

A Study of 100 Cases of Stomas Performed in Child's Central Teaching Hospital in Baghdad

Tharwat I.Sulaiman*, Ahmed Zubar Zain**, Sara Zuhair Fadhil ***

ABSTRACT:

BACKGROUND:

Colostomy is an artificial opening made in the large bowel to divert faeces and flatus to exterior, where it can be collected in an external appliance. As a method of treating intestinal obstruction, colostomies date back to the later part of the eighteenth century, and some of the first survivors of this procedure were children with imperforate anus.

OBJECTIVE:

To identify the common indications and complications of stoma formation in pediatric age group below two years old.

PATIENTS AND METHODS:

A total number of (100) temporary colostomies and ileostomies (96 colostomies and 6 ileostomies) were performed for (100) neonates, infants and children below two years of age in the pediatric surgical department of Child's Central Teaching Hospital in Baghdad in the period from January 2005 to January 2007.

RESULTS:

Most of the colostomies and ileostomies (52%) were done in the neonatal period and mainly for imperforate anus (57.6%) and Hirschsprung's disease (23.8%). Colostomy prolapse was the commonest complication and occurred in twenty patients 20%. The right transverse loop colostomy was the commonest stoma used in our patients and had the higher rate of complications. Prolapse and skin excoriation were the most common complications in our study.

CONCLUSION:

Hirschsprung's disease and imperforate anus were the most common indications of stoma formation in pediatric age group. Prolapse, skin excoriation and wound sepsis were the most common complications after creation of stoma.

KEYWORDS: Colostomy, indications, complications, colostomy prolapse

INTRODUCTION:

It is believed that the first successful colostomy was performed in 1798 by Durret. Colostomies are made for the following purposes:

- To decompress an obstructed colon.
- To divert fecal stream in preparation for resection of an inflammatory or perforated lesion or following traumatic injury.
- To serve as the point of evacuation of stool when the distal colon or rectum is removed.
- To protect a distal anastomosis following resection^(1,2).

The major indications for temporary colostomy in pediatric age group are imperforate anus and Hirschsprung's disease. Since both conditions ultimately require definitive pelvic operative procedures, the proper construction of a colostomy is important in both immediate and late treatment. A sigmoid or transverse colostomy may be used for both. In Hirschsprung's disease the colostomy must be placed in ganglion containing bowel, the presence of ganglion cells being carefully checked by frozen section at the time of operation^(3,4).

In high type imperforate anus the colostomy is usually placed in descending colon of dividing type and the postoperatively the mucous fistula is irrigated (to remove impacted meconium) and distal colostogram is performed to show the distal rectum and fistula. The child is then followed closely to

*Baghdad University-College of Medicine.

**Lecturer in Al- Nahrain University-College of Medicine Baghdad-Iraq.

*** Pediatric Surgeon Baghdad-Iraq.

insure weight gain and adequate colostomy function, if all going well a posterior sagittal anorectoplasty is performed between 2-12 months of age⁽⁵⁾ .

The most common indications of colostomies in the pediatric age group are:

- Imperforate anus.
- Hirschsprung's disease.
- Distal colonic atresia.
- Necrotizing enterocolitis.
- Colonic and anorectal injuries.
- High fistula in ano^(6,7)

PATIENTS AND METHODS:

A total number of (100) temporary colostomies and ileostomies were performed for (100) neonates, infants and children below two years of age in the pediatric surgical department of Child's Central Teaching Hospital in Baghdad in the period from January 2005 to January 2007.

A standardized data sheets were prepared for collection of information including age, sex, body weight, natal history, family history, age at presentation, associated anomalies, type of lesion, type of stoma and its site, and age at stoma formation.

A full clinical examination and investigations were done according to the suspected disease. They specifically include abdominal radiography in erect position, Barium enema, rectal biopsy, multiple colonic biopsies, invertogram which done in all patients, distal colostogram, abdominal ultrasound, Intravenous pyelography, computerized scan, magnetic resonance imaging and echocardiography. Most of our patients presented with signs and symptoms of congenital intestinal obstruction (failure of passage of meconium, abdominal distension, bile stained vomiting & in delayed cases dehydration and signs and symptoms of sepsis). All cases underwent for resuscitation with intravenous fluid, electrolytes and antibiotics before surgical correction.

RESULTS:

The commonest indication for stoma formation in our study was Hirschsprung's disease which account for 58% of all stomas that was performed in this series, while 35% of other stomas were performed for imperforate anus, 3% for necrotizing enterocolitis, 2% for meconium ileus, 1% for large bowel atresia and 1% for large bowel injury.

Age at stoma formation : It ranged from (1) day to (24) months. Fifty two (52%) of our patients had stoma in the neonatal period, thirty patients (57.6%) of them had imperforate anus while fifteen patients

(28.8%) of them had Hirschsprung's disease. Other patients had necrotizing enterocolitis (3 patients), meconium ileus (2 patients), large bowel atresia (1 patient) and one patient had large bowel injury.

Right loop transverse colostomy was the commonest type of stoma in our study which was done for (60) patients, (51) patients of them had Hirschsprung's disease. Loop descending colostomy was the second most common stoma and done in (18) patient all of them had imperforate anus.

Loop ileostomy was done in six patients, three patients had necrotizing enterocolitis, two patients had meconium ileus and one patient had total colonic aganglionosis. (table1).

Complications of stoma formation:

- Colostomy prolapse: occurred in 20 patients, 16 patients (80%) of them developed in right loop transverse colostomy. Stomal prolapse also occurred in (2) patients with loop descending colostomy, (1) patient with divided descending colostomy and one patient with loop ileostomy. Prolapse most commonly occurred in distal limb (13 patients) which account for (65%) of all prolapse and this happened because of the free mobility and redundancy of distal limb, (4) patients had proximal limb prolapse (20%) while only 3 patients (15%) had both proximal and distal limb prolapse. Fifteen patients (75%) who developed prolapse of stoma had Hirschsprung's disease (Table 2).
- Skin excoriation : occurred in (17) patients, ten patients of them (58.8%) had right loop transverse colostomy, 4 patients (23.5%) of them had loop ileostomy.
- Four patients who developed severe skin excoriation had loop ileostomy which account for 66.6% of all loop ileostomy while skin excoriation occurred only in 13 colostomies which account for 13.8% of all colostomies procedure done in our study. Most of the patients who developed skin excoriation from rural areas because of bad stomal care and because those was not using stomal appliance.
- Stomal stenosis: occurred in 5 patients (5%), four of them had divided stoma while the other patient had loop stoma.
- Parastomal hernia: developed only in (5) patients, two patients had right loop transverse colostomy, one patient had loop descending colostomy, one patient had divided descending colostomy and one patient had loop ileostomy.

A STUDY OF 100 CASES OF STOMAS

- Bleeding: occurred in four patients (4%), two patients had right transverse colostomy, one patient had loop descending colostomy and one patient had loop ileostomy.
- Intestinal obstruction: developed in four patients (4%), three patients had right loop transverse colostomy and one patient had loop descending colostomy.
- Stomal retraction: occurred in four patients (4%); two patients had divided descending colostomy, one patient had loop descending colostomy and other patient had right loop transverse colostomy.
- Stomal dysfunction: developed only in three patients , two of them had right loop transverse colostomy and one patient had loop descending colostomy. Two patients had Hirschsprung's disease and other one had imperforate anus. One patient with Hirschsprung's disease died due to this complication.
- Wound dehiscence: Only two patients (2%) in our study developed this complication, both of them had Hirschsprung's disease. One of them died due to this complication.
- Wound sepsis: was common complication following stoma formation. It includes local infection, abscess and fistula formation. It developed in (15) patients. Nine patients had Hirschsprung's disease and six patients had imperforate anus. (Table 3).

Table 1: Patients characteristics

Disease	Number of patients	male	female	Colostomies	ileostomies
Hirschsprung's disease	58	42	16	57	1
Imperforate anus	35	25	10	35	-
Necrotizing enterocolitis	3	2	1	-	3
Meconium ileus	2	1	1	-	2
Large bowel atresia	1	1	-	1	-
Large bowel injury	1	1	-	1	-
Total	100	72	28	94	6

Table 2: Complication following stoma formation.

Stoma type	Stomal prolapse	Skin excoriation	Wound sepsis	Parastomal hernia	Stomal stenosis	Bleeding	Stomal retraction	Adhesive intestinal obstruction	Stomal dysfunction	Wound dehiscence
Right loop transverse colostomy	16	10	8	2	1	2	1	3	2	1
Right divided transverse colostomy	-	-	1	-	1	-	-	-	-	-
Loop descending colostomy	2	2	3	1	-	1	1	1	1	1
Divided descending colostomy	1	1	2	1	3	-	2	-	-	-
Loop ileostomy	1	4	1	1	-	1	-	-	-	-
Total	20	17	15	5	5	4	4	4	3	2

Table 3: Type of stoma and post-operative wound sepsis.

Stoma type	cellulitis	Abscess	Fistula.
Right loop transverse colostomy	5	2	1
Right divided transverse colostomy	1	-	-
Loop descending colostomy	2	1	-
Divided descending colostomy	2	-	-
Loop ileostomy	1	-	-
Total	11	3	1

Table 4: Collected results of colostomy complications as compared to complication rate in other studies.

Complications	Mollitt et al 1980	Lister et al 1983	Beck et al 2004	Nour et al 1994	Sheikh et al 2006	Our study 2008
Stomal prolapse	11.6%	12%	18.9%	5%	20%	20%
Skin excoriation	-	21.6%	2%	2%	25%	17%
Wound sepsis	-	17%	3%	1%	-	15%
Stomal stenosis	6.2%	6.4%	1.4%	-	3%	5%
Parastomal hernia	-	-	0.7%	-	5%	5%
Bleeding	-	5%	0.7%	-	1.5%	4%
Stomal retraction	3.4%	1.9%	2.9%	-	-	4%
Intestinal obstruction	-	4%	10%	3%	12%	4%
Stomal dysfunction	-	-	1%	-	2%	3%
Complication rate	-	32%	-	6.5%	67.7%	60%

DISCUSSION:

Temporary colostomies and ileostomies are necessary operations for the initial management of a variety of diseases in neonates, infants and children. The most common indications in our study were Hirschsprung’s disease and imperforate anus.

Most of stoma formation were performed in the neonatal period (52%) especially for imperforate anus which account for 57.6% of all stomas that were done at this age, while in Hirschsprung’s disease account for 28.8% for the same age because the patients with imperforate anus presented as emergency with intestinal obstruction immediately after birth while in Hirschsprung’s disease, some patients responding to conservative with rectal stimulation and irrigation.

Three patients with necrotizing enterocolitis in this age group required ileostomy while only two patients with meconium ileus not responding to rectal irrigation with gastrografin required ileostomy.

Colostomy formation declined with increase patient age, and most common indication was Hirschsprung’s disease which account for (89.5%) while only (10.5%) for imperforate anus.

The second most common complication in our study is skin excoriation which was occurred in 17 patients (17%), it was high in comparison to Beck et al%⁽⁸⁾ (2%) but lower than lister et al study (21.6%)⁽⁹⁾. The

high incidence of skin excoriation in our study was due to poor compliance of our patients with colostomy appliance especially those from rural areas and there is shortage in the supply of colostomy.

Wound sepsis which include local wound infection, peristomal abscess (stitch abscess) and fistula occurred in 15 patients (15%) which are high in comparison with Beck et al study (3%) but lower than lister et al study (17%) and this complication most likely occurring due to imperfect nursing care only.

The Most common complication in our study was colostomy prolapse which developed in 20 patients (20%) and it was most commonly occurring in right loop transverse colostomy and account for 80% of prolapse that happened during our study, it was less frequent in divided colostomy as compared to loop colostomy. Prolapse most commonly affect distal limb more than proximal one because distal limb is dilated and hypertrophy especially in Hirschsprung’s and with time decrease in size and return to the normal caliber that facilitate prolapse, also in transverse colostomy the distal limb represent transverse colon which is redundant and liable for prolapse. Our result is near to Beck et al (18.9%)⁽⁸⁾

but it is high in compares to lister et al study (12%)⁽⁹⁾ and Mollitt et al (11.6%)⁽¹⁰⁾. Skin excoriation was the most common complication in sheikh et al study⁽¹¹⁾ and in lister et al study.

Stomal stenosis occurred in 5 patients (5%), 4 patients of them had divided stoma. The reasons of stenosis were due to small opening that was created for colostomy and ischemia of margins of stoma which end with stenosis.

Stomal stenosis was high in comparison to Beck et al study (1.4%) but low in comparison to lister et al study (6.4%) and Mollitt et al study (6.2%).

Parastomal hernia developed in 5% of our patients and usually occurred in that patient with poor abdominal wall muscle and with local infection. Its incidence was high in comparison to Beck et al study (0.7%).

Bleeding occurred in 4% of our patient and was usually technical and it was high in comparison to Beck et al (0.7%) but near lister et al study (5%).

In general sixty patients developed different complications directly related to stoma formation that was high in comparison to Nour et al study in which complication occurred in 6.5% only⁽¹²⁾. Lister et al had 32% while Beck et al reported 27.5%.

CONCLUSION:

- Hirschsprung's disease and imperforate anus were the most common indications for temporary colostomy in pediatric age group.
- Construction of colostomy in pediatric patient carries a high risk of complications and requires careful technique.
- Right loop transverse colostomy had the highest rate of complications.
- Prolapse, skin excoriation and wound sepsis were the most common complications after creation of stoma.

REFERENCES:

1. Lawerence W. Way. Current surgical diagnosis and treatment. 10th edition. USA. California. Appleton and Lange. 1994: 689-90 .
2. J. Alex Haller, Jr. James L. Talbert. Surgical emergencies in newborn. 2nd edition. USA. Philidelphia: Lea and Fringer. 1982: 99 .
3. Robber M. Aresman, Daniel A. Bambini and Stephe Almond pediatric surgery. 2nd edition. U.S.A: Landes Bioscience. 2005:370 .
4. Raffensporger J.G. Swensen's pediatric snrgery. 5th edition . Norwalk CT Appleton and Lang. 1990:587-90.
5. M. Borghol, W.H.Webster. colostomy: A neglected operation. Saudia Arabia Medical Journal. 1992;13-2-137-149 .
6. David E. Beck M.D., David R. Welling M.D. Inestinal stomas in patient care of colorectal surgery. 1st edition. USA. Little, Brown. 1991;chapter 9: 95 .
7. James A. O Neil, Jr. Jay L. Grosfeld, Arnold G. Coran and Anthong A. Coldmone. Principles of pediatric surgery. 2nd edition. U.S.A. : Mosby . 2004:597.
8. Beck M, chandr S. Nour, J. Beck and Stringer. Colostomy complication in infants and children. Annals of the Royal College of surgeon of England, 1996; 78: 526-30 .
9. Lister M, Peral R.K., Prasad M.L., Orsoy C.P. et al. Early complications of colostomies. 1989;41: 271-5 .
10. Mollitt DL, Malangoni MA, Ballantine TV, et al. colostomy complications in children. An analysis of 146 cases. Arch surg 1980; 115: 455-8.
11. Sheikh M.A., J. Akhtar, S. Ahmed. Complications and problems of colostomy in infant and children. Journal of the college of physicians and surgeons. Pakistan: JCPSP, 2006;16: 509-13 .
12. S. Nour, J. Beck and Stringer. Colostomy complication in infants and children. Annals of the Royal College of surgeon of England, 1996; 78:526-30 .