

OUTCOME OF COLOSTOMY CLOSURE WITHOUT PRIOR CONVENTIONAL BOWEL PREPARATION.

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Abstract;

Background; Colostomy closure is a routine procedure performed frequently by pediatric surgeons all over the world. It is an elective procedure that is assumed to be easy, yet, the literature indicates that this procedure still may be the source of significant complications, including death. Because of these facts, as well as the very good results encountered in our series, we decided to share our routines and surgical technique that we use during the colostomy closure procedure.

Results; Out of these 102 study cases, 66 (64.7%) were boys and 36 (35.3%) were girls while male to female ratio was 1.83:1. Mean age of our study cases was 6.19 ± 2.64 years (with minimum age was 2 years while maximum age was 12 years). Mean duration of surgery in our study cases was 105.88 ± 18.55 minutes (with minimum duration of the surgery was 65 minutes while maximum duration of the surgery was 145 minutes). Obesity was noted in 15 (14.7%) of our study cases. Anastomotic leakage was noted in 10 (9.8%), wound infection in 15 (14.7%) and prolonged hospital stay in 30 (29.4%) of our study cases. **Conclusion;** The results of this study indicate that colostomy closure without prior conventional bowel preparation is safe, reliable and cost effective mode of treatment. It can be applied to children of different age groups without any significant side effects and it provides less pre-operative hospital stay which is beneficial not only for the parents but also for the hospital authorities. So our study results recommend the use of colostomy closure without prior conventional bowel preparation with desired outcomes.

Keywords; Colostomy closure, wound infection, anastomotic leak.

Introduction;

Colostomy is the stoma of the colon with the aim of delivering the faeces and flatus. ¹ it is the most common type of the stoma used in children. Indications for the creation of a colostomy may be congenital or acquired. ²

congenital indications are more common and include high anorectal anomaly and Hirsschsprung's disease³. More rare congenital indications are rectovaginal/rectovesical fistula, cloacal exstrophy and severe spina bifida with incontinence. Colostomy may also be beneficial for faecal diversion prior to resection of large congenital intra pelvic masses. Acquired indications include bowel perforations, high tissue in ano, severe perineal trauma, penetrating rectal injuries, post trauma paralysis and to protect distal anastomosis (such as coloanal anastomosis of pull through procedures). Both the colostomy formation and subsequent closure are associated with significant mortality and morbidity.⁴⁻⁷

Colostomy is closed with the underlying disease has been resolved. Although there is no urgency to the timing of stoma closure, the psychological stress and the cost of providing stoma care should be considered.⁸ The colostomy is usually closed about two to three months after the main repair, provided the operation was successful. This operation requires an admission in the hospital of approximately five to six days.

Colostomy is closed after three days preparation of gut. Patient is shifted to non-stool forming diet three days prior to surgery. Broad spectrum antibiotics are started two days prior the surgery. Mechanical gut wash is performed on day prior the surgery. The conventional preparation is difficult to perform in children as it requires prolonged pre-operative NPO. It also prolongs the hospital stay of the patient and overburdens the parents socioeconomically.

The purpose of this study is to determine the outcome of the closure of the colostomy without conventional three days bowel preparation, replacing it with one day bowel preparation⁹. Serrurier K¹⁰ in his study has shown higher rate of wound infection by 16%. Chandramouli B¹¹ in his study has shown 7.1% anastomotic leak in those patients who had a long conventional bowel preparation. Another study has shown prolongation of hospital stay by 20% in patients who had a three day bowel preparation¹². As majority of the patients in our area belong to poor socioeconomic class, prolonged hospital stay due to extra time spent for gut preparation will cause an extra burden of expenses on them.

Material and Methods;

All the patients of either sex aged; 2 – 12 years having a colostomy done for more than 3 months, Hb is > 10 g/dl and weight is > 10 kg presenting at Department of Surgery having no other pathology were included. Patients with poor nutrition status, full recovery has not occurred from original pathology (the ailment for which the stoma was made has not been resolved or partially resolved) and colostomy closure has previously been attempted in any other hospital were excluded from our study. A total of 102 patients who were admitted to Department of Surgery from outpatient department of Nishtar Hospital Multan were selected according to inclusion criteria. Patients were assessed and thoroughly examined for any other disease. In each patient, conventional three days long mechanical and chemical bowel preparation was replaced with one day bowel preparation. All the operations were performed under the supervision of same consultant and each patient was assessed daily by duty doctor for assessment of outcome and final outcome was noted prior to discharge and were called for follow up visits, every week for one month. All the data were entered and analyzed by using SPSS version 20.

Results;

Our study included a total of 102 children meeting inclusion and exclusion criteria of this study. Out of these 102 study cases, 66 (64.7%) were boys and 36 (35.3%) were girls while male to female ratio was 1.83:1. Mean age of our study cases was 6.19 ± 2.64 years (with minimum age was 3 years while maximum age was 11 years). our study results have indicated that majority of our study cases i.e. 70 (68.6%) belonged to the age group of 2 – 7 years. Mean age of the boys was calculated to be 6.59 ± 0.312 years while mean age of girls was 5.44 ± 2.72 years ($p=0.036$).

Mean duration of surgery in our study cases was 105.88 ± 18.55 minutes (with minimum duration of the surgery was 65 minutes while maximum duration of the surgery was 145 minutes). Our study results have indicated that duration of surgery in majority of cases i.e. 76 (74.5%) was noted to be more than 90 minutes. Obesity was noted in 15 (14.7%) of our study cases. Anastomotic leakage was noted in 10 (9.8%), wound infection in 15 (14.7%) and prolonged hospital stay in 30 (29.4%) of our study cases.

Discussion;

Colostomy is an operation frequently performed in children all over the world, especially for cases of anorectal malformations and Hirschsprung's disease. Despite its benefits, it can produce significant morbidity and

mortality. According to the literature, anastomotic dehiscence consecutive to colostomy closure in the pediatric population can occur with a frequency that varies from 0 to 12.5%; and wound infection from 0.4 to 45%. Other complications such as bleeding, anastomotic stricture, and death have also been reported in the pediatric population¹³⁻¹⁵.

Our study included a total of 102 children meeting inclusion and exclusion criteria of this study. Out of these 102 study cases, 66 (64.7%) were boys and 36 (35.3%) were girls while male to female ratio was 1.83:1. In literature different studies have produced similar findings showing male gender predominance over female gender. Haq et al¹⁶ from Lahore, Pakistan also reported high male gender predominance with 81 % male patients which shows same trends as that of our study results. A study conducted by Israr et al¹⁷ from Swat also reported high male gender proportion with male to female ratio being 4:1. Chansaenroj et al¹⁸ from Thailand has reported 74 % male predominance which is again similar to that of our study results. Nasir et al¹⁹ reported 58.1% boys showing again male gender predominance which is close to our study results. Another study from Nigeria by Ekenze et al²⁰ reported 73 % male gender predominance which is again in compliance with that of our study results while Ameh EA et al²¹ from Nigeria also reported 60 % boys versus 40 % girls which is similar to our study results. Mean age of our study cases was 6.19 ± 2.64 years (with minimum age was 3 years while maximum age was 11 years). Our study results have indicated that majority of our study cases i.e. 70 (68.6%) belonged to the age group of 2 – 7 years. Mean age of the boys was calculated to be 6.59 ± 0.312 years while mean age of girls was 5.44 ± 2.72 years. A study conducted by Ameh EA²¹ from Nigeria reported 4 years mean age of these patients which is slightly lower than ours, the reason for this low value is that they included children from 1 month of age to 12 years while our study methodology only registered 2 – 12 years of age. Similar results have been reported by Nasir et al¹⁹ and Ekenze et al²⁰. Mean duration of surgery in our study cases was 105.88 ± 18.55 minutes (with minimum duration of the surgery was 65 minutes while maximum duration of the surgery was 145 minutes). Our study results have indicated that duration of surgery in majority of cases i.e. 76 (74.5%) was noted to be more than 90 minutes. Obesity was noted in 15 (14.7%) of our study cases. Anastomotic leakage was noted in 10 (9.8%), Cavusoglu et al¹² from Turkey reported in 8.2 % which is similar to that of our study results. Chansaenroj et al¹⁸ reported leakage in 7.5%, which is close to our study results. Chandramouli B¹¹ in his study has shown 7.1% anastomotic leak in those patients who had a long conventional bowel preparation. These findings are close to that of our study result. Ameh et al²¹ from Nigeria reported quite lower frequency of anastomotic leakage to be 1.8%. Wound infection in 15 (14.7%). A study conducted by Zarin et al²³ reported wound infection in 17.8 % with colostomy closure. The results reported by Zarin et al are close to our study results. Ekenze et al²⁰ from Nigeria reported 15.03 wound infection which is similar to that of our study results. Cavusoglu et al²² from Turkey has reported wound infection 9.4 % wound infection in children with colostomy closure which are close to our findings. Serrurier K¹⁰ in his study has shown higher rate of wound infection by 16%. Our study results are in compliance with that of Serrurier et al. Ameh et al²¹ reported 10.9 % wound infection which is close to our study results. Chansaenroj et al¹⁸ reported wound infection in 3.7 % which is quite less than that of observed in our study while Nasir et al¹⁹ reported 6.5 % wound infection in children after colostomy closure. A study conducted in Nigeria by Osifo et al²⁴ reported infection as high as in 26.1% which is quite higher than our study results. Prolonged hospital stay in 30 (29.4%) of our study cases. Similar results have been reported by Khan et al²⁵ while another study has shown prolongation of hospital stay by 20% in patients who had a three day bowel preparation¹².

Conclusion;

The results of this study indicate that colostomy closure without prior conventional bowel preparation is safe, reliable and cost effective mode of treatment. It can be applied to children of different age groups without any significant side effects and it provides less pre-operative hospital stay which is beneficial not only for the parents but also for the hospital authorities. So our study results recommend the use of colostomy closure without prior conventional bowel preparation with desired outcomes.

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