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Postoperative Occlusion of the Small Bowel with Flanges and/or Adhesions in General Surgery of Kati BSS CHU

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Abstract

Objectives were to determine the frequency, describe the epidemiological and clinical aspects, therapeutic and analyze the postoperative course. **Methodology:** This was a retrospective study that covered 08 years (January 2009-December 2017). Inclusion criteria: all patients operated for obstruction of the small bowel by hail and/or flanging. Exclusion criteria: other types of occlusion and non-operated patients. **Result:** We recorded a total of 162 cases of hail obstruction by adhesions and/or flanges at 2.87%. The average age was 32.04, the sex ratio was 1.2. The average consultation time was 4 days. Abdominal pain associated with stopping of material and gas was present in all our patients. X-ray of the abdomen without preparation carried out in all the patients made it possible to objectify in 150 patients (92.6%) of the hydro-hail levels. Inoperative occlusion of hail on flange was present in 80 patients (49.4%). Occlusion of the small bowel on flange and adhesion was present in 69 patients. Adhesion obstruction of hail accounted for 6.8% (11 cases). The most commonly used surgical technique was flange resection in 91 patients (56.2%). The follow-up was simple in 151 patients (93.2%). Mortality was 1.2% of cases, *i.e.* 2 deaths. The average duration of hospitalization was 6 days. **Conclusion:** Occlusion of the small bowel by flanging and/or adherence is a surgical emergency whose prognosis depends on early management.

Keywords

Postoperative Occlusion, Hail, Bridle/Adherence, Mali

1. Introduction

Post-operative occlusions by flange and/or adhesions constitute a surgical emergency. They represent a common and expensive complication of abdominal surgery. At C.H.U. Gabriel Touré they represent 2.93% of surgical emergencies and 61.75% of acute intestinal occlusions.

Bridles and adhesions are structures found in 95% of patients with previous abdominal procedures [1] [2]. They are directly related to surgical trauma even if it is minimal. JOHANET [3] shows that after laparotomy, one patient in a hundred will present an occlusion by flange and adhesion in the year following the intervention and that in the very long term 3 patients out of a hundred will have to suffer from this pathology.

Miller G [4] shows that in 1992 there were 12,000 to 14,400 cases of hail obstruction in the United Kingdom by flanges and/or adhesions per year, which corresponds to an incidence of 200 cases/100,000 inhabitants.

Occlusions of the small bowel with flanges and adhesions represent a common and expensive complication of abdominal surgery.

In Europe they are the leading cause of small bowel obstruction (70%) [1]-[6] with a non-negligible mortality of 4% to 17% depending on the series [5] [6]. In Africa they have been the object of several studies. In Niger, Harouna *et al.* [7] estimated that they represent 39.3% of bowel obstruction and affect a population that is often very young.

Increasingly his laparoscopic treatment has been the subject of several studies.

The objectives were to determine the hospital frequency of postoperative small bowel obstruction in the general surgery department, to describe the therapeutic epidemiological aspects of the treatment and to analyze the operative follow-up.

2. Materials and Methods

We conducted a retrospective study that covered 8 years (January 2009-December 2017). It was performed in the General Surgery Department at Kati HCSS.

Inclusion criteria: All patients operated for small bowel obstruction by adhesions and/or flanges, the diagnosis of which has been confirmed.

Exclusion criteria: We excluded other types of occlusion and non-operated patients.

The variables studied were: age, sex, clinical signs, radiological signs, operative techniques. The source of the data was the patient's records, the operating record register, the hospitalization record. EPI-INFO software 7 was used to analyze the data. The validity test of the results is the Chi-square with probability threshold $P < 0.005$.

3. Result

We recorded a total of 162 cases of hail obstruction by adhesions and/or flanges, *i.e.* 2.87% of surgical emergencies and 60.95% of acute intestinal occlusions. The

average age was 32.04 years + or − 11.50 with extremes of 15 and 75 years (Figure 1), the sex ratio was 1.2 (Figure 2). The average consultation time was 4 days (with extremes of 1 and 15 days). All our patients had a surgical history. Abdominal pain associated with stopping of material and gas was present in all our patients. Vomiting was found in 155 patients (95.6%), 9 patients (5.5%) showed signs of dehydration. The physical signs found on examination are grouped in Table 1. X-ray of the abdomen without preparation carried out in all the patients made it possible to objectify in 150 patients (92.6%) of the hydro-hail levels. All the patients were operated on. In operative room occlusion of small bowel was present in 80 patients (49.4%) of whom 11 had intestinal necrosis (6.8%). Occlusion of small bowel and adhesion was present in 69 patients without necrosis. Adhesion obstruction of hail accounted for 6.8% (11 cases). The operative techniques were: flange resection in 91 patients (56.2%), flange resection and adhesiolysis in 40 patients (24.7%), adhesiolysis in 20 patients (12.3%), resection of the flange and anastomosis resection in 9 patients (5.5%), resection of the flange and ileostomy in 2 patients (1.2%). The follow-up was simple in 151 patients (93.2%). Table 2 groups the complications according to the different operating techniques. We recorded 5 cases of parietal suppuration (3.1%), 1 case of digestive fistula (0.6%), and 2 cases of postoperative evisceration (1.2%). Mortality was 1.2% of cases, *i.e.* 2 deaths. The average duration of hospitalization was 6 days.

4. Discussion

Postoperative occlusion is a surgical entity characterized by the formation of a fibrous membrane especially on the small bowel. We recorded a frequency of 1.6% comparable statistically to that of Moroccan series [8].

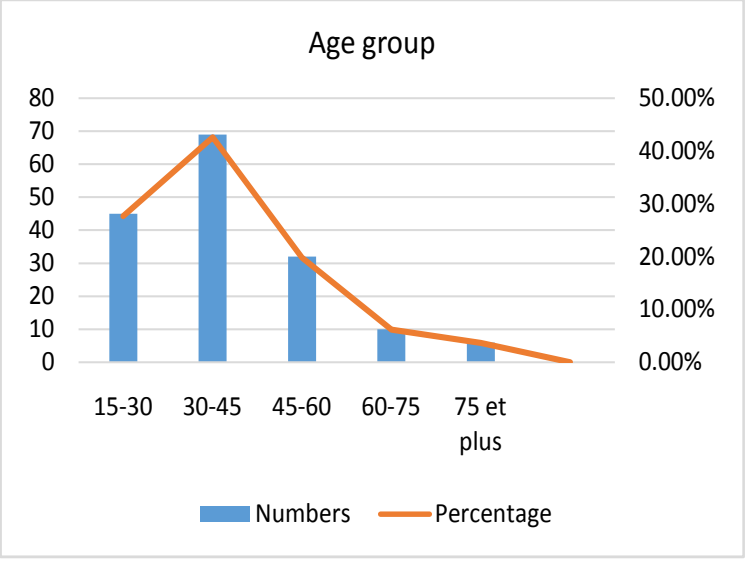

Figure 1. Age group.

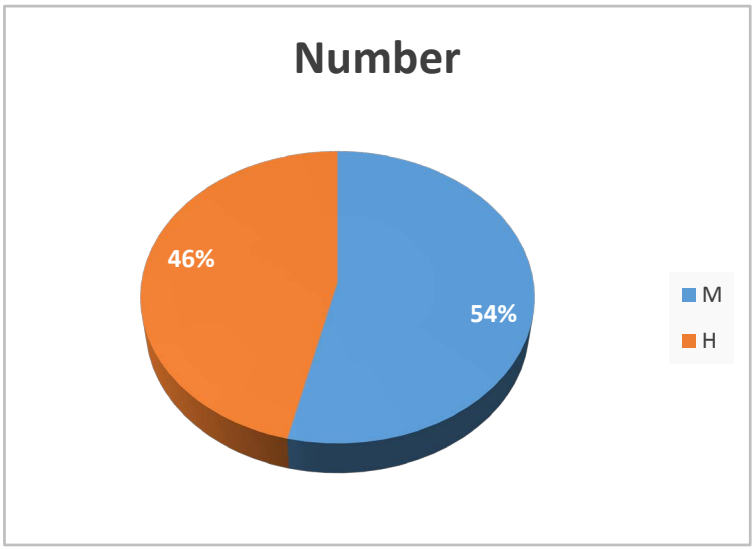

Figure 2. Sex.

Table 1. Physical Signs.

Signs		Numbers	Percentage
Inspection	Abdominal scar	162	100%
	Abdominal distention	80	49.4%
Palpation	Abdominal defense	20	12.3%
	Abdominal meteorism	75	46.3%
	contracture	12	7.4%
Percussion	Abdominal tympanism	75	46.3%
	Mateness of flanks	14	8.6%
Auscultation	Increased hydro-aerial noise	70	43.2%
	Auscultatory silence	10	6.2%

Table 2. Operative gestures and postoperative morbidity.

Operative procedures	Post operative			
	Suite simples	Surgical site infection	Digestive fistula	Post operative evisceration
Section of the flange	91	2	0	1
Flange resection and adhesiolysis	40	1	0	0
adhesiolysis	20	0	0	0
Flange resection and anastomosis resection	9	2	1	1
Resection of the flange and ileostomy	2	0	0	0
Total	152	5	1	2

Significant difference between operative technique performed and postoperative morbidity with $P < 0.05$.

We recorded a younger population with an average age of 34 years compared with Western series [9] [10] [11] [12] (P = 0.05). This difference could be explained by the younger population in Africa compared to a more aging Western population.

Abdominal pain and vomiting are very common symptoms of small bowel obstruction [13] [14]. We had a proportion ranging from 97.1% to 100% of vomiting, stopping of material and gas and abdominal pain.

X-ray of the abdomen without preparation is the first-line examination to be made when there is suspicion of small bowel obstruction [13] [15]. All our patients achieved ASP (100%) this does not differ from the Harouna study in Niger (91.9%) [13] P = 0.55. The benefits of this radiological examination are the lower cost and easy achievement in regional hospitals in Mali. For centers that are equipped, abdominopelvic computed tomography (CT) with or without injection of contrast medium is becoming increasingly important. It allows at the same time to pose the diagnosis with certainty but especially the diagnosis of gravity. The operative technique performed depends on the state of the loop, the condition of the patient, the risk factors, whatever the cause of the occlusion flanges and/or adhesions [16] [17].

Table 3 summarizes the various operative techniques according to the authors.

In the literature the mortality varies according to the authors 3.4% and 7.7% [18].

The mortality in our study (1.2%) does not differ from that of the Norwegian series.

The delay in consultation, the age of the patient and his general condition could increase this mortality.

Infection of the operative site is the most common early postoperative complication in digestive surgery [7] [19]. The same finding was made in our study (3.1%).

Digestive fistula is a serious complication of digestive surgery. According to the authors, this fistula varies from 2.3% to 5.7% [7] [13] [15] [19] [20].

All the fistulas of our series have dried up during the duration of the hospitalization and only the medical treatment (local, nutritional care) was used.

Table 3. Technique according to authors.

Authors	Flange section **n (%) P**	Clamp and adhesiolysis section **n (%) P**	Adhesiolysis **n (%) P**	Resection anastomosis **n (%) P**	Ileostomy **n (%) P**
Beyrout Tunisie 2006 [19]	152 (59) **0.2148**	-	54 (21.1) **0.0125**	30 (11.6) **0.0253**	7 (6.5) **0.3258**
Kouadio RCI2004 [13]	25 (51) **0.6233**	2 (4.1) 0.0008	5 (10.2) **0.8046**	17 (34.7) 0.0001	-
Duron France 2006 [21]	130 (45) **0.5438**	24 (8) 0.0022	56 (19.6) **0.0090**	31 (11) **0.0259**	4 (1.4) **0.5484**
Our study Mali 2017	91 (56.2%)	40 (24.7%)	20 (12.3%)	9 (5.6%)	2 (1.2%)

5. Conclusions

The occlusion of the hail by bridle and/or adhesion is a surgical emergency that in Africa affects a population often very young, whose prognosis depends on the early management.

Delayed consultation and certain comorbidities (diabetes, high blood pressure) may be life-threatening for patients.

Conflicts of Interest

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

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