

Volvulus of the Sigmoid Colon—Management in the Surgery “A” Department of the Teaching Hospital of Point G

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Abstract

Introduction: The volvulus of the sigmoid colon is the twist of the sigmoid handle on its mesocolic axis, achieving a low occlusion by strangulation. **Methodology:** The study was conducted in the surgery “A” department of the Teaching Hospital of Point G in Bamako. The study is retrospective and descriptive, over 5 years, ranging from January 2014 to December 2018. We conducted a comprehensive recruitment of all patients operated on for sigmoid volvulus during the study period. The only criterion for inclusion was patients operated on for volvulus of the sigmoid colon in the surgery “A” department of the Point G Hospital and the non-inclusion criteria were all patients operated on for other sigmoid pathologies without volvulation and patients operated on for other types of occlusions. **Result:** We conducted an exhaustive recruitment of 55 patients operated on for sigmoid volvulus during the study period. Sigmoid volvulus accounted for 13.75% of intestinal obstructions. The average age of patients was 48.013 ± 18.042 years with extremes of 24 years and 82 years. The age group 40 - 49 was the most represented at 21.8%. The sex ratio (M/F) was 8 in favour of male sex. The duration of the disease was less than 1-day in 50.94% of patients. There were two cases of ileo-sigmoid nodes. Immediate anastomosis resection was performed in 27 patients or 49.2% of cases. The time to restore continuity when specified was between 60 - 90 days and the median incision was the most common route of recovery at 80.8% of cases. The average length of hospitalization was 9 days with extremes of 2 days and 42 days. The morbidity rate was 7.3%. In our study we had 3 deaths or 5.5% of the cases. **Conclusion:** The volvulus of the sigmoid colon is the twist of the sigmoid handle on its mesocolic axis, achieving a low occlusion by strangulation. The volvulus of sigmo-

id is a serious surgical emergency that requires early diagnosis and management. In Mali, there is no validated consensus for the choice between immediate anastomosis resection if possible and multi-stage surgery. The purpose of this study is to evaluate the different surgical approaches carried out in the surgery “A” department of the Point G Hospital.

Keywords

Volvulus, Sigmoid, Sigmoidectomy, Hartmann, Bouilly-Volkman, Anastomosis

1. Introduction

The volvulus of the sigmoid colon is the twist of the sigmoid handle on its mesocolic axis, achieving a low occlusion by strangulation [1]. This pathology has been known since antiquity because HIPPOCRATES already proposed as a treatment of devolvulation of the volvulated sigmoid [2]. It accounts for 3.4% of the causes of acute intestinal obstructions in the United States, 2% in Western Europe and 30% in black Africa [2]. In Mali, the frequency of sigmoid volvulus is 10.9% of acute intestinal obstructions [3]. The average age in Africa is 40 [4] compared to 70 years in Western countries [5].

The clinical diagnosis of volvulus of the sigmoid colon is based on the permanent cessation of the transit of materials and gases, diffuse abdominal pain more marked in the left flank and abdominal meteorism [4] [6] [7]. Undated abdomen X-ray is the first-line examination. It makes it possible to make the diagnosis in 90% of cases [4], by highlighting colic hydro-pneumatic levels. Water-soluble enema tends to be abandoned. It allows the contrast product to be stopped in “bird’s beaks” to be objective.

These examinations do not pre-tell the vitality of the flow-through handle. Abdomino-pelvic CT scan (CT) with or without contrast injection is an important examination. It allows not only positive, etiological diagnoses but also that of severities [8].

The therapeutic attitude to be adopted urgently is controversial and uses various techniques that have evolved over recent years.

Emergency endoscopic treatment, if available, is becoming increasingly important in allowing cold surgery. This endoscopic untwist followed by sigmoidectomy after colic preparation is the ideal technique in the absence of signs of severity [7] [8] [9]. The surgical approach is varied, sometimes controversial.

In Mali, there is no validated consensus for the choice between immediate anastomosis resection if possible and multi-stage surgery. The purpose of this study is to evaluate the different surgical approaches carried out in the surgery “A” department of the Point G Hospital.

2. Methodology

The study was conducted in the surgery “A” department of the Teaching Hos-

pital of Point G in Bamako.

Type and study period: The study is retrospective, descriptive and analytic over 5 years, ranging from January 2014 to December 2018.

Patients and Method: We conducted a comprehensive recruitment of all patients operated on for sigmoid volvulus during the study period.

The only criterion for inclusion was patients operated on for volvulus of the sigmoid colon in the surgery "A" department of the Point G Hospital and the non-inclusion criteria were all patients operated on for other sigmoid pathologies without volvulation and patients operated on for other types of occlusions.

The parameters studied were: age, sex, clinical diagnosis, paraclinical diagnosis, time between the onset of symptoms and treatment, treatment carried out, morbidity and mortality.

The data were collected from the medical records and operating records of the service's patients and were entered from Excel 2016, SPSS19 software and processed by Excel and SPSS19 software with a value of $P < 0.05$ considered statistically significant.

3. Results

We carried out an exhaustive recruitment of 55 patients, all patients operated on for sigmoid volvulus during the study period. In our study, sigmoid volvulus accounted for 13.75% of intestinal obstructions. The average age of patients was 48.13 ± 18.042 years with extremes of 24 years and 82 years (**Table 1**). The age group 40-49 was the most represented at 21.8%. The Sex ratio (M/F) was 8 in favour of male sex (**Table 2**). The duration of the disease was less than 1-day in 50.94% of patients. Abdominal pain was the frequent reason for consultation with 70.9%, it was diffuse in 33 patients or 60% of cases and to torsion type in

Table 1. Distribution of patients by age.

Age range (in year)	Effectif	Percentage
<30	11	20.0
30 - 39	10	18.2
40 - 49	12	21.8
50 - 59	3	5.5
60 - 69	8	14.5
>69	11	20.0
Total	55	100

Table 2. Repartition of patients by sex.

Sex	Effectif	Percentage
Male	49	89.1
Female	6	10.9
Total	55	100

56.4% of cases (**Table 3**). In the majority of patients, the cessation of materials and gases was present and lasted between 48 and 72 hours or 54.6% of cases. Depending on the physical condition of the patients the WHO performance index was grade 2 in 65.5% of cases. More than 70% of patients had normal general signs. Abdominal asymmetry was found in 74.5% of cases. Elastic renitence was found in 38 patients or 47.5%. Abdominal eardrum was present in 46 patients or 83.6%.

Undated abdomen X-rays were performed in all patients, 100% of cases with 47.3% of cases of double jambage images (**Table 3**). Abdominal CT was performed in 06 of the patients or 10.9%. Hemoglobin levels were normal in 69.1% of cases. In our series, the majority of patients, 91.8%, received preoperative resuscitation. Median laparotomy was the first most common pathway with 98.2%. The diagnosis of sigmoid volvulus was found in 96.4% of cases per operative procedure. There were two cases of ileo-sigmoid nodes. The sigmoid handle did not present necrosis in 74.6% of patients (**Figure 1**, **Figure 2**). There were 11 cases of sigmoid dilation, 01 cases of perforation, 04 cases of peritoneal effusion

Table 3. Clinical features.

Clinical Features	Effectif	Percentage
Abdominal pain	39	70.9
Material and gas stop	22	40
Vomiting	9	16.4
Indice Karnofsky (60% and 80%)	31	56.4
ASP (ASP (double jamb image))	26	47.3
Prehepatic dullness (conserve)	23	41.8
(12 - 16 g/dl)	38	69.1



Figure 1. Image of a volvulus of the sigmoid colon/photo surgery “A” of the University Hospital of Point “G”.

and 02 cases of ileo-sigmoid node. The sense of twisting was anti-clockwise in 85.5% of cases (rectum forward).

Immediate anastomosis resection was performed in 27 patients or 49.2% of cases (**Table 4**). The gesture depended on the condition of the Sigmoid colon (**Table 5**). In 54.5% of cases the intervention did not exceed 2 hours of time. Immediate surgical follow-ups were simple in 81.8% of cases. Up to a month, the



Figure 2. Image of the sigmoid colon after sigmoidectomy/photo surgery “A” at the Point “G” Hospital.

Table 4. Distribution of patients by surgical procedure.

Gesture made in intraoperative	Size	Percentage
Immediate anastomosis resection	27	49.2
Resection + Hartmann	24	43.6
Simple distortion without resection	2	3.6
Resection + Bouilly-Volkman	2	3.6
Total	55	100.0

Table 5. Distribution of patients by gesture and state of sigmoid.

State of the Sigmoid	Gesture performed in intraoperative Resection				Total%
	Detortion	Resection + Bouilly Volkman	Resection + Hartmann	Immediate Anastomosis Resection	
No necrosis	2 (3.6)	1 (1.8)	13 (23.6)	25 (45.6)	41 (74.6)
Necrosis	0 (00)	1 (1.8)	11 (20.0)	2 (3.6)	14 (25.4)
Total	2 (3.6)	2 (3.6)	24 (43.6)	27 (49.2)	55 (100)

consequences were simple in 50.9% of cases. At six months the surgical follow-up was simple in 49% of patients.

The time to restore continuity when specified was between 60 - 90 days and the median incision was the most common route of recovery at 80.8% of cases. The average length of hospitalization was 9 days with extremes of 2 days and 42 days. The morbidity rate was 7.3%. In our study we had 3 deaths or 5.5% of the cases. The average length of hospitalization was 9 ± 6 days (with a minimum of 2 days and a maximum of 42 days).

4. Discussion

The methodology adopted allowed us to carry out a retrospective study. However, we have faced difficulties, related to the retrospective nature of the study (poor preservation of archives and poor quality of data in some files). These difficulties have been reported by other authors [10].

The frequency of the sigmoid volvulus varies with the population studied. Indeed, prevalence is low in North America and Central Europe with 3% to 6% while it reaches 79% in Peru. In our series the volvulus represented 13.75%. This geographical difference has been reported by several authors [11] [12] [13]. According to the latter, the volvulus of sigmoid is rare in Western Europe and North America. On the other hand, it is common in Central and Eastern Europe, Latin America, Africa and the Middle East where the frequency of dolichocôlon and congenital megacolon is a predisposing factor.

Male predominance was noted in all authors outside of an Australian study where sex ratio was in favour of women. In Morocco [14], women would be relatively protected thanks to their wider pool. However, they are exposed to serious occlusive accidents during pregnancy, including during the third trimester, post partum or after gynecological surgery [13] [15] [16]. The sigmoid colon of man is longer and his meso narrower [7]. Today, we are seeing a significant reduction in the male-to-female relationship that tends to balance [17] [18].

The volvulus of sigmoid is a condition that occurs at all ages. We have an average age match (41 - 48 years) in the African series [4] [6] [10] [19] which differ from the European series [20] this could be explained by the diet and age of the Western population compared to the relatively young African population.

The average duration of the disease is 3.5 days, it is comparable to that of the other series [19] [21] [22]. The reasons for this delay in consultation are varied and related: the practice of traditional medicine, self-medication, the hope of spontaneous healing, the delay in the reference system, the low socio-economic level, and the lack of awareness [9] [23]. The majority of patients had a good general condition with a WHO grade 1 and grade 2 index or 74.6% of cases. Clinical examination and un preparation X-ray shots of the abdomen are usually sufficient for diagnosis. The current progress in the diagnosis of sigmoid volvulus is based on the advent of emergency abdominal CT scans, which not only connects the occlusion to the volvulus of the sigmoid, but also to look for signs

of gravity in relation to a suffering of the volvulate sigmoid cove.

After a period of resuscitation all our patients were operated on, 27 patients or 49.2% of the cases underwent immediate anastomosis resection, two-stage colectomy was performed in 26 patients including 24 colostomies according to Hartmann and 2 colostomy according to Bouilly-Volkman and simple surgical detortion was performed in 2 patients. No patient received non-surgical detortion. These data show that the feasibility of immediate anastomosis resection depends very much on the general condition of the patient, data reported by other authors [9] [24]. On the other hand, in the Indian series of Uptal [25], all patients (100%) benefited from immediate anastomosis resection, while in the Moroccan series of Bouassria [22], simple detortion was the most practiced (62.5%). In Mr. Alaoui's series [14], two patients have an associated hail volvulus, or 5.26%. One was treated with mesenteric plicature after hail detortion and the other by resection of hail with ileocolic anastomosis. Sigmoidectomy can be done in a time with immediate recovery of digestive continuity or in two stages with the making of a colostomy followed by recovery of the digestive continuity delayed by a few weeks. The choice depends on the general condition of the patient and the viability of the colon knowing that the colostomy has a particular morbidity, cost and social consequences that need to be taken into account. In the absence of signs of seriousness, the first endoscopic detortion, if available, is the treatment of choice. It allows a sigmoidectomy in a time, described as ideal. This procedure should be performed a few days after the detortion during the same hospitalization and, if possible, by first coelioscopic means. The average length of hospitalization is no different from that of the African and Asian series [10] [19] [25] where immediate anastomosis resection was the most widely used technique. The prognosis of this condition depends closely on the general condition of the patient, whether or not there is colic necrosis and the circumstances of the procedure. The morbidity rate in our series is no different from that of the African and Asian series [6] [26] [27].

Immediate postoperative complications were: parietal suppuration in four of our patients, or 7.3% of the cases, one of whom had received a Bouilly-Volkman procedure and the other three of a Hartmann-type procedure; evisceration in three of our patients, or 5.5% of the cases, of which one had benefited from a Bouilly-Volkman procedure and the other two had a Hartmann-type procedure, one of which was complicated by a ventration; digestive fistula, a case of 1.8% and peritonitis, one case or 1.8%, They had both benefited from immediate anastomosis resection and died. The mortality associated with the volvulus of the sigmoid depends on the duration of the symptoms, the general condition of the patient, the vitality of the twisted handle and the surgical procedure performed [28]. The mortality rate ranges from 1.01% [25] to 14.5% [5]. It was 3.4% case in our series.

5. Conclusion

The volvulus of sigmoid is a serious surgical emergency that requires early diag-

nosis and management. A common pathology in developing countries with a high-fibre diet is the presence of relatively young subjects. On the other hand, it is rarer in developed countries where it mainly concerns elderly subjects with associated comorbidity factors. Anatomically, the existence of a dolichocolon explains the frequency of complete rotations of the sigmoid colon. Sigmoidectomy can be done in a time with immediate recovery of digestive continuity or in two stages with the making of a colostomy followed by recovery of the digestive continuity delayed by a few weeks.

Limitations

The limitations of the study were: the sample size which was small, the incomplete records of retrospective nature and the duration of the study which was short.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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