

Acute Intestinal Occlusions at the Cs Ref of Commune I of Bamako

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How to cite this paper: Cheickna, T., Hamidou, S., Issaka, D., Modibo, S., Fousseyni, T., Modibo, T., Alhassane, T., Tientigui, D.B., Adégné, T.P. and Lassana, K. (2023) Acute Intestinal Occlusions at the Cs Ref of Commune I of Bamako. *Surgical Science*, 14, 748-757.

<https://doi.org/10.4236/ss.2023.1412081>

Received: October 22, 2023

Accepted: December 26, 2023

Published: December 29, 2023

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Abstract

Acute intestinal obstructions are defined as a complete and persistent cessation of materials and gases in a segment of the digestive tract. They constitute a medical-surgical emergency. Our work aimed to study acute intestinal obstructions, to determine the hospital frequency, to describe the aspects (epidemiological, clinical and therapeutic), to analyze the surgical consequences and to evaluate the cost of the management of obstructions. acute intestinal infections in the general surgery department of the reference health center of commune I of Bamako in Mali. Our retrospective, longitudinal and descriptive study took place from January 1, 2015 to December 31, 2019 in the general surgery department of the reference health center in commune I of Bamako. The average age was 47.72 years with extremes of 15 and 78 years and a standard deviation of 16.07. Our sex ratio (56 men/15 women) was 3.38. The clinical signs were dominated by abdominal pain (100%), vomiting (52.9%), cessation of materials and gases (25.4%) and meteorism (35.3%). The main etiologies found intraoperatively were strangulated hernia (54.9%), bands and/or adhesions (21.1%), sigmoid volvulus (12.7%), colorectal tumor (7%), small bowel volvulus (2.8%) and acute intestinal intussusception (1.4%). Hernia repair was the most performed surgical procedure, *i.e.* 54.9%. The overall mortality rate was 1.4%.

Keywords

Acute Intestinal Obstructions, Surgery, Cs Ref CI, Bamako, Mali

1. Introduction

Acute intestinal obstruction is a complete and persistent cessation of materials

and gases in any segment of the digestive tract. Acute mechanical intestinal obstructions represent 10% to 20% of acute abdominal pain in adults and nearly 25% of surgical admissions for acute abdomen [1].

In the USA: 3rd place after intestinal ischemia and ulcer perforation in intensive care units [2].

In France: 70% of occlusions are due to colon cancers and 16% of colorectal cancers are diagnosed at the occlusion stage [3].

In Finland: 43.7% of patients suffer from mechanical OIA [4].

In Morocco: 10% of abdominal pain in adults due to OIA [5]; 12.5% of abdominal surgical emergencies were due to occlusion with morbidity at 2.04% [6].

In Burkina Faso: Acute intestinal obstruction due to rectocolic stenosis is found in 40% of patients with acute surgical abdomens [7].

In Senegal: OIA represented 6.4% of admissions. The etiologies were dominated by bands and/or adhesions (39.1%) and colon volvulus (37.6%) [8].

In Niger: The frequency was 41% [9].

In Mali: Hernial strangulation (46.6%) was the main cause of acute intestinal obstruction with postoperative mortality at 6.1% [10]; 11.07% of surgical activities and 28.8% of acute surgical abdomens with a postoperative mortality rate of 9% at the Mopti regional hospital [11].

Acute intestinal obstruction is a common and potentially serious classic abdominal emergency. Abdominal pain, cessation of matter and gas, and vomiting are the main signs. The diagnosis, the radiography of the abdomen without preparation finds signs in favor of an acute intestinal obstruction in 90% of cases by the demonstration of the hydro-aeric levels of the small intestine or colic (**Figure 1**). The care is multidisciplinary. Morbidity (19.7%) during immediate surgical aftermath is dominated by parietal suppurations [12].

At the Cs Ref of commune I, with regard to these different parameters of the pathology, it has never been the subject of a study, hence the interest of this study. To carry out this work successfully, we set ourselves objectives.

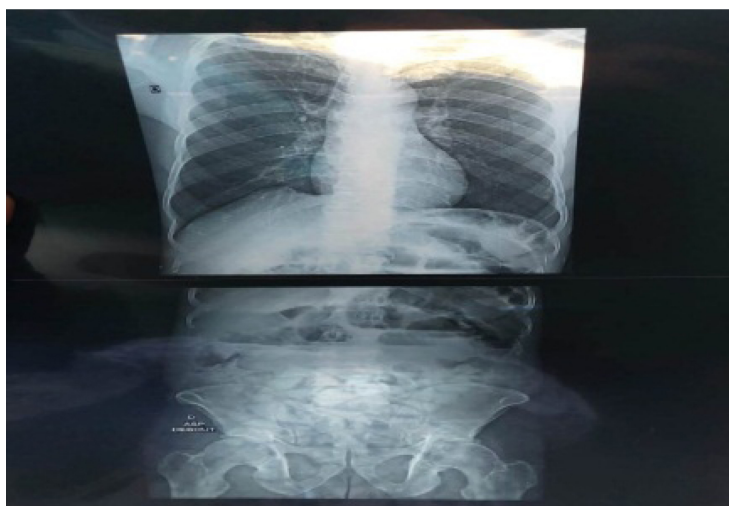


Figure 1. Abdomen without preparation.

2. Research Methodology

This work was a retrospective study from January 1, 2015 to December 31, 2019, carried out in the general surgery department of the Reference Health Center of Commune I of the Bamako District.

We identified 71 patients during our study period for all patients admitted, operated on and followed in the general surgery department of the Cs Ref of commune I of the Bamako district for acute intestinal obstruction and post-operative hospitalization of at least 24 hours.

Inclusion criteria: All patients admitted, operated on and followed in the general surgery department for acute intestinal obstruction.

Non-inclusion criteria: Were not included in this study:

- Patients operated on for acute intestinal obstruction in whom the intraoperative diagnosis of obstruction was not retained (**Figure 2**).
- Functional occlusions; incomplete files and other acute abdomens.

The variables studied were sociodemographic (age, sex, profession, residence); physical examination (general, functional, physical signs); additional examinations (ultrasound, abdominal x-ray without preparation); emergency biological assessment (hemoglobin level, hematocrit, Rhesus group, prothrombin level, Cephalin Kaolin time, blood sugar) and surgical treatment: technique and short and medium term operative consequences.

The media used were the patients' medical files, the outpatient consultation and hospitalization registers, recording the patients' reports, the individual investigation sheet and the anesthesia protocol.

Data entry and analysis were carried out using the "IBM SPSS Statistique" version 22 software. The comparison tests used are Chi2 and P with a significance threshold of $P < 0.05$. Word processing was carried out on the "WORD" software version 2016 and the "ZOTERO" software was used for the management of bibliographic references.

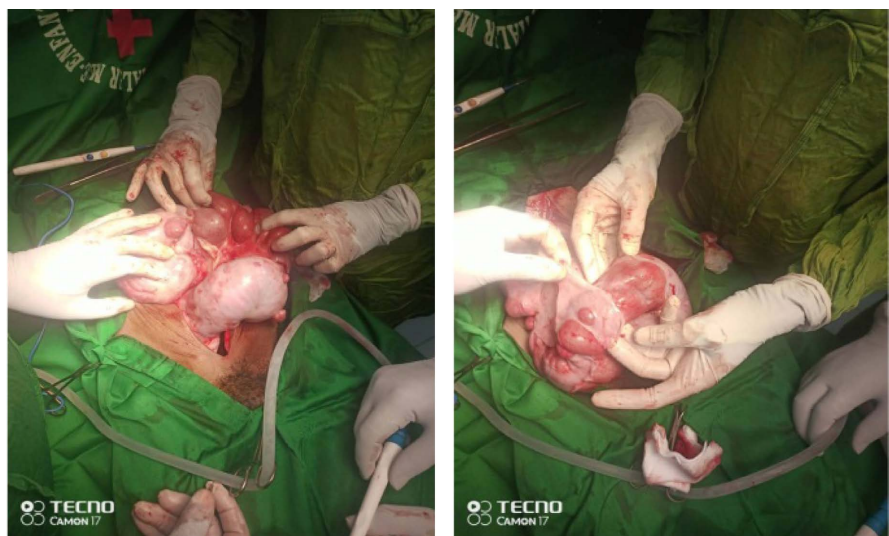


Figure 2. Intestinal obstruction by flanges.

3. Results

We carried out 6512 surgical consultations including OIA: 1.09%; 1070 hospitalizations, 6.63% of cases; 1240 surgical interventions; 71 cases of acute intestinal obstruction (5.72% of cases); 56 cases of small bowel obstruction (78.9%) compared to 15 cases of colic (21.1%) in the department. The average age was 47.72 years with extremes of 15 and 78 years and a standard deviation of 16.07; age group of 45 - 59 years more represented (33.8%). The sex ratio was 3.38 in favor of the male sex (**Table 1 & Table 2**).

1) Small bowel occlusions: The average duration of progression of the disease (48 h - 72 h) was 75%. The reasons for consultation were abdominal pain (100%), vomiting (75.7%) early postprandial (17.9%) and cessation of materials and gases (58.3%) whose average duration of stopping for more than 72 hours

Table 1. Socio-demographic data.

Socio-demographic data	Effective	Frequency
Age		
15 - 29 years old	9	12.70
30 - 44 years old	22	31
45 - 59 years old	24	33.80
60 - 74 years old	12	16.90
75 years and over	4	5.60
Sex		
Male	56	79
Feminine	15	21
Occupation		
Official	5	7
Peasant/Worker	27	38.10
Trader	12	16.90
Household	6	8.50
School	16	22.50
Others	5	7
Origin		
Municipality I	42	59.20
Other municipalities	14	19.70
Others (Regions)	15	21.10
Total	71	100

Table 2. Distribution of patients according to the type of occlusions.

Type of occlusion	Number	Frequency
Small bowel occlusions	56	78.90
Colon obstructions	14	19.70
Mixed occlusions (small and colon)	1	1.40
Total	71	100

(5.4%). Most patients (98.2%) were classified as WHO1. Abdominal meteorism represented 26.8% of cases, defense (35.7%), abdominal contracture (17.9%), tympanism (12.5%), borborygmus (12.7%) and touch non-painful rectal (15.5%). The strangulation mechanism represented 75% of small bowel occlusions. The intraoperative etiologies were strangulated hernia (69.6%), straps and/or adhesions (25%), volvulus (3.6%) and intussusception (1.8%).

The surgical approaches were inguinal (44.6%), median subumbilical (21.4%) and supra and subumbilical (33.9%). The loops were healthy in 96.4% of cases. The surgical procedures consisted of hernia repair (69.6%), adhesiolysis (25%), anastomosis resection (3.6%) and disinvagination (1.8%). The immediate surgical aftermath was simple in 98.6% of cases, an average length of hospitalization of 1.18 days (73.2%) with extremes of 1 to 4 days. Mortality was zero. The average cost of care was 125,000 FCFA.

2) Colon obstructions: More than half of the patients (60%) seen between days 2 and 3 of progression of the disease whose reasons for consultation were abdominal pain (100%), late postprandial vomiting (53.3%) and the stopping of materials and gases (41.7%) with an average duration of 48 hours to 72 hours (46.7%). The patients (86.7%) were classified as WHO1. Abdominal meteorism represented 60% of cases, defensiveness (33.3%), abdominal contracture (60%), tympanism (93.3%), intestinal silence (73.3%) and painful rectal examination (40%). The strangulation mechanism represented 60% of colon occlusions and obstructions (40%). The intraoperative etiologies were sigmoid volvulus (60%) (**Figure 3**), bands and/or adhesions (6.7%), tumors (20%) and tumors of the



Figure 3. Sigmoidectomy parts.

rectosigmoid junction (13.3%). The surgical approaches were median above and below the umbilical (73.3%), median below the umbilical (26.7%) with necrosis of the loops in 60% of cases. The surgical procedures were anastomosis resection (66.7%), Devolvalution (13.3%), resection-diversion (13.3%) and Adhesiolysis (6.7%). The immediate surgical consequences were simple in 98.6% of cases, an average length of hospitalization of 4.1 days (66.7%). Mortality was 6.7%. The average cost of care was 125,000 FCFA.

3) Mixed occlusions: The average duration of progression of the disease before admission (48 h - 72 h) in 54.9% of cases whose reasons for consultation were abdominal pain (100%), vomiting (52.1%) and the cessation of materials and gases (50.6%). The patients (95.8%) were classified as WHO1. Abdominal meteorism represented 35.3% of cases, defense (33.8%), abdominal contracture (21.1%), tympanism (29.6%), borborygmus (12.7%), flexible abdomen (45.1%) and non-painful rectal examination (15.5%).

The strangulation mechanism represented 71.8% of mixed occlusions. Unprepared abdominal radiography showed small bowel (77.5%), colic (21.1%) and mixed (1.4%) obstruction (**Table 3**). The intraoperative etiologies were strangulated hernia (54.9%), bands and/or adhesions (21.2%), sigmoid volvulus (12.6%), colonic tumors (4.2%), tumor of the sigmoid junction (2.8%), small intestine volvulus (2.8%) and intestinal intussusception (1.4%). Necrosis was observed in 12.7% of cases. The immediate consequences were simple in 98.6% of cases. The average length of hospitalization was 1.18 days with an extreme of 1 to 6 days. The overall mortality rate was 1.4%. No intraoperative complications were recorded during our study.

4. Discussion

We conducted a retrospective study over 5 years, from January 1, 2015 to December 31, 2019 in the reference health center of commune I of Bamako. We collected 71 patients, 6.63% of cases. Acute intestinal obstructions were the frequent cause of hospitalization for surgery [1] (**Figure 4**). Previous studies reported frequencies of 12.5% to 36.7% [6] [13]; our frequency (6.63%) comparable to those found by Catel L. 2003 [13] and Koné L. 2015 [12] but lower than

Table 3. Distribution of patients according to the mechanism of occlusion.

Occlusion mechanism		Number	Frequency
Small bowel occlusion	Strangulation	42	59.15
	Obstruction	14	19.72
Colonic obstruction	Sigmoid volvulus	11	15.50
	Obstruction	3	4.22
Mixed occlusion	Strangulation of the sigmoid by the small intestine	1	1.41
Total		71	100

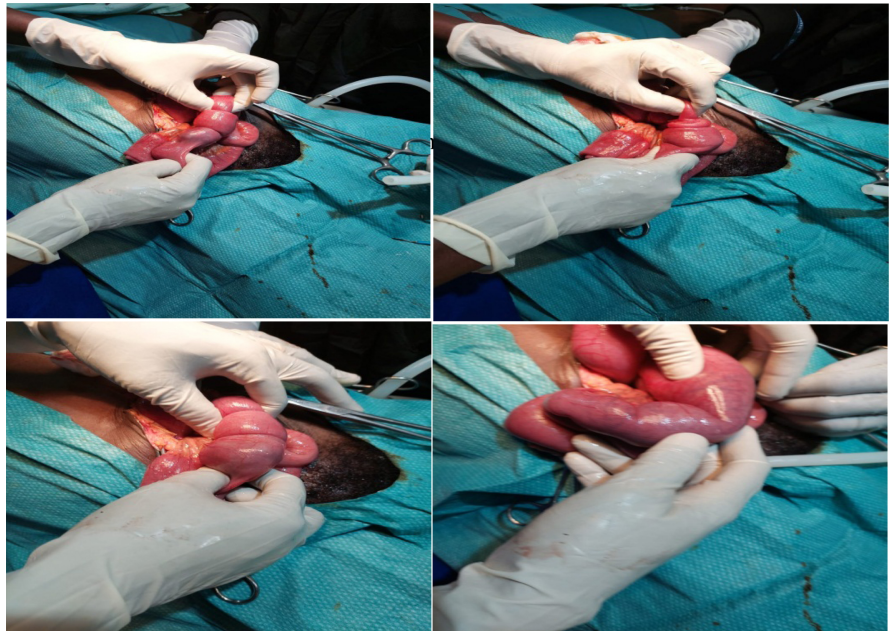


Figure 4. Obstruction by acute intestinal intussusception of the small intestine.

those of Sissoko M. in 2010 [14] and Makhouad R. in 2018 [6]. OIA appears as a pathology of young adults in Africa (mean age = 47.7 years) [11]. Our average age (47.7 years) had no significant difference with those of Mariko B.; Dembélé A. and El Hila E. [11] [14] [15]; lower than that of Kossi J. [4] and higher than that of Harouna Y. [9]. Age is not a risk factor for OIA. OIA reaches both sexes; the male predominance in our series could be explained by the high frequency of strangulated hernia and sigmoid volvulus in men as in Dembélé A.C. [14] contrary to the series in the literature [9] [13]. This delay in our study has been reported by African authors [10] [11] [12]. Pain (100%) was the reason for consultation as in other authors [9] [12] [15]; linked according to the literature to compression of nerves and vascular pedicles. Early vomiting in high occlusions (52.9%) of cases is statistically lower than that of Sacko [16], 75.8% with $P = 0.000007$. The less frequent cessation of materials and gases (25.4%), can be explained by the emptying of the distal end and the socio-cultural straitjacket (shame); observation comparable to that of Kouadio [7], 49% cases of materials and gases stopping.

Meteorism (35.3% of cases) is similar to that of Sacko [16], (55.8%, $P = 0.005842$). Defense (33.8%) and abdominal contracture (21.1%) were also reported in the Sidibé series, 55.8% with $P = 0.003219$ and 1.70% with $P = 0.000005$ but lower than that of Koné [12] (47.6%, $P = 0.145513$ and 14.3%, $P = 0.366278$). Patients were seen at advanced stages and therefore with signs of seriousness. The ASP carried out in 15.5% of cases revealed hydro-aerial levels, 72.7% of cases; images synonymous with occlusion comparable to the data from Sidibé [17] and 100% confirmation from Gamma [18]. The mechanism was strangulation (71.8%) and obstruction (28.2%) versus (79.5% and 14.5%) in Gamma [18]; (77.3% and 10%) at Dongmo [10] and at Koné L. [12] (59.5% and

Table 4. Distribution of patients according to surgical procedures and surgical outcomes.

Surgical procedures and post-operative procedures		Effective	Frequency
Edge lane surgical	Median subumbilical	13	18.30
	Median above/subumbilical	20	28.20
	Inguinal	38	53.50
Therapeutic gestures	Intestinal resection + anastomosis	10	14.10
	Intestinal resection + diversion	7	9.90
	Adhesiolysis	12	17
	Hernia repair	39	54.90
	Devolvulation	2	2.80
	Disinvagination	1	1.40
Aftermath of surgery after one month	Simple	60	84.50
	Recidivism	3	4.20
	Delayed healing	7	9.90
	Death	1	1.40
Total			

40.5%). In all cases, strangulation appears to be the most common.

Our surgical procedures consisted of an intestinal resection + immediate anastomosis (21.1%); intestinal resection + diversion (2.8%); Adhesiolysis (17%); hernia repair (54.9%); Devolvulation (2.8%) and disinvagination (1.4%) (**Table 4**). Gamma [18], intestinal resection + anastomosis (23.39%, $P = 0.010597$), intestinal resection + diversion (18.80%, $P = 0.000417$), Adhesiolysis (42.74%, $P = 0.000260$), hernia repair (4.27%, $P = 0.00000$). Dongma [10], intestinal resection + anastomosis (16%, $P = 0.166142$), intestinal resection + diversion (18.70%, $P = 0.000665$), Adhesiolysis (36%, $P = 0.006511$), hernia repair (8%, $P = 0.00000$) and Koné L. [12], intestinal resection + anastomosis (19.6%, $P = 0.098472$), intestinal resection + diversion (15.7%, $P = 0.007439$), Adhesiolysis (35.3%, $P = 0.006511$), hernia repair (7.1%, $P = 0.00000$). The overall mortality was 1.4%; lower than that of Koné L. (2.4%) and our patients (95.8%) were classified WHO 1. The average cost of treatment was 125,000 FCFA, increased by the occurrence of complications.

5. Conclusion

Acute intestinal obstruction is a surgical emergency. The delay in consultation and the advanced age of the majority of patients make this pathology serious. The etiologies are multiple. Hernial strangulation is the most common cause in developing countries, hence the need to raise awareness among the population for early treatment. New exploration techniques (CT scan) and new therapeutic modalities (laparoscopic surgery) could facilitate etiological diagnosis and provide certain solutions in difficult circumstances. Despite therapeutic progress, morbidity and mortality still remain high.

Acknowledgements

To patients who have given their informed consent, to the staff of the general surgery department of the CS Ref of commune I of the Bamako district.

Ethics

Free and informed consent from patients was obtained.

Conflicts of Interest

There is no conflict of interest.

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