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Review Article

Colostomy Indications and Results in New Born: Experience of a Developing Country

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Abstract

Introduction : Digestive stoma is defined by the derivation of a segment of the digestive tract to the skin. It is called a colostomy when this segment corresponds to the colon. In the neonatal period it is most often carried out in an emergency context. The aim of this work is to report our experience in the management of colostomies in newborns at Ziguinchor Regional Hospital in Senegal (CHRZ).

Patients and Methods : We conducted a retrospective descriptive study at the CHRZ pediatric surgery department over a period of 7 years (January 2015 to December 2021). All patients aged 0 to 28 days who received a colostomy were included. The parameters studied were: frequency, age, sex, time to admission, indications, type of colostomy, postoperative outcomes. Data were collected from consultation registers and emergency registers. The analysis was carried out using Excel 2020 software.

Results : Over a 7-year period, 37 colostomies were performed on newborns. The male sex was predominant with a sex ratio of 2.7/1. Their average age was 3.2 days with extremes of 1 and 7 days. The majority of our patients, 56.76%, were admitted after 72 hours of progress. The main reason for performing the colostomy was anorectal malformation. The loop colostomy was more frequently performed. The evolution was favorable in 81.09%. The majority of deaths occurred between the 1st and 3rd day of admission.

Conclusion : Colostomy in the neonatal period is a procedure which is not without complications, especially since it is often carried out in an emergency context. Its frequent complications in new patients are mainly linked to diagnostic delay and associated malformations. Improving this situation requires a thorough preoperative assessment, appropriate surgical technique, good resuscitation and adequate equipment.

Keywords: Colostomy; Newborn; Ziguinchor.

INTRODUCTION

Colostomy is the intentional derivation of a segment of the colon to the skin. In the neonatal period it is most often carried out in an emergency context, malformative pathologies of the digestive tract or ulcerative-necrotizing enterocolitis [1-5]. Despite the frequency of this procedure in the pediatric population, data concerning exclusively the newborn are rare in the literature.

The aim of this work is to report our experience in the management of colostomy.

In newborns at the Regional Hospital Center of Ziguinchor (Senegal).

PATIENTS AND METHODS

We conducted a retrospective descriptive study over a period of 7 years (January 2015 to December 2021). All patients aged 0 to 28 days who had a colostomy were included. The parameters studied were:

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- epidemiological (frequency, age, sex, history);
- clinical (time to admission, results of clinical and paraclinical examinations, etiologies);
- therapeutic (the approach, the type of colostomy);
- progressive (follow-up to surgery, morbidity, mortality and follow-up).

Data were collected from admissions registers, operating room and hospitalization registers. They were entered into Excel software and analyzed by Jamovi.

RESULTS

Epidemiological aspects

Over a 7-year period, 37 colostomies were performed on newborns. During the same period there were 114,460 live births and 6,545 surgical interventions were carried out on children, representing a frequency of 0.56%. There was a male predominance with a sex ratio of 2.7/1. For three newborns a family antecedent was present (hypertension, diabetes, consanguinity). For three other newborns a poorly monitored pregnancies was seen and oligoamnion was found in 2 cases on third trimester ultrasound. The average age of the patients was 3.2 days with extremes of 1 and 7 days.

Clinical aspects

The average delay of consultation was 3.78 days. 21 patients were received after 72 hours of evolution. The majority of our patients were sent to us for treatment (management of an occlusive syndrome n=15, management of multiple malformations n=10). The physical examination revealed anorectal malformatio in the majority of cases. It was isolated in 13 cases and was part of a polymalformative syndrome in 9 cases.

Paraclinical aspects

On imaging, the Wangeinsteen Rice incidence was performed in 20 patients and confirmed the type of anorectal malformation in 13 patients. 11 patients had an unprepared abdominal X-ray and the ultrasound was performed. performed in 7 patients. In biology, the blood ionogram revealed ionic disturbances in 18% of patients. Anemia with an average hemoglobin level of 8.79 g/dl was found while a non-specific biological inflammatory syndrome was present in 55%. The malformation assessment revealed an associated malformation in 12 patients. Congenital heart disease was the most common malformation in our context.

Etiologies

Anorectal malformation was the most common etiology of colostomies in our context. It was a high form in 25% of cases, or 5 out of 20 patients. The details of the etiologies are presented in table 1.

Table 1: Etiologic repartition and prevalence.

Étiologies	Number	Percentage
Anorectal malforations	20	54.05 %
Hirschsprung disease	10	27.02 %
Enterocolitis	5	13.51 %
Cloaca	1	2.77%
Rectal atrésia	1	2.77%

Therapeutic aspects

An elective approach was performed in 86% of cases while a transverse laparotomy was performed in 14% of patients. These approaches made it possible to perform loop colostomy.

in 35 patients and a Hartman colostomy in 2 patients. The colostomy was associated with an abdominal toilet in 5 patients and a biopsy of the edges of the stoma in 8 patients. The colostomy was on the sigmoid colon in 86% of cases and the transverse colon in 14% of cases.

Evolutionary aspects

A favorable evolution was found in 81.9%. One death was noted in 18.91 % or 7 patients. Death occurred in 5 patients within 24 hours of surgery. Among the remaining 30 patients, 5 or 16.6% presented complications including stomal prolapse in 3 patients, stomal retraction

in one patient and surgical wound suppuration in 1 patient.

DISCUSSION

Colostomy can be described in certain situations as a life-saving procedure in neonatal surgery. Data devoted exclusively to its realization in the neonatal period are not common in African literature. The predominance of the male sex was found in the majority of studies despite the fact that they do not exclusively concern the newborn [1]. In our study, the admission delay less than 72 hours remains a particularity, in the study of Keita in Conakry, 66.2% of affected newborns were admitted within 72 hours of birth [1]. This great delay in our context is proof of the need to strengthen the training of medical and paramedical personnel in the diagnosis of neonatal surgical pathologies.

In diagnostic research, Wangeinsteen-Rice incidence has been widely performed in our context despite its relatively low specificity rate. In fact this examination is today increasingly replaced by ultrasound which has better results in the hands of a well-trained operator.

Anorectal malformation is the main etiology of colostomies in the neonatal period in Africa. Thus, in a study carried out in Conakry, 57.3% of colostomies in newborns were due to an absence of anal imperforation [1]. Better knowledge of the principles of pediatric surgery would make it possible to reduce the number of digestive complications. Indeed, anorectal malformations diagnosed early can directly benefit from one-stage colo-anal lowering without using a colostomy. However, it is important to respect the conditions for achieving this reduction in a single step. The high number of colostomies performed for anorectal malformation in Africa could be explained by the diagnostic delay on the one hand, the associated malformations and the lack of technical support on the other hand [1]. The anorectal malformation resulting from an embryogenesis disorder explains the probability of its association with other malformations as found in our study [6-8]. Congenital heart diseases forming part of the vacterl syndrome remain one of the most frequent malformations found in our context. These data are approximately identical to the results found in the literature [1,4].

In our study, the elective approach was mainly carried out and justified in the creation of a rescue digestive stoma. In fact, this approach allows a quick procedure to be carried out and limits both the risks of hypothermia and infection in the newborn. Unfortunately this approach is still not possible, particularly in the case of digestive perforation that can be observed in cases of ulceronecrosing enterocolitis. A loop colostomy was widely performed in our study as recommended by many authors [5-12].

Colostomy is a technically simple surgical procedure but a lack of knowledge of its principles or a particular area can be the cause of complications as observed in 16.6% of our patients. This figure remains higher than that of Dhanya who found 12% of complications in his study [3]. In our work, the mortality of 18.9% observed could be explained by the associated malformations, in particular congenital heart disease, and the delay in treatment [11-15].

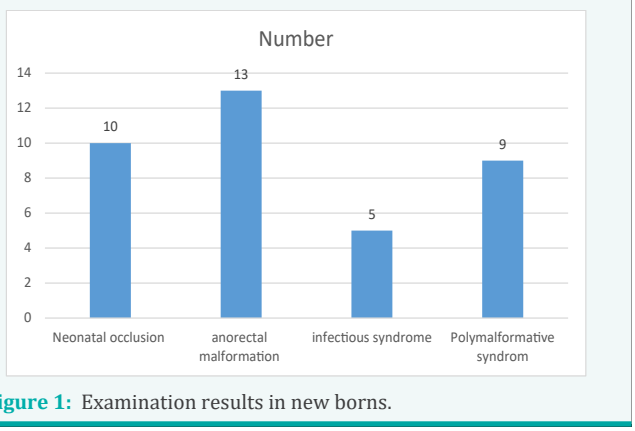

Figure 1: Examination results in new borns.

CONCLUSION

Colostomy in the neonatal period is rare in our context. It was carried out especially in waiting treatment in the management of the malformation anorectal of the boy. A lack of knowledge of the basic principles of this gesture leads to complications aggravated by the severity of the associated malformations.

CONFLICTS OF INTEREST

The author declare no conflict of interest about this manuscript.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

AUTHOR CONTRIBUTIONS

This is to declare that all authors have contributed to the study. No part of the manuscript has been sent for consideration elsewhere or published in any International or National journal. The authors clearly certify that there is no aspect of plagiarism. All the conflicts of interest have been clearly defined and the source of grant disclosed. Due ethical permission/consent has been obtained for carrying out the study. In case rules and also declare that they will not reproduce any published text without due permission from the journal.

REFERENCES

1. Keita B, Toure MA, Diallo ML, Sacko MLS, Dioubate IK. Indications and outcome of digestive ostomy in children at the department of pediatric surgery of the conakry university hospital, Guinea. Annales Africaines De Médecine. 2021; 14.
2. Almosallam OI, Aseeri A, Shanafey SA. Outcome of loop versus divided colostomy in the management of anorectal malformations. Ann Saudi Med. 2016; 36: 352-355.
3. Mullassery D, Iacona R, Cross K, Blackburn S, Kiely E, Eaton S, et al. Loop colostomies are safe in anorectal malformations. J Pediatr Surg. 2018; 53: 2170-2173.
4. Isa H, Miyagi H, Ishii D, Hirasawa M. Case of laparoscopic-assisted anorectoplasty performed with temporary umbilical loop colostomy for high anorectal malformation (rectovesical fistula): A three-stage minimally invasive surgery. BMJ Case Rep. 2021; 14: e240389.
5. Wolf L, Gfroerer S, Fiegel H, Rolle U. Complications of newborn enterostomies. World J Clin Cases. 2018; 6: 1101-1110.
6. Jacobs SE, Tiusaba L, Al-Shamaileh T, Bokova E, Russell TL, Ho CP, et al. Fetal and newborn management of cloacal malformations. Children (Basel). 2022; 9: 888.
7. Jamali Z, Sinaei R, Estabragh ER, Ahangaran A. Sigmoid colon perforation in a SARS-CoV-2 positive neonate: A uniqueness report and a brief review. BMC Pediatr. 2022; 22: 327.
8. Chong C, van Druten J, Briars G, Eaton S, Clarke P, Tsang T, et al. Neonates living with enterostomy following necrotising enterocolitis are at high risk of becoming severely underweight. Eur J Pediatr. 2019; 178: 1875-1881.
9. van den Hondel D, Sloots C, Meeussen C, Wijnen R. To split or not to split: colostomy complications for anorectal malformations or hirschsprung disease: A single center experience and a systematic review of the literature. Eur J Pediatr Surg. 2014; 24: 61-69.
10. Giuliani S, Honeyford K, Chang CY, Bottle A, Aylin P. Outcomes of primary versus multiple-staged repair in hirschsprung's disease in England. Eur J Pediatr Surg. 2020; 30: 104-110.
11. Liechty ST, Barnhart DC, Huber JT, Zobell S, Rollins MD. The morbidity of a divided stoma compared to a loop colostomy in patients with anorectal malformation. J Pediatr Surg. 2016; 51:107-110.
12. Chirdan LB, Uba FA, Ameh EA, Mshelbwala PM. Colostomy for high anorectal malformation: An evaluation of morbidity and mortality in a developing country. Pediatr Surg Int. 2008; 24: 407-410.
13. Haider N, Rauf M, Butt MS, Shahbaz F, Afzal MB, Ullah S, et al. Incidence of complications of colostomy in children with hirschsprung disease and anorectal malformation: Complications of colostomy formation in children. Pakistan Journal of Health Sciences. 2022; 3.
14. Ruangtrakool R, Pintawekiat C. Types and levels of colostomy in children with anorectal malformation. Siriraj Medical Journal. 2022; 74.