Original Research Article

Complications associated with various colostomies in pediatric patients- 2 year prospective study.

Surya Prakash[1], Mandar Vaidya[2], Jayverdhan Kumar[3]

[1] General Surgery, Senior resident, PMCH Patna,Bihar,India
[2]Pediatric surgery, Associate Professor, Dr. Vvasantrao Pawar Medical College, Nashik,India
[3]General surgery, Consultant,Patna,Bihar,India

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Abstract

Introduction- Colostomy is a surgical procedure in which stoma is formed by drawing the healthy viable end of large intestine or colon trough anterior abdominal wall and suturing it into place. Although permanent colostomies are rarely indicated in childhood, common congenital colonic and ano-rectal conditions as well as a few acquired ones often need temporary colostomy as a life saving procedure in neonatal life and early infancy.**Aims and objectives-** To evaluate the complications occurring after colostomy.**Material and methods-** Prospective study, as a thesis topic was conducted from 2012 to 2014. 70 patients had undergone colostomy and were evaluated post operatively. Loop colostomy, divided colostomy, sigmoidal or transverse colostomies were performed depending on clinical examination and underlying condition. Post operative complications were observed.**Results-** Neonates(58.28%) and males(60%) predominated the study. 68.57% cases showed complications. Out of 70 cases 48(68.57%) patients that had undergone loop colostomy. Divided colostomy was done in 22(31.42%) cases. Sigmoid colostomy was done in 46(65.71%) Patients whereas 24(34.28) patients underwent transverse colostomy. The most common complication observed was skin excoriation which occurred in 31 (44.28%) followed by chronic blood loss 22 (31.42%) patients. Fecaloma formation was seen in 6 (8.57%) cases. 1 (1.42%) patient died.**Conclusion-** An aggressive and diligent postoperative care is needed. A stoma care center should be established under pediatric enterostomal therapist and nurse specialist.

Keywords: Faecaloma, Loop colostomy, sigmoid colostomy, stoma.

Introduction

The word colostomy comes from two greek words "kolon'' means large intestine and "stoma'' means mouth or opening[1]. Colostomy is a surgical procedure in which stoma is formed by drawing the healthy viable end of large intestine or colon trough anterior abdominal wall and suturing it into place. Hirschsprung's disease, high imperforate anus and necrotizing enterocoloitis are the commonest indications for childhood colostomy[2]. Since colostomy in children is usually performed for the treatment of non- malignant conditions and is temporary, there is tendency to relegate colostomy-related procedures to minor importance. However, serious complications may result from improper technique and follow-up[3]. Even with careful technique, there is marked morbidity and mortality associated with formation of colostomy. This study was conducted to determine the clinical profile of children undergoing different types of colostomy and their outcome.

Material and methods

Type of study- Prospective
Duration of study- 2012 to 2014
Sample size- 70
Inclusion criteria- 0-12 years of age undergoing colostomy procedures
Exclusion criteria- whose parents are not giving informed consent, lost to follow up

Study Design

A detailed history, relevant clinical examination was conducted on all the patients. Sigmoid colostomy was performed, expect where the lesion was high. Right and left transverse colostomy was created in those cases of ano-rectal malformations who are sick, had huge distension of abdomen due to late presentation or those who had high anomaly. In cases of Hirschprungs disease, colostomy site was chosen on contrast enema finding as well as visual finding of dilated colon. Colon was brought out as loop and loop was prevented from retraction by using anchoring tube passed underneath the mesenteric border of bowel to be removed on 7th postoperative day. After fixing loop with peritoneum and fascia, the loop was opened longitudinally with dithermy and edges stoma were stitched with skin. On follow up, different types of complications were noted.

Results

Out of 70 cases on which colostomy was performed, 42 were males (60%) and 28 were females (40%).

Out of 70 cases 48(68.57%) patients undergone loop colostomy. Divided colostomy was done in 22(31.42%) cases. Sigmoid colostomy was done in 46(65.71%) Patients whereas 24(34.28) patients underwent transverse colostomy.

**Correspondence*
Dr.Surya Prakash
General Surgery, Senior resident, PMCH Patna,Bihar,India
E-mail: invincible697@gmail.com

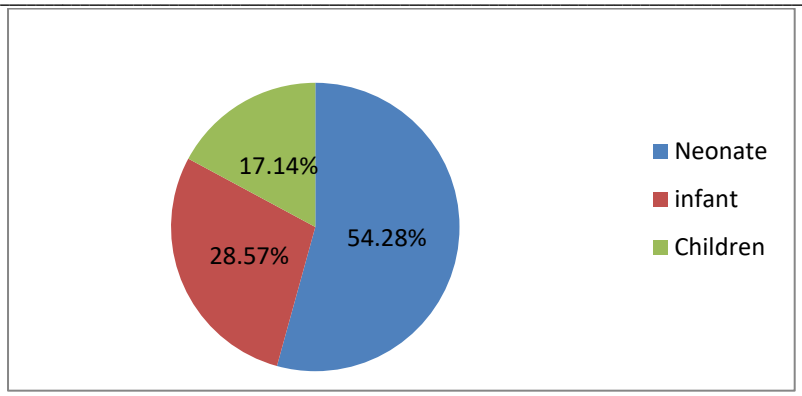

Fig1: Age distribution in patients undergoing colostomy.

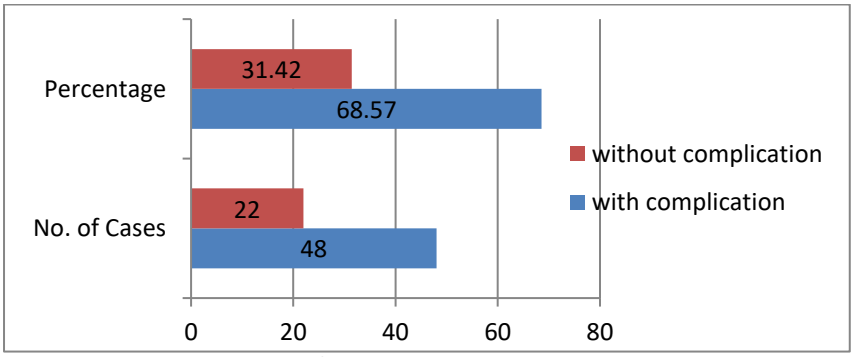

Fig 2: Number of patients with and without complication

Table 1: Complications associated with colostomy

Complications associated with colostomy		
Complication	Total Cases	Percentage
Skin Excoriation	31	44.28
Edema Of Margin	16	22.85
Prolapse	16	22.85
Retraction	5	7.14
Stenosis	5	7.14
Wound Infection	3	4.28
UTI	2	2.85
Chronic Blood Loss	22	31.42
Fecaloma Formation	6	8.57
Colostomy Hernia	1	1.42
Necrosis Of Margin	1	1.42

Table 2:Number of cases undergoing loop colostomy.

Loop Colostomy		
Complication	Number of cases	Percentage
Skin Excoriation	23	47.91
Edema of Margin	10	20.83
Prolapse	12	25
Retraction	3	6.25
Stenosis	4	8.33
Wound Infection	2	4.1
UTI	2	4.1
Chronic Blood Loss	18	37.5
Fecaloma Formation	6	12.5
Colostomy Hernia	1	2.08
Necrosis of Margin	0	0

Table 3: Various complications observed in patients undergoing loop colostomy

Divided Colostomy		
Complication	Number of cases	Percentage
Skin Excoriation	8	36.36
Edema of Margin	6	27.27
Prolapse	5	22.72
Retraction	2	9.09
Stenosis	1	4.54
Wound Infection	1	4.54
UTI	0	0
Chronic Blood Loss	4	18.18
Fecaloma Formation	0	0
Colostomy Hernia	0	0
Necrosis of Margin	0	0

Table 4: Various complications observed in patients undergoing Divided colostomy,

Sigmoid Colostomy		
Complication	Number of cases	Percentage
Skin Excoriation	15	32.6
Edema of Margin	8	17.39
Prolapse	8	17.39
Retraction	4	8.69
Stenosis	4	8.69
Wound Infection	1	2.17
UTI	2	4.34
Chronic Blood Loss	13	28.26
Fecaloma Formation	4	8.69
Colostomy Hernia	1	2.17
Necrosis of Margin	0	0

Table 5: Various complications observed in patients undergoing Sigmoid colostomy,

Transverse Colostomy		
Complication	Number of cases	Percentage
Skin Excoriation	16.00	66.66
Edema of Margin	9.00	37.5
Prolapse	9.00	37.5
Retraction	1.00	4.16
Stenosis	1.00	4.16
Wound Infection	2.00	8.33
UTI	0.00	0
Chronic Blood Loss	9.00	37.5
Fecaloma Formation	2.00	8.33
Colostomy Hernia	0	0
Necrosis of Margin	0	0

Fig 1 and 2:Loop colostomy

Fig 3,4:Reduction of colostomy prolapse

Discussion

Colostomy is essential for the survival of some newborns, simplifies the care of others and decreases the risk of infection associated with the final repair[4].In this study 70 patients were included out of which 42 (60%) were males and 28 (40%) were females The most common indication was Hirschsprung's disease (60%)followed by anorectal malformation (40%).Its incidence was similar to that reported from elsewhere[5] in which anorectal malformation was more common than Hirschsprung disease. In this study, complication rate of colostomy was 68.57% while the reported incidence of colostomy related complications ranges from 28% to 74% as reported by Al Saleem et al[6] In a study from India a complication rate of 69.8% had been reported[7]. The study reported by Khan et al.[8] did not tell the overall complication rate but reported incidence of individual complication.The most common complication encountered was skin excoriation 44.28% in this study. Skin excoriation was more common in transverse colostomies than sigmoid colostomies in this study which is similar to study by Chandramouli et al.[5] which also reported more excoriation in transverse colostomies. The reason for high incidence of skin excoriation was that the colostomy bags for neonates and infants are not frequently available and secondly the cost is too high.[9] Most of the mothers in our study used common cloth for covering the colostomy. The problem in most of the cases was overcome by application of zinc oxide paste or petroleum jelly on the skin around the stoma. Skin excoriation is an unavoidable problem because skin around stoma is not meant for contents coming from stoma and has nothing to do with the technique. The more proximal a stoma is in the gut, more will be skin excoriation as contents will be more liquid. So strictly speaking, it is a problem rather than complication.The second common complication in this study was chronic blood loss from stoma which was 31.42% .Saleem et al.reported 4.11% incidence of this complication while Chandramouli et al.[5 ,6] reported 10.3%. This complication is also dependent upon sensitive bowel mucosa exposed to exterior. Again the reason was infrequent use of colostomy bags. This is an unavoidable problem. To prevent the patients from anemia related to continuous blood loss; they were given oral iron supplements.Edema of margin was observed in 22.85% of cases in this study. Edema of margins of stoma was more common in transverse Colostomies (37.5%) in this study. The cause of edema seemed to be excessive manipulation of colon during stoma construction. Second reason is the constricting effect while finally fashioning the stoma by narrowing its exit from abdomen to prevent later parastomal herniation.Colostomy prolapse occurred in 22.85% of patients which is in concordance with other with other study.[4] None of the patient in this study needed a revision surgery all were managed conservatively. Fecaloma formation was seen in 8.57% cases in this study. Saleem et al. reported the incidence of this complication as 3.74%. The reason for this is improper cleaning of distal bowel at the time of colostomy construction or failure to wash the barium used for contrast studies. This complication was more common in transverse colostomies because the long distal segment was difficult to wash. (1.42%) patient required laparotomy to remove the fecaloma others responded to distal colostomy washes.Stenosis of stoma was seen in 7.14% cases in this study. The reported incidence is 1.9% to 12%[4,10-14].and the present results are quite comparable to them. Stenosis was more common in divided stomas.Wound infection occurred in 4.28% patients in this study. The reported incidence is 5.6%[10,14]and our results are comparable with that. Necrosis of stoma was observed in 1.4% patient in this study. The reported incidence is 1% by Cain et al[15]. This complication was seen only in divided colostomies. In order to construct the divided colostomy the mesentery had to be divided and blood supply of stoma was disrupted. All patients responded to conservative treatment, as it was only superficial epithelial necrosis. Urinary tract infection was observed in 2.85% patients and all were in anorectal malformation patients. Patwardhan et al reported an incidence of 29% in their patients. In this study one patients (1.4%) died. The reported incidence was 1.4 to2.7%.[4,6] All the colostomy functioned well except one patient which died Though the complication rate

(68.57%) was quiet high in this study which was managed conservatively as well surgically but after tackling the complication in a diligent way colostomy functioned well.

Conclusion

The performance of colostomy should not be taken as minor surgical procedure and attention should be paid to technical details. An aggressive and diligent postoperative care is needed. A stoma care center should be established under pediatric enterostomal therapist and nurse specialist. The ongoing patient/family education is of paramount importance to prevent problems of skin excoriation and anemia as they ranked significant in terms of morbidity.

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