

Original Article

An Audit of Colostomy among Adult Patients in a Nigerian Tertiary Hospital

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ABSTRACT

Background: Colostomy is a common general surgical operation that is carried out as either elective or emergency to divert feces and flatus to the exterior. Despite its frequency and importance, the procedure is not without some complications. This study aims to review and document the epidemiological characteristics of colostomy in a Nigerian tertiary institution over a period of time. **Patients and Method:** A retrospective review of all cases of colostomy among adult patients over a period of 10 years was documented. Socio-demographic data, stoma indication, type of colostomy, and complications were extracted from case notes and statistically analyzed using SPSS Version 24. **Result:** A total of 114 cases of colostomy were found, and 89 cases were sufficiently described for statistical analysis with 53 (59.4%) males and 36 (40.4%) females and mean age of 52.18 years \pm 16.85. Malignancy was the most common indication for colostomy creation in 64 (71.9%) while the remaining 25 (29.1%) were in benign conditions including trauma. Post colostomy complications were recorded in 47 (52.8%) cases, with surgical site infection seen in 27% of patients. The mortality rate was higher in patients with underlying malignancy. **Conclusion:** Malignancy is the commonest indication for colostomy in this cohort and surgical site infection is a significant morbidity.

Keywords: Colostomy, colostomy complication, postoperative complications

INTRODUCTION

Colostomy is exteriorization of part of the colon to the anterior abdominal wall for the purpose of diverting faeces and flatus to the exterior to be collected in an external appliance.^[1] It is a common general surgical operation carried out as an elective or emergency procedure. The rate of

colostomy creation is increasing due to high rates of colorectal cancer, which is the highest frequency reason for colostomy creation followed by abdominal trauma.^[2-4] In Nigeria, the incidence of colostomy creation in adults is also on the rise, likely due to an increasing incidence of colorectal

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cancer especially with late-stage presentation.^[3] In spite of its importance, colostomy construction may be associated with significant complications, social isolation, and reduction in quality of life.^[5-7] The incidence of complications after a colostomy is reported to be between 10-70%,^[1,8] and has not been well characterized in Nigeria to date. Our hospital, located in a semi-urban town in Southwest Nigeria, has deployed general surgical services for several decades with colostomy creation done when indicated. This study aims to review and document the epidemiological characteristics of colostomy procedures performed in this tertiary institution.

Patients and Methods

This is a descriptive, retrospective review of colostomies conducted in the general surgery unit of Obafemi Awolowo Teaching Hospitals Complex, Ile-Ife, Nigeria, over a 10-year period from January 2011- December 2020. Ethical clearance was obtained from the Ethics and Research Committee of the Institution. All colostomies performed within the study window on patients 15 years and older (the cut-off age for adult surgery in the Hospital) were reviewed. The clinical records of eligible patients were retrieved and their socio-demographic data, stoma indication, type of colostomy, and post-operative complications were extracted into a proforma.

Continuous variables were summarized means and standard deviation were presented, while categorical variables were presented as absolute numbers and percentages. Variables related to colostomy complication were tested for level of significance using a Chi-square test with a 95% confidence interval and P-values less than 0.05 were considered statistically significant using the Statistical Package for Social Science (SPSS) Version 24 (IBM).

RESULTS

A total of 114 colostomies were performed within the study period. Of these, only 89 patients with complete data were analyzed. The ages ranged

from 17-84 years, with a mean of 52.18 years \pm 16.85, and included 53 (59.4%) males and 36 (40.4%) females.

Elective procedures, 50 (56.2%) were at higher frequency than emergency procedures, 39 (43.8%). Malignancy was the commonest indication for colostomy creation in 64 patients (71.9%) while the remaining 25 procedures (28.1%) were carried out for benign conditions including trauma. Of the malignancies, colorectal cancer was the most

Table 1: Indications for Colostomy

Pathology	Frequency (n=89)	%
Sigmoid Volvulus	4	4.5
Ileosigmoid Knotting	1	1.1
Enterocutaneous Fistula	5	5.6
Complex Perianal Fistula	5	5.6
Perianal Injury	2	2.2
Blunt Abdominal Injury	8	8.9
Colorectal Cancer	56	62.9
Anal Cancer	5	5.6
Advanced Bladder Cancer	1	1.1
Advanced Cervical Cancer	2	2.2
Total	89	100

Table 2: Indications for colostomy by gender and age of patients

	Benign	Malignant
Age 15-44 years	13	18
45-64 years	8	25
>65 years	4	21
Gender Male	19	34
Female	6	30

The sigmoid colon was the commonest anatomical location for colostomy in 56 (62.9%) of cases followed by transverse colon in 33 (37.1%). The most common procedure was divided colostomy, with the Devine technique in 15 (16.9%) double barrel technique in 36 (40.4%), loop colostomy in 28 (31.5%), and end colostomy in 9 (10.1%), while the Hartman's procedure was carried out in 1 (1.1%) patient. See table 3

Colostomy alone was created in 47 (52.8%) cases while colostomy was performed along with other procedures in 42 (47.2%) patients. Of those having colostomy alone, 21 (45.7%) were done in an emergency and divided colostomy was the most frequent method.

Table 3: Anatomic location of colostomy and techniques used.

Anatomic Location	Frequency	Percentage (%)
Sigmoid Colon	56	62.9
Transverse Colon	33	37.1
Techniques		
Divided Colostomy	51	57.3
Loop Colostomy	28	31.5
End Colostomy	9	10.1
Hartman's	1	1.1

Post colostomy complications were recorded in 47 (52.8%) cases, with (superficial) surgical site infection (SSI) being the most frequent, seen in 24 (27%) patients. Other complications include colostomy prolapse in 2 (2.2%) cases, colostomy necrosis in 3 (3.4%), and parastomal hernia in 1 (1.1%) See table 4. Furthermore, 6 (6.7%) patients had more than one complication, a combination of surgical site infection with colostomy diarrhea, skin excoriation, necrosis, or prolapse. Divided Colostomy is associated with more complications (20, 55.6%) than loop colostomy (10, 27.8%) although not statistically significant (P-value = 0.540).

Table 4: Colostomy complications

Complications	Frequency	Percentage (%)
Surgical site infection	24	27.0
Prolapse	2	2.2
Necrosis	3	3.4
Parastomal Hernia	1	1.1
Multiple complications (SSI, colostomy diarrhea, necrosis, prolapse)	6	6.7
None	53	59.6
Total	89	100

common, represented by 56 (87.5%) patients while trauma was the commonest benign condition, with 10 cases (11.2%). See table 1. The indication for colostomy is commoner in males and in patients below age 64 years. See table 2.

There was no statistical significance difference between age (P-value = 0.149), gender (P-value = 0.538), or mode of presentation (P-value 0.616) with the occurrence of complications. However, primary diagnosis significantly influenced the outcome, as 16 (66.7%) SSIs were recorded in patients with malignancies. Also, emergency presentations were associated with more SSI than elective cases, although not statistically significant (P-value = 0.632).

Of the 24 patients with superficial SSIs, 14 (58.3%) had documented microscopy, culture, and sensitivity done, 4 (28.6%) had no isolated organism, 10(71.4%) had positive wound culture results, Klebsiella was identified in 8 of 10 (80%) patients and staphylococcus aureus in 2 of 10 (20%).

The mortality rate was 24.7%, with 17 (77.3%) of the deaths due to malignancy while the remaining 5 (22.7%) were associated with benign conditions.

DISCUSSION

We set out to document the indications, types, and complications of colostomy among adult patients in a Nigerian tertiary institution. We found malignant obstruction and fistulae are the most common indications for colostomy creation with colorectal cancer ranked highest, representing 62.9% of cases, with the majority of these being advanced cancers where stoma creation served as palliative care. This is in contrast to reports from Ethiopia^[8,9] which show a high level of colostomy creation for gangrenous sigmoid colon from volvulus, with malignancy ranking second amongst the indications. However, studies from Western countries have shown that malignancy was the predominant reason for colostomy creation, similar to the findings in this study.^[10,11]

In our data, elective colostomy was more frequent than emergencies. This is probably due to restricting analysis to an adult patient population where the majority presented with advanced disease. Other studies from African countries showed emergency colostomy being most frequent, but most of these studies both included children with anorectal malformations as a primary indication and also were characterized by a high prevalence of adults with acute benign conditions such as sigmoid volvulus.^[1,3,9,12,13]

Our finding showing a slightly more male preponderance among patients undergoing colostomy is unremarkable relative to other studies. Furthermore, the observation that 80% of trauma cases and 72.9% of emergency presentations occurred in males. In this study,

middle-age is the commonest, followed by older patients. This is in keeping with the age group for colorectal malignancy and sigmoid volvulus which are notably high in this series.^[12,14,15]

The late presentation of colorectal cancer in our setting is similar to what is seen in other parts of the country and other parts of Sub-Saharan Africa.^[16,17]

^[10]The only Hartman's procedure was carried out in a patient with gangrenous sigmoid colon similar to what was reported in Ethiopia where a high number of sigmoid volvulus is frequently recorded.^[8,9]

Half of our patients had one or more complications with SSI accounting for 27% of all complications. This is similar to reports from other studies.^[8,11,18]

There are suggestions that spillage and translocation of bowel contents into the wound is one of the most likely cause. We also observed that patients that presented in an emergency have more SSI than elective cases, however this and other patient characteristics such as age and gender were not statistically significant in explaining complications. We found a mortality rate of 27.4% in this study with 77.3% of these deaths associated with malignancy, especially colorectal cancer, this is most likely due to late presentation and colostomy serving as a palliative procedure in these patients.

The retrospective collection of data in this study is a limitation that resulted in the exclusion of a number of patients which may have altered the observed results. This study methodology also impaired our ability to explore other factors that may affect colostomy outcomes. However, we are planning a prospective data collection over the next five years in our center in which all cases will be captured.

In conclusion, colostomy creation in our setting is still done majorly as a sole procedure, with malignancies being the most common indication. Surgical site infection is a notable complication of these surgeries.

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