

Research Article

Mortality Results According to Types of Emergency Colectomy for Pelvic Colon Volvulus in the General Surgery Department of Ignace Deen Hospital in Conakry

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Abstract

Objective. The objective of this study was to evaluate the results of emergency colectomies for acute intestinal obstruction due to pelvic colon volvulus. **Patients and methods.** This was a two-year prospective study involving 48 cases of pelvic colon volvulus operated on in the General Surgery Department of Ignace DEEN National Hospital between January 1, 2021, and December 31, 2022. This study involved 38 men and 10 women, with a mean age of 49.5 years. All patients presented with clear signs of occlusive syndrome consistent with pelvic colon volvulus. All patients underwent median xyphopubic laparotomy. Patients were divided into two groups. Group I consisted of 34 patients who had undergone an ideal colectomy, and group II consisted of 14 patients who had undergone a colectomy combined with a Bouilly-Volkman or Hartmann colostomy ($n = 14$), followed by restoration of colonic continuity. Mortality and morbidity were compared for the two groups. The overall mortality rate was 14% (7/48). In group I, this rate was 20% (7/34) and 7.14% (1/14) in group II. **Conclusion.** In this study, the mortality rate was higher after ideal colectomy than after two-stage colectomy. We recommend conducting a prospective study on a larger sample and encourage two-stage emergency colectomy in the management of pelvic colon volvulus.

Keywords

Volvulus, Sigmoid, Colectomy, Hartmann and Volkmann

1. Introduction

Pelvic or sigmoid colon volvulus is a strangulating obstruction caused by twisting of the sigmoid colon around its own mesentery [1]. It accounts for 30% of acute intestinal obstructions in sub-Saharan Africa, 2% in Western Europe, and 3.4% in the United States [2]. Volvulus is the leading cause of emergency colonic obstruction surgery in developing countries,

where it affects a younger population [3].

Several procedures have been described for the treatment of colonic volvulus, ranging from pexies or mesosigmoidoplas- ties to two-stage colectomy and ideal colectomy [4]. Colectomy is the removal of part or the entire colon [5]. Sigmoid- ectomy can be performed in a single stage with restoration of

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digestive continuity, or in two stages with creation of a colostomy followed by restoration of digestive continuity a few months later [6].

Two-stage sigmoidectomy combines Hartmann's colectomy and Bouilly Volkman's colectomy [7].

In the general surgery department at Ignace DEEN Hospital, the ideal emergency colectomy for pelvic colon volvulus was the most commonly performed procedure, compared to two-stage sigmoidectomy with colostomy followed by restoration of digestive continuity a few months later.

In recent years, this ideal colectomy has seen an increase in post-operative complications, probably due to the high number of junior surgeons.

It is in this context that we undertook this study to report the mortality outcomes following ideal colectomy and two-stage emergency colectomy for the treatment of acute intestinal obstruction due to pelvic colon volvulus (PCV) performed in the general surgery department of Ignace Deen Hospital in Conakry, Republic of Guinea.

The aim of this study was to report mortality rates according to the type of emergency colectomy performed for colonic volvulus and to provide objective data to guide the choice of emergency colectomy procedure in this department.

2. Materials and Methods

This was a prospective descriptive study lasting two years, from January 1, 2021, to December 31, 2022.

A comprehensive collection of all patient records was made for patients hospitalized during our study period who met our inclusion criteria.

The primary criterion was acute low intestinal obstruction due to volvulus of the pelvic colon.

The diagnosis was occlusive syndrome with abdominal pain, vomiting, cessation of bowel movements and gas, abdominal bloating with fluid levels and/or a double-barred arch on plain abdominal X-ray or CT scan.

Surgical treatment included brief intensive resuscitation and a midline xyphopubic laparotomy.

The ideal colectomy was performed in patients in group I.

Two-stage colectomy was performed in patients in group II with Bouilly-Volkman colostomies and Hartmann's operations.

Continuity was restored electively after Bouilly-Volkman colostomy and medially after Hartmann's operation.

Mortality was compared for both groups.

Other parameters studied included sociodemographic factors, number of twists, direction of torsion, loop vitality, and time to restoration of colonic continuity for two-stage colectomy.

3. Results

Table 1. Distribution according to patients' sociodemographic characteristics.

Age (n=48)	Workforce	Percentage
Average age (years)		
15-24	09	18,75
25-34	05	10,42
35-44	05	10,42
45-54	11	22,91
55-64	10	20,83
65-74	05	10,42
75-84	03	6,25
Sexes (n=48)		
Sex ratio (M/F)	3,8	
Male	38	79,17
Female	10	20,83
Occupation (n=48)		
Farmers/laborers	14	29,17
Liberal	13	27,08
Students	9	18,75
Housewife	6	12,50
Civil servants	6	12,50
Provenance (n=48)		
Conakry	39	81,25
Interior of the country	9	18,25

The occlusive syndrome was evident in all cases, with the presence of abdominal pain (100%), vomiting (35.42%) in 17 cases, cessation of bowel movements and gas (100%), abdominal bloating (96%), and a stable general condition in 91.67% (44 patients). Hydro-aerial levels with arches were present on abdominal X-rays without preparation in 100% of cases.

The average duration of symptoms was 89 hours, with extremes ranging from 10 hours to 9 days.

The number of twists was specified in 30 cases: there was a single twist in 26 cases and a double twist in 4 cases.

In group I, the ideal colectomy was performed in 30 cases. In group II, we noted 14 cases of colostomy.

Table 2. Operative mortality after colectomy for pelvic colon volvulus (7 cases / 48 cases, or 14.58%).

Group	Age	Sex	Colon vitality	Preoperative period	Comorbidity	Postoperative period	Causes of death
I	27	M	Good	2 days	Nothing	2 days	Hypovolemic shock
	35	M	Good	5 days	Nothing	7 days	Septic shock
	65	M	Good	3 days	Nothing	4 days	Septic shock
	70	M	Good	6 days	Diabetes and Hypertension	19 days	Septic shock, anastomotic fistula
	53	M	Good	7 days	Nothing	13 days	Septic shock
	47	M	Good	5 days	Nothing	9 days	Septic shock
II	68	M	Good	9 days	Diabetes	15 days	Diabetic decompensation

4. Discussion

During our study, 176 cases of acute intestinal obstruction were recorded. Of these cases, 48 were cases of pelvic colon volvulus, representing a frequency of 27.27%. This result is similar to that found by Togo H in Mali [2] in 2022, who reported that pelvic colon volvulus accounted for 29.4% of intestinal obstructions and 4% of emergency surgical procedures, and higher than that of Adamou H et al. [8] in Niger in 2017, who reported a frequency of 6.43% for pelvic colon volvulus.

This study presents certain limitations, particularly with regard to the choice of the two groups linked to the surgical technique. However, a critical analysis of our results was carried out in order to provide objective information that could help in choosing the most appropriate technique for colonic volvulus surgery.

This series confirmed that volvulus is a condition affecting young adults (average age = 49.5 years) in Africa, as confirmed by several authors [9-11]. It predominantly affects males, and nearly 10% of patients came from inland areas, sometimes more than 200 km away.

The diagnosis of pelvic colon volvulus is suggested by the cardinal syndrome (pain, vomiting, cessation of bowel movements and gas, and abdominal bloating) and is confirmed by an abdominal X-ray without preparation (air-water images). Some of our patients have traveled long distances, sometimes from the interior of the country, thus delaying treatment.

All twists were located on the sigmoid colon. The number of twists was specified in 30 cases: 26 cases involved a single twist and four cases involved two twists.

In the TOURE CT series [12], the average number of turns was 1.5, or approximately 540 ° of rotation. The degree of rotation varies from 180 ° to 720 ° (2 turns) depending on the case [13].

As in this study, counterclockwise torsion was the most common [10, 13], unlike in CTT's study [12], where clockwise

torsion was more common (9 vs. 6), even though the direction was not specified in most cases during their study. As endoscopic detorsion is difficult to perform in our regions, surgery remained the only alternative.

Intraoperative mortality depends on the duration of symptoms, the patient's general condition, the vitality of the twisted loop, and the surgical procedure performed [9].

The overall mortality rate was 14% in our series. This rate is comparable to that reported by TOURE CT et al. [12], which was 12% (6/50). However, this mortality rate may be higher, in the range of 26 to 28% [9, 14].

In this series, the mortality rate after ideal colectomy was higher (6 out of 30 cases, or 20%) than in the group that underwent colostomy. In the ideal colectomy group, one death was attributable to a comorbidity, specifically diabetic decompensation.

The other four cases were related to septic shock, two of which were secondary to a stercoral fistula. The deaths occurred between the third and fifteenth days post-operatively. One case of ideal colectomy died on the second day post-operatively in a state of hypovolemic shock.

In the colostomy group, we noted one death out of 14 cases, or 7.14%.

The mortality rate in the ideal colectomy group in this study was comparable to that of CTT 12% (6/50) [12] but higher than that reported by Ayit é et al. (1 case out of 21) [10].

Other authors recommend ideal colectomy even in cases of intestinal necrosis [15, 16]. Kocak et al. report a zero mortality rate [15].

Some authors have reported cases of intraoperative colonic lavage performed in cases that yielded good results comparable to the same safety guarantees on healing conditions compared to a prepared colon [14].

The mortality rate after two-stage colectomy in this series was 7.14%, or 1 case out of 14 observed during a Bouilly-Volkman procedure, including 0% after Hartmann's operation. These colostomies are generally performed in the general surgery department of Ignace DEEN Hospital in cases of

twisted loop necrosis. When colon necrosis is confirmed, Hartmann's operation appears to have a low mortality rate and few complications [17].

Mortality was mainly related to septic shock, probably secondary to infection of the peritoneal cavity. This infection was related to necrosis or to anastomotic resection performed on an unprepared colon.

Mortality itself would be attributable not to colectomy, but rather to gangrene of the twisted loop and its consequences, as suggested by some [8, 10].

In this series, gangrene of the twisted loop was noted in 11 patients who had all undergone ostomy surgery, while two other cases with viable loops had also undergone ostomy surgery.

The death in the two-stage colectomy group was consecutive to a Bouilly-Volkman procedure. It was due to diabetic decompensation occurring on the 15th postoperative day.

Indeed, Bouilly-Volkman surgery appears to be correlated with a low mortality rate, as confirmed by the CTT results (2/23), or 8.6% [12].

5. Conclusion

Colonic volvulus is common in the general surgery department at Ignace DEEN Hospital. Its treatment is primarily surgical. Endoscopic detorsion is rare in Africa. In the absence of endoscopic detorsion, we recommend performing a two-stage colectomy.

The ideal colectomy has been associated with a high mortality rate. Based on our results, if the vitality of the twisted loop is good, the Bouilly-Volkman procedure seems preferable; if the loop is necrotic, the Hartmann procedure should be considered.

Abbreviations

PCV Pelvic Colon Volvulus

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Ouchemi C, Mignagnal K, Moussa M A et al. Results of treatment for sigmoid volvulus in N'Djamena, Chad. *European Scientific Journal* July 2015 edition vol. 11, No 21.
- [2] Togo H, Sigmoid colon volvulus in the general surgery department of Gabriel Toure University Hospital. Thesis in general surgery, Bamako 2022 (Mali).
- [3] Mamy GF, Fofana H, Dabo M, Fofana N, Soumaoro LT, Keita K et al. Colectomy in adults: frequency, indications, and outcomes in the general surgery department of Ignace Deen National Hospital. *RECAC*. Vol. 3(17), December 2019.
- [4] Ba PA, Determinants of Mortality for Digestive Emergency Surgery in Low-Income Countries: The Case of Senegal. *Clin Surg*. 2021; 4(9): 1-8.
- [5] Slim K, Vicaut E, Launay-Savary MV, Contant C, Chipponi J, Updated systematic review and meta-analysis of randomized clinical trials on the role of mechanical bowel preparation before colorectal surgery [archive], *Ann Surg*, 2009; 249: 203-209.
- [6] Oulmoudne N. Sigmoid Volvulus: Retrospective Study of 55 Cases at the Mohamed VI University Hospital in Marrakech [Medical Doctoral Thesis] 2011. (16) 66.
- [7] Lassey JD, Abdoulaye MB, Adakal O, Adamou H, Ide K, Hama Y et al. Ideale Kolektomie vs. zweistufige Notfall-Kolektomie am linken Kolon im Nationalkrankenhaus von Niamey. *J Afr Chir Digest* 2020; Band 20(2): 3138-3142.
- [8] Adamou H, Magagi IA, Habou O, Magagi A, Maazou H, Adamou M, et al. Causes and prognosis of acute mechanical bowel obstructions at the National Hospital of Zinder: cross-sectional study of 171 patients. *Pan Afr Med J* 2016; 24: 248. <https://doi.org/10.11604/pamj.2016.24.248.8372>
- [9] Ojara EA. Sigmoid volvulus in Kenyatta National Hospital. *East Afr Med J* 1983; 60: 290-6.
- [10] Ayité AE, Kpoussou A, Etey KT, Senah K, Homawoo K. Pelvic colon volvulus at Lome University Hospital (Togo).
- [11] Traoré D, Sanogo Z-Z, Bengaly B, Sissoko F, Coulibaly B, Togola B, et al. Sigmoid volvulus: results of surgical approaches at Bamako University Hospitals. *J Chir Viscerale* 2014; 151: 104-8. <https://doi.org/10.1016/j.jchirv.2014.01.005>
- [12] Touré, C. T., Dieng, M., and Mbaye, M. (2003). Results of emergency colectomy in the treatment of colonic volvulus at Dakar University Hospital. *Annals of Surgery*, 128, 98-101.
- [13] Ballantyne GH. Review of sigmoid volvulus, Clinical patterns and Pathogenesis. *Dis Colon Rectum* 1982; 25: 823-30.
- [14] Kayabali L, Zalifoghu A. Sigmoid colon volvulus: Reflections on a second series of 91 cases. *Lyon Char* 1983; 79: 365-6.
- [15] Kocak S, Gecim E, Kesence M, Bumin C, Baykan A, Gurel E. Treatment of acute sigmoid volvulus. *Acta chirp Belg* 1995; 95: 59-62.
- [16] Salas S, Angel CA, Salas N, Musillo C, Swischuk L. Sigmoid volvulus in children and adolescents. *J Am Coll Surg* 2000; 190: 717-23.
- [17] Faranisi CT. An approach to the management of volvulus of the sigmoid colon. *Cent Afr J Med* 1990; 36: 31-3.