
1	7 – 10 days	14	20.89
2	10 – 14 days	21	31.34
3	14 – 21 days	26	38.80
4	> 21 days	6	8.95
<b>Total</b>		<b>67</b>	<b>100.0</b>

In our study proximal ileostomy was made in 55 (82.09%) of cases followed by simple closure 9 (13.43%), resection anastomosis in 2 (2.98%),

while in one case ileotransverse anastomosis was done. (Table no. 3)

**Table No. 3** Distribution of case according to operation procedure (n=67)

S. No.	Procedure	No.	%
1	Primary closure with proximal ileostomy	55	82.09
2	Primary closure without ileostomy	9	13.43
3	Resection anastomosis	2	2.98
4	Ileotransverse	1	1.49
<b>Total</b>		<b>67</b>	<b>100.0</b>

In our study maximum patient 36 (53.73%) of ileal perforation were operated within 48-120 hrs of perforation, while others who presented late

and operated >120 hrs were 5 (7.46%). (Table no. 4)

**Table no. 4** Distribution of cases according to Perforation Operation Interval

S.No.	POI	No. of Cases	Percentage (%)
1	Within 48 hrs	26	38.81
2	48-120 hrs	36	53.73
3	>120 hrs	5	7.46
<b>Total</b>		<b>67</b>	<b>100.0</b>

In our study we found that the intra abdominal content was feculent in 74.63% cases, followed by feco-purulent 16.41% cases, followed by purulent 7.4%. The condition of gut was mostly edematous in 70.14%, edematous and friable in 7.46% cases, and healthy in 22.38% cases. Most of the

perforations were situated within 60 cm of ileocaecal junction. 17.91% cases of perforation were situated within 10 cm and 65.67% cases were having perforation within 10 – 30 cm and 16.42% within 30-60 cm. In 74.63% of cases perforations were less than 1cm.

**Table No. 5** Distribution of cases according to operative finding

Finding	No. of Cases	Percentage
Peritoneal Collection		
- Feculent	50	74.63
- Fecopurulent	11	16.41
- Purulent	5	7.47
- Reactionary fluid	1	1.49
Condition of Gut		
- Healthy	15	22.38
- Edematous	47	70.14
- Edematous and friable	5	7.46
No. of perforation		
1	51	76.12
2	7	10.45
> 2	9	13.43

Site of perforation from I-C junction	12	17.91
< 10 cm	44	65.67
10 – 30 cm	11	16.42
30-60cm	-	-
>60cm		
Fibrinous flakes deposition	61	91.04
Fibrinous flakes wih Adhesions	6	8.96
Size of perforation		
≤ 0.5 cm	11	16.41
0.5 – 1 cm	50	74.63
> 1 cm	6	8.96

In our study we found that ileostomy prolapse was the most dreaded stomal complication i.e. 7.27% followed by retraction 9.10% while in peristomal

complication, peristomal dermatitis was the most common complication 40.0% followed by skin excoriation i.e.30.90%.

**Table No. 6** Distribution of cases according to ileostomy complications

Complication	No. of patients n = 55	Percentage
<b>Stomal</b>		
Prolapse	4	7.27
Retraction	5	9.10
Bleeding	1	1.81
<b>Peristomal</b>		
Bowel obstruction	5	9.10
Peristomal dermatitis	22	40.0
Skin Excoriation	17	30.90

## Discussion

In present study primary ileostomy was done in 55 cases of typhoid perforation. Ileostomy was constructed by bringing the loop of ileum 1 foot proximal to perforation through right side of abdomen.

Fecal diversion is a procedure done to provide either permanent opening for evacuation of effluent, or a temporary diversion in order to protect distal anastomosis in presence of severe sepsis, or poor general condition.

The management of ileostomy consist of 4R, s. Resuscitation, Restitution, Reconstruction, and Rehabilitation. Resuscitation aimed at correction of fluid and electrolyte, and sepsis. Restitution is, to take down the patients to the stage of stoma closure. This requires attention to SNAP ie. Sepsis elimination Nutrition, Anatomy of gut, Plan of surgery. Rehabilitation impact on the well being and morale of patient.

Cohen (1994) described that ileostomy decreases the incidence and severity of sepsis following

leak. Common complication includes stomal prolapse, necrosis bleeding, and retraction.<sup>4</sup>

## Ileostomy Complication

Celestine LR (1972) described the complications of ileostomy in following category.<sup>5</sup>

- Poor sitting
- Mucocutaneous junction
- Stomal proper complications
- Iatrogenic
- Peristomal area
- exposure of mucosa

Turnbull GB in 1998 described the *poor siting* as a commonest avoidable complication which makes cleansing & pouching system management difficult, hampers normal movement, clinically present as close to bones, umbilicus, scars, and incisions, increases, leakage and dermatitis.<sup>6</sup>

Stoma prolapse was present in (7.27%) in our study. The cases were managed conservatively by reposition. In no cases emergency surgery required.

Retraction of the stoma was seen in 9.10% cases. Retraction was observed as late complication in

our study. Gordon P et al in 1999 reported *stomal retraction* in 10-24% of all stomas, mainly due to poor surgical stoma construction.<sup>7</sup>

Stomal bleeding was present in (1.81%). the bleeding was managed conservatively in all the

cases, for minor oozing pressure bandage was done. In one case suturing of bleeding vessel had to be done.

### Complications observed after ileostomy

Complication	Muneer et al 2007	Jain Rahul 2008	Present Series 2010
Necrosis	1	-	-
Prolapse	5 (2.94%)	6 (15.0%)	4(7.27%)
Bleeding	3 (1.76%)	3 (7.5%)	1(1.81%)
Stenosis	2 (1.17%)	-	-
Retraction	6 (3.5%)	4 (10.0%)	5(9.10%)
Dermatitis	10 (5.8%)	14 (35.0%)	22 (40.0%)
Excoriation	30 (17.7%)	5 (12.5%)	17(30.90%)
Parastomal Hernia	5 (2.94%)	-	-

Thus retraction was most common complication (9.10%) followed by prolapse (7.27%), Bleeding (1.81%).

In none of the case of our study stomal necrosis or parastomal hernia was noted. However Muneer (2007) had found 2.98% cases of parastomal hernia, Peasi R.K. (1998) found parastomal hernia in 5-10% cases.<sup>8</sup>

Dermatitis and skin excoriation remains the common peristomal complication.

Dermatitis was present 40.0% cases in our study and excoriation was seen in 30.90% cases. Muneer (2007) noted dermatitis in 5.8% cases and skin excoriation in 17.7% cases. These were managed conservatively. Thick paste of zinc +Vaseline was applied in peristomal area. In cases where ointment was not used skin irritation, dermatitis was more.

### Conclusion

Loop ileostomy a form of fecal diversion is done to protect the suture line and hence reduces the chance of fecal fistula formation. This not only reduces enterocutaneous fistula but also decreases various complication like wound infection, wound dehiscence, respiratory complication, residual intraperitoneal abscess, septicemia, burst abdomen. Primary ileostomy is a life saving procedure done in cases with poor general condition, gross peritoneal contamination.

The sepsis increases the chance of anastomotic leak further aggravating the situation. Primary ileostomy has got life saving value in these moribund patients. With proper surgical technique stoma related complications can be reduced.

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