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Assessment of complications in patients with intestinal stoma

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Abstract
Stoma, though it is a lifesaving procedure, it carries significant number of complications. Despite extensive surgical expertise, complications after stoma creation still occur and often cause social isolation and a significant reduction in the quality of life. Factors affecting type and frequency of complications include surgical specialty, surgeon experience, emergency Vs Selective creation, appropriate preoperative marking and education, and patient issues such as age, obesity, diabetes and ability to care for stoma. Hence the present study was planned to evaluate the intestinal stoma and their complications.

The present study was retrospective study done in the Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna. The clinical data of 50 patients over a period of three (3) years from January 2015 to January 2018 who underwent surgery for various reasons and were reviewed retrospectively to note any complication after the creation of intestinal stomas.

Stoma formation is a frequently performed surgical procedure associated with high rates of postoperative complications. Stoma complications can significantly affect patients' quality of life and sense of well-being while burdening the health care system. Early referral to the tertiary hospital, early diagnosis, proper preoperative management like intravenous fluids, antibiotics, etc., early detection and prevention of hypotension, reduction of time duration for emergency laparotomy, close post-operative monitoring definitely reduce the morbidity and mortality of stoma.

Keywords: Complications, colostomy, ileostomy, intestinal stoma, Stoma care, etc.

Introduction

Stomata are created in particular in surgical procedures involving the gastrointestinal tract (GIT) or gastrointestinal system (GIS). One well-known form of an artificial stoma is a colostomy, that may be loop or end, temporary or permanent, which is a surgically created opening in the large intestine that allows the removal of feces out of the body, bypassing the rectum, to drain into a pouch or other collection device. Another type of artificial stoma is ileostomy, which is also may be loop or end. This surgical procedure is involved usually as a result of and solution to disease in the GIT. The procedure involves exteriorization of loop or end of small intestine (ileum) or large intestine (colon) through the abdominal wall preferrably in right iliac fossa or left iliac fossa. The point of exiting is what is known as the stoma. For greatest success and to minimize negative effects, it is preferable to perform this procedure as low down in the tract as possible, as this allows the maximal amount of natural digestion to occur before eliminating fecal matter from the body. The stoma is usually covered with a removable pouching system (adhesive or mechanical) that collects and contains the output for later disposal. Modern pouching systems enable most individuals to resume normal activities and lifestyles after surgery, often with no outward physical evidence of the stoma or its pouching system.

When planning the position of the stoma, a stoma nurse should bear in mind the height of the person's waist and beltline so that clothes can fit as before. Also a peri-stomal hernia belt worn from the start can help prevent the stoma from developing a serious hernia problem [1].

During ostomy surgery of the bowel, a surgeon creates a stoma by bringing the end or loop of the intestine through an opening in the abdomen and attaching it to the skin to create an opening outside the body. The stoma is usually located in the lower part of the abdomen, just below the beltline, either in right or left iliac fossa. However, sometimes the stoma is located in the upper abdomen (epigastric region). The surgeon and a wound, ostomy, and continence (WOC) nurse or an enterostomal therapist will work together to select the best location for the stoma. A removable external collection pouch, called an ostomy pouch or ostomy appliance, is attached to the stoma and worn outside the body to collect intestinal contents or stool. Intestinal contents or stool passes through the stoma instead of passing through the anus. The stoma has no muscle, so it cannot control the flow of stool, and the flow occurs whenever other digestive muscles contract.

Stoma-related complications may be classified as those that are metabolic or best managed by medical intervention and those that have a purely structural etiology and are best managed by surgical intervention. Among the medical complications, the most common early complications are peristomal skin irritation and inflammation, leakage, high output, bad odour, rectal mucus discharge, vit B 12 deficiency (pernicious anemia) and ischemia. The most frequently reported late complications include dehydration and nephrolithiasis sometimes renal failure also, cholelithiasis in ileostomy patients, bleeding in patients with liver disease, and of course also in those with recurrence of

the disease for which a stoma was created, such as Crohn's disease [2].

Once the person is home from the hospital, the first week or two are considered an extension of the hospital stay. Most people will tire quite easily when they first come home. Getting enough rest is important. Gradually, stamina and strength will improve. Most people can return to work about 6 to 8 weeks after surgery. People may have certain GI issues-such as gas, diarrhea, and constipation-as the bowel heals, depending on the type of bowel diversion.

Stoma, though it is a lifesaving procedure, it carries significant number of complications. Despite extensive surgical expertise, complications after stoma creation still occur and often cause social isolation and a significant reduction in the quality of life. Factors affecting type and frequency of complications include surgical speciality, surgeon experience, emergency Vs Selective creation, appropriate preoperative marking and education, and patient issues such as age, obesity, diabetes and ability to care for stoma. Hence the present study was planned to evaluate the intestinal stoma and their complications.

Methodology

The present study was done in the Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna. The clinical data of 50 patients were reviewed retrospectively from j January 2015 to January 2018, underwent surgery for various reasons and were followed up to note any complication which resulted in the creation of intestinal stomas.

All the patients were informed consents. The aim and the objective of the present study were conveyed to them. Approval of the institutional ethical committee was taken prior to conduct of this study.

Following was the inclusion and exclusion criteria for the present study.

Inclusion Criteria: All patients who underwent elective and emergency intestinal stoma construction for any underlying cause.

Exclusion Criteria

- Patients with urinary diversion procedures which involve creation of intestinal stomas and patients with physiological and biochemical complications.
- Patient undergoing urinary stoma construction.
- Patients undergoing stoma construction as indication for gynaecological disorders.

Results & Discussion

Fecal diversion remains an effective option to treat a variety of gastrointestinal and abdominal conditions [4]. Ileostomy and colostomy are commonly made intestinal stomas in surgery. The first surgical stoma was created more than 200 yrs ago. The earliest stomas were actually unintentional ones, enter cutaneous fistulas resulting from penetrating abdominal injuries or complications of intestinal diseases such as incarcerated hernias [5]. A number of patients undergo surgeries for fecal diversion. But despite a great number of such surgeries done, complications are almost inevitable. Patients undergoing stoma formation are at risk of developing a wide range of complications following surgery [6]. 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's experience [7].

Table 1: Indications of stoma formation.

Indication	No. of patients
Diverting stoma after colon cancer surgery	20
Mesenteric ischemia	02
Ileal perforation	06
Carcinoma of colon (palliative)	10
Colon perforation	04
Tubo ovarian mass	01
Sigmoid volvulus	01
Foecal fistula	04
Ileal stricture	02
Total Cases	50

Table 2: Types of stoma formed.

Type	No of patients
Loop iliostomy	30
End iliostomy	05
Loop colostomy	10
End colostomy	05
Total Cases	50

Table 3: Type of stoma complications found.

Complication occurred	No. of patients
Wound infection	03
Wound dehiscence	02
Skin excoriation	14
Vit B 12 deficiency	02
Stoma retraction	01
Diarrhoea	01
High output stoma	01
Blockage of stoma	01
Stoma prolapse	03
Stoma necrosis	01
Parastomal hernia	03
Total Cases	32

Early postoperative mucocutaneous separation and stoma retraction will commonly result in long term stoma stenosis. The circumferential skin wound that arises from separation will granulate and heal slowly by secondary intention. Secondary healing causes wound contracture resulting in a shrinking and stenosing stoma, which can present a problematic situation that may ultimately require revision or relocation. The timing of such corrective stoma surgery, however, is nuanced. Ideally, large intra-abdominal operations would be delayed for several weeks to allow early intra-abdominal postoperative inflammation to subside. Such a delay may require fastidious and complex temporizing stoma care until stoma revision can be safely performed.

The literature on ostomy complications show an overall complication rate ranging from 21 to 70% [8]. The complication rate in our study was 64% with the majority having only one complication. Furthermore, it has been mentioned that the majority of stoma complications occur early which is within two weeks after discharge [9]. The data on long-term complications excluding acute complications is limited and the majority of the studies have focussed on early complications. A retrospective analysis done on long-term complications in defunctioning ostomies reported an

overall complication rate of 60% which is a comparatively higher rate [10]. Another study by Duchesne *et al.* [11]. Reported that 25% had stoma complications out of which 39% occurred within the first month, which indicates only 15.25% of complications occurred after 1 month. The reason for this wide range may be due to the difference in follow up duration, and the differences in proportions of different types of ostomies, diagnosis and the type of surgery. Since the complication rate is influenced by multiple risk factors, it has been difficult to analyse the contributory factors accurately.

Although stomal complication is a novel risk for mortality, it is acknowledged that other established prognostic indicators hold stronger influence. As such age, urgency of surgery and diagnosis are found to influence morbidity and mortality rates [12]. The interval between stoma construction and closure usually has a substantial impact on socio economic status. Furthermore quality of life need to be addressed as there seems to be a close relationship between stoma care problems and degree of social restriction. Careful surgical techniques required, but also stoma type has to be carefully chosen in order to have a healthy stoma [13].

Conclusion

Stoma formation is a frequently performed surgical procedure associated with high rates of postoperative complications. Stoma complications can significantly affect patients' quality of life and sense of well-being while burdening the health care system. Early referral to the tertiary hospital, early diagnosis, proper preoperative management like intravenous fluids, antibiotics, etc., early detection and prevention of hypotension, reduction of time duration for emergency laparotomy, close post-operative monitoring definitely reduce the morbidity and mortality of stoma.

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