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Digestive Surgical Emergencies at Sikasso Hospital: Epidemiological, Clinical and Therapeutic Aspects

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Abstract **Original Research Article**

The aim of the work was to describe the epidemiological, clinical and therapeutic aspects of digestive surgical emergencies. Patients and method: the study was retrospective, and descriptive from January 2017 to December 2022.It was carried out in the general surgery department of the Sikasso hospital (Mali). Have been included patients received and cared for digestive surgical emergencies. The parameters studied were: frequency, age, sex, clinical aspects, treatment, and postoperative outcomes. Results: We listed 600 files that represented 44.8% of operated patients. The average age was 27.5 years. There was a predominance of men with a sex ratio of 2.3 at risk for men. One third of patients were admitted within 48 hours. Abdominal pain was the main symptom of the reasons for consultation, i.e. 90%. Plain abdominal X-ray found pneumoperitoneum in 24.3% of patients, and a fluid-air level in 20.8% of patients. Abdominal ultrasound showed thickening of the appendicular wall in 34.9% of patients, peritoneal effusion in 36.9% of patients, intussusception in 2.7% of patients, thickening of the gallbladder wall in 2.5%. The most common etiologies were acute peritonitis in 223 patients, acute intestinal obstruction in 141 patients, acute appendicitis in 128 patients. Appendectomy with or without burial, appendectomy plus peritoneal toilet, suture of the perforation, stoma, resection anastomosis, splenectomy were the surgical procedures performed. The postoperative course was simple in 93% of patients. Parietal suppuration was the most common complication in 5.5%. Mortality was 2.3%. Conclusion: Digestive surgical emergencies occupy an important place in surgery due to their high frequency. The etiologies are multiple. Delay in management increases the risk of complications occurring.

Keywords: Appendectomy, Peritonitis, Morbidity and mortality, Sikasso hospital, Digestive surgical emergencies.

INTRODUCTION

Abdominal surgical emergencies constitute a significant area of activity in a digestive surgery department in developing countries [1, 2]. These digestive emergencies include a variety of acute pathologies that pose many management problems [3, 4]. Morbi-mortality after urgent digestive surgery remains very high in developing countries where insufficient equipment, qualified human resources and the unavailability of drugs constitute a real handicap in the management process [3, 4]. Thus Koundouno [5], finds a frequency of 46.4% with a 7.4% lethality, Dembélé [6], estimates them at 54.5% with a mortality of 5.9% and Assouto [4], reports a frequency of 32%. The diagnosis is generally suggested in the presence of peritoneal irritation syndrome or hemoperitoneum syndrome. but also through data from morphological examinations. The aim of this work was to describe the epidemiological,

clinical and therapeutic aspects of digestive surgical emergencies at Sikasso hospital.

METHODOLOGY

The study was retrospective and descriptive from January 1, 2017 to December 31, 2022. It was carried out in the general surgery department of Sikasso hospital (Mali). The Sikasso region or 3rd administrative region of Mali, occupies the south of the country with an area of 71,790 km2 or 5.8% of the national territory. The population was estimated at 3,242,000 inhabitants. All patients hospitalized in the department during the study period, in whom the diagnosis of a digestive surgical emergency was carried out on the basis of clinical and paraclinical arguments were included in the study. The variables studied were: sociodemographic data (age, gender, sector of activity), clinical characteristics of the types of pathologies (signs and macroscopic aspects of lesions during surgery). Paraclinical data: hemoglobinemia, hematocrit level, organic lesions were objectified by plain abdominal X-ray, abdominal ultrasound and/or abdominal CT scan. The etiologies were indicated as well as the time to intervention. The surgical procedure as well as postoperative morbidity and mortality were studied. Medical treatment consisted of resuscitation with hydro electrolytic intake, antibiotic therapy based on 3rd generation cephalosporins, metronidazole, amino side and analgesia. Laparotomy was generally performed 2 to 6 hours after admission. Data entry was performed using EPI-INFO software version 7.2.3 Fr. To analyze our results, we used the Student test and the chi2 test to compare means. The difference is significant for a threshold less than or equal to 0.05 ($P \leq 0.05$).

RESULTS

We listed 600 clinical records of patients for digestive surgical emergencies. These emergencies represented 44.8% of operated patients and 5.8% of consultations. The mean age was 27.5 years with extremes of 1 year and 75 years and a standard deviation of +/-13.4. The most represented age groups were 20-39 (36.8%), followed by 0-19 (35.7%). There were 420 male subjects (70%) and 180 female subjects (30%).The sex ratio was 2.3 at risk for men. The admission time was less than 30 minutes in 16.7% of patients, it was between 30 minutes and 12 hours in 58.3% and more than 12 hours in 25%. Abdominal pain was the main symptom of the reasons for consultation, i.e. 90%.

The reasons for consultation are summarized in Table 1.

Table 1: Distribution of patients according to reason for consultation

Reason for consultation	**Eff**	**%**
Abdominal pain	**540**	**90.0**
Stopping materials and gases	10	4.3
Groin swelling	9	1.5
Umbilical swelling	19	3.2
Anal pain	22	3.7
Total	600	100.0

Abdominal X-ray without preparation standing frontal was performed in 62% of patients and demonstrated pneumoperitoneum (gas crescent) in 24.3% of patients and 20.8% of cases of fluidair levels. Abdominal ultrasound demonstrated the presence of peritoneal effusion in 36.9%, thickening of the appendicular wall in 34.9%, thickening of the gallbladder wall in 2.5%, and the presence of intussusception in 2.7%. Abdominal CT scan was desirable but not performed due to the inaccessibility of this examination. Blood counts performed in all patients revealed anemia in 23.5% of patients. The most common etiology was acute peritonitis in 37.1% of patients. Table 2 specifies the different etiologies.

Table 2: Distribution of patients according to different etiologies

Etiologies		**Eff**	**%**
Acute appendicitis n: 128	Phlegmonous	55	9.8
	Catarrhal	45	7.5
	Appendiceal abscess	20	3.3
	Gangrene	8	1. 3
Acute peritonitis n: 223	Appendiceal perforation	125	20.8
	Gastric perforation	50	8.3
	Ileal perforation	25	4.1
	Pyo ruptured ovary	13	2.1
	Postoperative peritonitis	10	1.6
Acuteintestinal obstructions n: 141	Sigmoid colon volvulus	30	5
	Stenosing gastric tumors	29	4.8
	Stenosing colonic tumors	29	4.8
	Hernias Inguinal strangulation	18	3

Etiologies		**Eff**	**%**
	Navel strangulated	16	2.6
	White line strangled	3	0.5
	Acute intestinal intussusception	16	2.6
Hemoperitoneum		68	11.3
Hemorrhoidal thrombosis		25	4.1
Acute cholecystitis		15	2.5
Total		600	100

The average time to treatment was between 30 minutes and 12 hours in 480 patients, or 80%. Pre- and post-operative resuscitation was systematic for acute peritonitis, acute intestinal obstruction, and hemoperitoneum based on hydro-electrolytic intake and correction of anemia. This preoperative resuscitation of 2 to 6 hours, patients received on average 1 liter of solution based on physiological serum, 5% glucose serum, and ringer lactate. The placement of a bladder catheter and a nasogastric tube was the rule. In addition, antibiotic therapy combining cephalosporins of 3rd generation, Metronidazole, Gentamycin and analgesic administration. Concerning acute cholecystitis, these patients were operated on in deferred emergency after cooling for 48 to 72 hours with the administration of a total diet protocol, an intake of solute, an ice pack, antibiotic therapy, and analgesics. The approach was mainly median supra and subumbilical in 42.3% of patients, followed by the Mac Burney incision in 21.3% of patients. General anesthesia with orotracheal intubation was the most used in 76.3% and spinal anesthesia in 23.7% of patients. Appendectomy with or without burial was the most performed surgical procedure in 21.3% of patients and hemoperitoneum treatment was conservative in 8.1%. Surgical indications were noted in Table 3. Postoperative treatment consisted of the administration of solution, antibiotic based on Ceftriaxone associated with Metronidazole, Gentamycin and readjusted according to the result of the antibiogram. Added to this was the use of injectable paracetamol 1 gram. The average length of hospitalization was 10 days with extremes of 2 and 29 days. The postoperative course was simple for 558(93%) patients. Postoperative complications were parietal suppuration in 33 (5.5%) patients, digestive fistula in 5 (0.8%) patients, evisceration in 4 (0.6%) patients. The digestive fistulas were low flow requiring local care. Parietal suppuration required local care, and a pus sample for antibiogram. For evisceration it was a revision with closure on a burdonnée. Mortality was 14(2.3%), 5 patients with hemodynamic shock, 6 patients with septic shock, 3 patients with pulmonary embolism.

Table: 3: Distribution of patients according to surgical procedures

Pathologies	**Surgical gestures**	**Eff**	**%**
Acute appendicitis	Appendectomies with or without insertion	128	21.3
Appendicular peritonitis	Appendectomy, lavage and drainage	125	20.8
Gastric perforations	Suture of gastric perforation, and epiploplasty	50	8.3
Ileal perforations	Suture of ileal perforation	19	3.1
	Ileostomy	6	1
Pyo ovaries	Annexectomy	13	2.1
Postoperative peritonitis	Ileostomy	10	1.6
Sigmoid volvulus	Sigmoidectomy colorectal anastomosis	21	3.5
	Colostomies	9	1.5
Gastric tumors stenosing	Gastroentero-anastomosis	29	4.8
Colon tumors stenosing	Anastomosis resection	19	3.1
	Colostomy	10	1.6
Hernias	Hernia treatment	37	6.1
Intussusception acute	Manual deinvagination	9	1.5
	End-to-end anastomosis resection	5	0.8
	Ileostomy	3	0.5
Hemoperitoneum	Conservative treatment	49	8.3
	Splenectomy	19	3.1
Hemorrhoidal thrombosis	Hemorrhoidectomy according to Milligan and Morgan	25	4.1
Acute cholecystitis	Cholecystectomy	15	2.9
Total		600	100

DISCUSSION

Digestive surgical emergencies are pathologies that occupy an important place in surgery due to their high frequency, their difficult management, their high mortality and morbidity rate [7]. The Sikasso region is located in the south of Mali with a mainly rural population. Unfavorable socioeconomic conditions, self-

medication and traditional treatment contribute to delaying adequate management. Our frequency was 44.8%, this high rate is found in the literature, 32% in Assouto [4], 46.4% in Koundouno [5], and 54.5% in Dembélé [6]. The average age of 27.5 years in this study was close to the African series, 22.9 years in Magagi [8], and 33 years in Kambire [9]. These emergencies mainly affect the young active population in disadvantaged environments, making them a real public health problem in Africa [5]. Men were predominantly represented with a sex ratio of 2.3 to the risk of men. The authors corroborate the predominance of male subjects [8-11]. The majority of our patients, 58.3%, had consulted within a period of between 30 minutes and 12 hours compared to 33 hours in Bang [12], and 48 hours in the authors [13, 14]. The signs observed are identical to those in the literature [6-8]. Abdominal pain was the first reason for consultation in patients. This shows that surgical digestive emergencies most often come down to the management of acute abdominal pain, its semiological characteristics allow for diagnostic orientation. The most dominant symptomatology was abdominal pain, 90.0% in this study. This trend was found in the series 88.2% in Gaye [11], and 100% in Padonou [15]. Paraclinical examinations contributed to a diagnostic orientation. Thus, abdominal ultrasound has an important place in the diagnosis of digestive surgical emergencies. It was performed and helped in the diagnosis of 463 patients, i.e. 77%, compared with 54.15% for Gaye [11]. The only imaging examination often available in emergencies in our structures in Africa remains the abdominal X-ray without preparation. This Xray only allows a diagnostic orientation in the event of a digestive surgical emergency. Other examinations such as the scanner can specify the etiology and the nature of the lesion. The abdominal X-ray without preparation standing from the front was performed in 62% of our patients. In this study, the sensitivity of 70% corroborates with that of Touarel [13], which varies from 50% to 70% in the search for pneumoperitoneum. We found a rate of interhepato-diaphragmatic gas crescent of 24.3%. This result is close to those reported by Gaye [11] 38.8% of cases. The etiologies of surgical abdominal emergencies are varied in African series. In our series peritonitis is the first etiology, followed by appendicitis then acute intestinal obstruction and abdominal trauma. Acute peritonitis occupied the first place (37.2%) of digestive surgical emergencies in our practice. This result seems comparable to those of Kambire [9], 37% and Koundouno [5], 34.1%, higher than those of Gaye [11] 25.5% and Dembélé [6] 20.7%. Unlike the study conducted in Morocco [17], where it occupied fourth place in the causes of digestive surgical emergencies with 9.01%. This could be explained by the occurrence in this study of complications of acute appendicitis and typhoid fever. But it could also be linked to patients' recourse to traditional treatment by consuming plant decoction and self-medication by taking nonsteroidal anti-inflammatory drugs. The rate of acute appendicitis in our series was 21.3%, similar to those of the authors Dembélé [6], 20.7% and Bang [12], 20%. Acute appendicitis is considered in Europe as the leading cause of abdominal surgical emergencies [18]. In African literature [19, 20], it occupies third place after acute intestinal obstruction and acute peritonitis. Acute intestinal obstruction ranks second among the etiologies of digestive surgical emergencies in our study. The most common mechanism was intestinal obstruction with 52.4% versus 47.6% of intestinal strangulation in our study sample. This result is similar to those of some authors who found obstruction more common than strangulation: 74% versus 26% for Adloff [21], in 109 cases and 77% versus 23% for Abi F [22], in 100 cases. If in Europe, occlusions by colorectal tumors or by bands predominate according to Roscher [23]. For many African authors Harouna [2], Padonou [15], the strangulated hernia and the volvulus were the most frequent causes of strangulations. Hemoperitoneums affect young male subjects. They are mostly caused by road accidents (ROA), intentional blows and injuries, followed by animal attacks, and the spleen is the most involved organ [8-24]. The Nigerian study by Ahmed in Zaria [3], also found a young population strongly affected by road accidents, but also by the growing phenomenon of firearm attacks. Resuscitation increases patient survival and must be pre-, per- and postoperative. Preoperative resuscitation of 2 to 6 hours consisted of hydro-electrolytic intake, broadspectrum probabilistic antibiotic therapy combining 3rd generation cephalosporin, metronidazole, and gentamicin. A transfusion was given to patients whose hemoglobin level was less than 10g/dl before surgery. The reference surgical technique is the coeliosurgical approach. It has many advantages with better postoperative respiratory tolerance, minimization of parietal complications, reduction of hospitalization time, reduction of pain and early rehabilitation [25]. Unfortunately this approach is not operational in our structure. The vast majority of our patients underwent a median laparotomy (supra and subumbilical), or either the Mac Burney incision, or an Inguinotomy. This attitude is in the same direction as that reported by Ananivi [26], and Attipou [27]. Our morbidity rate was 6.9% compared to 13.8%, 14.9% and 21.69% respectively in the series [6-25]. Surgical site infection was the most common postoperative complication in 33 (5.5%) of patients, which is consistent with literature data of 20.9% [1], and 8.4% [9]. This infection depends on several factors including the patient's clinical condition, the aseptic conditions of the operating room, and the duration of the procedure. The average hospital stay depends on the therapeutic modality and the occurrence of complications. This stay hospitalization was 10 days in our study comparable to those of the authors 8.7 to 9 days [8-6]. We recorded a mortality rate of 2.3% compared to 14.5% reported in Banqui by Doui [3], 13.3% reported in Cameroon by Takongmo [28]. This mortality depends on the time of intervention, the general condition of the patient and associated pathologies. The authors are unanimous that deaths are linked on the one hand to the degree of sepsis

and on the other hand to hypovolemic shock. In the literature the authors agree that age, emergency surgery, associated pathologies, especially cardiovascular, immunosuppression, malnutrition and organ failure are serious factors that can worsen the patient's prognosis [10-14].

CONCLUSION

Digestive surgical emergencies occupy an important place in surgery due to their high frequency and the fact that they concern children and young adults. The etiologies are multiple. Delay in surgical intervention increases the risk of complications and the cost of care.

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