

ORIGINAL RESEARCH

Clinical profile of intestinal stoma-ostomies: Their indications, types and complications- A retrospective and prospective study of 50 patients

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ABSTRACT:

Background: Stoma is an opening of intestinal or urinary tract onto the abdominal wall, constructed surgically or appearing inadvertently. Stomas are often a rescue option in a number of difficult surgical situations that enables a surgeon and also the patients a smooth sailing subsequently. **Aim:** To record the types and creation of stoma including psychological, metabolic and mechanical complications of stomas and closure of stoma. **Material and methods:** This study was conducted on 50 patients who underwent stoma surgery (retrospective and prospective) after getting admitted in surgery department (Emergency and outpatient) of Guru Nanak Dev Hospital, Amritsar. **Results:** Incidence of stoma formation was more common in males. There were two peak age group in which stomas were constructed 31-40 years and 41-50 years respectively. The most common stoma constructed was loop ileostomy followed by colostomy, urostomy and end ileostomy. Most commonly noted local complication was peristomal erythema and systemic was septicaemia. **Conclusion:** When created properly, stoma can dramatically improve a patient's quality of life. Conversely, when a patient develops complications related to their stoma, the impact on physical and mental health can be profound.

Key words: Ostomy, rectal surgery, Stoma.

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INTRODUCTION:

The terms "stoma" and "ostomy" are often used interchangeably but what do they mean? The word "stoma" comes from Greek word meaning mouth or opening.¹ It is an opening of intestinal or urinary tract onto the abdominal wall, constructed surgically or appearing inadvertently. Stomas are often a rescue option in a number of difficult surgical situations that enables a surgeon and also the patients a smooth sailing subsequently.² An intestinal stoma has long been one of the most commonly performed life-saving surgical procedure worldwide and plays an important role in the management of congenital and acquired gastrointestinal conditions.¹ The major reasons for performing stoma are to divert stool flow, protecting anastomotic site, bowel decompression, or a combination of these indications.^{3,4} Unlike the west typhoid is still a common cause of perforation in our

country, followed by tuberculosis, being common diseases of India.^{5,6}

Complications following the creation of an intestinal stoma are experienced by 20–70% of the patients and are divided into early complications (up to 30 days after operation) such as ischemia, haemorrhage and infection, and late complications (more than 30 days after operation) such as stenosis, fistula formation, prolapse, hernia formation, colonic and small bowel obstruction and denuded peristomal skin.^{3,7,8}

Better understanding of physiological and psychological consequences of intestinal stomas, improved surgical techniques and advances in stoma care have contributed to more rational use of ostomies by the surgeons and wider acceptance in the medical community.⁹

The purpose of this investigation was to record the types and creation of stoma including psychological,

metabolic and mechanical complications of stomas and closure of stoma.

MATERIAL AND METHODS:

This study was conducted on 50 patients who underwent stoma surgery (Retrospective and prospective) who got admitted in Surgery Department (emergency and outpatient) of Guru Nanak Dev Hospital, Amritsar.

All cases in elective or emergency surgeries that required diversion procedure were taken up for this study. There was no exclusion criterion for this study. Permission was granted from Institutional Ethics Committee, Govt. Medical College, Amritsar. Informed consent was obtained from each patient. Pre-operative counselling, psychological preparation, and marking of appropriate site of stoma was done by operating surgeon, Exploratory laprotomy with construction of desired stoma was done under general/spinal anaesthesia. Operative findings were recorded. Stoma was created at previously marked site, one third from umbilicus on spino-umbilical line in most of cases. All of these surgeries were performed in emergency or elective operations. Temporary stomas which were created closed subsequently within 6-8 weeks after distal loop contrast study (cologram) and all the complications occurred during mentioned period were recorded and managed accordingly.

Cases that already underwent stoma surgery came for follow up were taken for retrospective study.

The complications in terms of incidence, rate and their nature during first 6-8 weeks after surgery as most of the psychological, metabolic and mechanical complications occur during this period were recorded for study.

Follow up was done on one week after discharge, one month after discharge, 3 month after discharge, at the time of stoma closure and complications were noted thereafter.

RESULTS:

Most of the stomas were formed in adults of age group 31-40 years which were 14 of total 50 cases (28%) followed by 41-50 years and 21-30 years which were 13 (26%) and 8 (16%) of total 50 cases respectively. The youngest patient noted in this study was of 13 years and oldest of 76 years. Mean age of study group was 43.52 ± 14.55 . 76% male and 24% female patients underwent stoma surgery with male to female ratio (3.1:1).

Most common indication for stoma formation was enteric perforation (36%) followed by traumatic perforation (12%) and tuberculosis (10%).

Colorectal carcinoma was the most common cause of colostomy and carcinoma urinary bladder is the most common cause of urostomy / ileal conduit as seen in this study.

Rare causes of stoma formation were obstructed umbilical hernia, Faecal fistula, Subacute intestinal obstruction, Appendicular lump etc.

Table: 1 INCIDENCE OF AGE GROUP

| Age Group | Male | | Female | | Total | |
|-----------|------|-------|--------|-------|-------|--------|
| | No. | %age | No. | %age | No. | %age |
| <20 | 0 | 0.00 | 2 | 4.00 | 2 | 4.00 |
| 21-30 | 6 | 12.00 | 2 | 4.00 | 8 | 16.00 |
| 31-40 | 9 | 18.00 | 5 | 10.00 | 14 | 28.00 |
| 41-50 | 13 | 26.00 | 0 | 0.00 | 13 | 26.00 |
| 51-60 | 5 | 10.00 | 2 | 4.00 | 7 | 14.00 |
| 61-70 | 3 | 6.00 | 1 | 2.00 | 4 | 8.00 |
| >70 | 2 | 4.00 | 0 | 0.00 | 2 | 4.00 |
| Total | 38 | 76.00 | 12 | 24.00 | 50 | 100.00 |

TABLE 2: INDICATIONS FOR STOMA FORMATION

| Indications | No. of cases (out of 50 total cases) | %age |
|-------------------------------------|--------------------------------------|------|
| Enteric Perforation | 18 | 36.0 |
| Traumatic perforation | 6 | 12.0 |
| Tuberculosis | 5 | 10. |
| Iatrogenic perforation | 3 | 6.0 |
| Carcinoma urinary bladder | 4 | 8.0 |
| Colorectal carcinoma | 3 | 6.0 |
| Faecal fistula | 2 | 4.0 |
| Obstructed umbilical hernia | 1 | 2.0 |
| Sigmoid volvulus | 2 | 4.0 |
| Mesenteric mass with gangrenous gut | 1 | 2.0 |
| Subacute intestinal obstruction | 2 | 4.0 |
| Appendicular lump | 1 | 2.0 |
| Carcinoma gall bladder | 1 | 2.0 |
| Sigmoid colon growth | 1 | 2.0 |

TABLE 3: TYPE OF STOMA

| Type of Stoma | No. of cases (out of 50 total cases) | %age |
|-------------------------|---|-------|
| Loop ileostomy | 39 | 78.0 |
| End ileostomy | 1 | 2.0 |
| Loop Colostomy | 0 | 0.0 |
| End Colostomy | 6 | 12.0 |
| Ileal conduit/ Urostomy | 4 | 8.0 |
| Caecostomy | 0 | 0.0 |
| Total | 50 | 100.0 |

TABLE 4: INCIDENCE OF COMPLICATIONS

| Complications | No. of cases (out of 50 total cases) | %age |
|----------------------------|---|--------|
| Cases with complication | 38 | x |
| Cases without complication | 12 | 24.00 |
| Total | 50 | 100.00 |

TABLE 5: LOCAL COMPLICATIONS/ PERISTOMAL COMPLICATIONS

| Complications | No. of cases (out of 50 total cases) | %age | Management |
|---------------------|---|-------|--|
| Peristomal erythema | 29 | 58.00 | Conservative |
| Retraction | 7 | 14.00 | Conservative |
| Stenosis | 1 | 2.00 | Conservative |
| Prolapse | 4 | 8.00 | Reoperation in all cases |
| Bleeding | 2 | 4.00 | Small mesenteric vessel tied and secured |

TABLE 6: GENERAL COMPLICATIONS/ SYSTEMIC COMPLICATIONS

| Complications | No. of cases (out of 50 total cases) | %age | Management |
|--|---|-------|--|
| Septicaemia | 7 | 14.00 | 6 patients expired, 1 managed conservatively |
| Wound gaping | 4 | 8.00 | Resuturing in 3 cases and 1 case sutured along with faecal fistula operation |
| Faecal fistula | 3 | 6.00 | Reoperation in all cases |
| Depression | 1 | 2.00 | Psychiatric counselling |
| Disseminated intravascular coagulation | 1 | 2.00 | Patient expired |

TABLE 7: PATIENTS UNDERWENT STOMA CLOSURE

| Stoma | No. of cases (out of 50 total cases) | %age (out of 50 total cases) |
|-----------------------------|---|---------------------------------|
| Closure done | 33 | 66.00 |
| Permanent stoma | 7 | 14.00 |
| Patient expired | 6 | 12.00 |
| Patient did not report back | 4 | 8.00 |
| Total | 50 | 100.00 |

DISCUSSION:

An intestinal stoma is most commonly performed procedure and plays an important role in management of various abdominal conditions. Stoma fashioned more in emergency {39 out of 50 (78%)} as compared to elective {11 out of 50 (22%)} in our study.

While in studies conducted by Veena A et al¹⁰, Ahmad Z et al¹¹, Kumar R et al¹² and Bhutra S et al¹³, 68%, 97%, 94% and 90% stoma formation were noted in emergency setting and 32%, 3%, 6% and 10% in elective setting respectively.

The most common indication for stoma formation in our study was enteric perforation (36%), followed by

traumatic perforation peritonitis (12%) and tuberculosis (10%).

Most common indication for stoma formation in studies by Kumar R et al¹², Ahmad Z et al¹¹ and Veena A et al¹⁰ was enteric perforation which was 44%, 36% and 56% respectively. Kumar R et al¹² noted intestinal obstruction (31%) and tuberculosis (11%) as second and third most common cause respectively. Most common stoma constructed in our study was loop ileostomy (78%), followed by end colostomy (12%), ileal conduit (8%) and end ileostomy (2%) respectively.

Stoma constructed in study by Ahmad Z et al¹¹ were loop ileostomy (64%) followed by sigmoid colostomy (11%) and transverse loop colostomy (9%) were formed respectively. In the study done by Bhutra S et al¹³ Stoma constructed were loop ileostomy (64%) followed by colostomy (34%) were formed respectively. In the study done by Krishnaswamy J et al¹⁴ Stoma constructed were loop ileostomy (60%) followed by end ileostomy (30%).

Indications for ileostomy were enteric perforation, traumatic, tuberculosis, iatrogenic, mesenteric mass, for urostomy was carcinoma urinary bladder and for colostomy were sigmoid volvulus, colorectal carcinoma respectively. Colostomy was done abdominoperineal resection and Hartman's procedure for colorectal carcinoma and sigmoid volvulus respectively.

Enteric perforation as most common cause of ileostomy formation was supported by studies conducted by Veena A et al¹⁰ and Bhutra S et al¹³ and Udawat et al¹⁵. Colorectal carcinoma as most common cause of colostomy formation was supported by studies conducted by Rasheed AR¹⁶, Veena A et al¹⁰ and Gujar N et al¹⁷ respectively.

Total 38 out of 50 (76%) patients developed complications in our study. Complication rate is high as most patients presented with acute abdomen and due to delayed presentation at hospital added with non availability of enterostomal therapy nurse. Complication rate noted in other studies as Ahmad Z et al¹¹ (87%), Bhutra S et al¹³ (80%) and Kumar R et al¹² (80%) respectively.

Local complications of stoma noted in our study were peristomal erythema (58%) followed by retraction (14%), prolapse (8%), bleeding (4%) and stenosis (2%). Other studies also showed most common local complication as peristomal erythema/ skin excoriation. 80% by Kumar R et al¹², 64% by Bhutra S et al¹³ and 36% by Ahmad Z et al¹¹ in decreasing order respectively.

Systemic complications noted in patients with stomas were septicaemia (14%), wound gaping (8%), faecal fistula (6%), depression and disseminated intravascular coagulation (2% each).

Kumar R et al¹² noted complication rate as gaping of main wound (37%), electrolyte imbalance (28%), septicaemia (25%) and faecal fistula (5%).

Most common complication in retrospective and prospective cases was peristomal erythema (58%) with more incidence in retrospective (32%) than prospective cases (26%). Retraction (14%) noted more in prospective cases (8%) than retrospective cases (6%). Stenosis noted only in retrospective cases. Prolapse (8%) noted more in retrospective cases (6%) than prospective cases (2%). Septicaemia (14%) noted more in retrospective cases (10%) than prospective cases (4%). Wound gaping noted in equally in both retrospective and prospective cases. Depression noted only in retrospective cases. Bleeding (4%) noted equally in prospective and retrospective cases (2% each).

Due to low literacy rate and poverty, many patients were unable to understand the care of stoma and uses of stoma appliances. Most ostomates used cheap stoma appliance which was unable to prevent leakage of enteric contents and thus potentiated skin irritation. Stomas should be avoided near a bony prominence, waist line, skin folds, scars and umbilicus, because all of these interfere with appliance management and might subject patient to complications.

In our study most common site constructed for loop ileostomy, end ileostomy and urostomy is right iliac fossa (86%) and that of colostomy is left iliac fossa (14%) favoured by studies of Kumar R et al¹² which are most common site was right lower abdomen (84%), followed by left iliac fossa (13%), right upper quadrant (2%) and left upper quadrant (1%).

In our study, 33 patients out of 50 (66%) underwent stoma closure, 7 had permanent stoma while 6 patients expired and 4 did not reported back. Average duration of stoma closure was 10-12 weeks and none of them had any complications after closure. All patients underwent cologram / distal gastrograffin enema study prior to stoma closure. Closure done at 10-12 weeks as patients recovered from sepsis and nutritional status improved.

In study by Kumar R et al¹² 50% of total patients underwent stoma closure, 73.5% of total patients underwent stoma closure in study by Hussain S et al¹⁸ and 72.9% of total patients underwent stoma closure in study by Ahmad QA¹⁹ et al.

Average duration of stoma closure in other studies were 18 weeks by Kumar R et al¹², 3 months by Hussain S et al¹⁸, and 8-10 weeks by Bhutra S et al¹³.

No post stoma closure complication were noted in our study which is in comparison to study conducted by Bhutra S et al.¹³

In a study by Kumar R et al¹² 28% patients developed post closure complication of which paralytic ileus was recorded most commonly (16%). Ahmad QA et al¹⁹ study showed, 9 cases of wound infection, 3 anastomotic leak and single mortality (1.6%) were noted in stoma reversal group.

In our study reoperation were reported in 10 patients (20%), 4 for stoma prolapse, 3 for wound gaping and 3 for faecal fistula.

In our study mortality occurred in 6 of 50 patients (12%), due to septicaemia rather than direct stomal complications. Mortality rate notified by Ahmad Z et al⁴ (9%), Bhutra S et al¹³ (8%), Hussain S et al¹⁸ and Ahmad QA et al¹⁹ notified very less mortality rate (1.3% and 1.6% respectively). Mortality rate varies in our study due to age, urgency of surgery and diagnosis for which stoma has been made.

CONCLUSION:

Stoma creation is often the last component of a long and difficult operation and may seem trivial when compared with the essential portions of the surgery. Yet, the stoma will undoubtedly have the largest impact on the patient's quality of life in the long term.

A well-made and properly sited stoma will have minimal implications once the patient has adjusted to its presence. Alternatively, a difficult or complicated stoma will plague both the patient and the surgeon.

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