



Research Article

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Surgical abdominal emergencies in disadvantaged area: Epidemiologic and therapeutic aspects.

Josaphat Paluku Katswere¹, Setondji Gilles Roger Attolou¹, Habib N'Domè Natta N'tcha¹, Alexis Mupepe Kumba², Akintola Loukoumanou Liady³, Kambasu Talimula D⁴, Delphin Kuassi Mehinto¹

1. University clinic of visceral surgery " B" at the national university hospital center Hubert Koutoukou Maga of Cotonou, Benin
2. Medical technic's institute of Uvira, Uvira, South Kivu province, Democratic Republic of Congo
3. Department of General Surgery of Savalou - Bantè hospital, Benin
4. Department of public health, Unit of teaching and Research in communal Health and Epidemiology; Faculty of the Health Sciences, Abomey- Calavi University of Cotonou, Benin

Abstract

Introduction: Surgical abdominal emergencies remain a common topic in surgery, especially in under-equipped environments. **Aim:** To study the epidemiological, diagnostic and therapeutic aspects of these emergencies at the Savalou-Bantè Zonal hospital in Benin. Patients and methods: This was a prospective study that involved all patients operated for a surgical abdominal emergency at the Savalou-Bantè area hospital from November 1st, 2016 to August 31, 2017. Data were analyzed with Epi Info software 3.5.4 version. **Results:** Patients operated for an abdominal emergency represented 31.52% of the admissions to the service of emergencies. The sex-ratio was of 1.72. The average consultation time was 5 ± 2.14 days with extremes of 03 hours and 7 days. The abdominal pain was the chief complain with 74.22% admissions. Non-traumatic surgical abdominal emergencies were the most common with 125 cases or 97.66%. Acute appendicitis (58 cases, 45.31%), Acute generalized peritonitis (24 cases, 18.75%) and strangulated hernia (23 cases, 17.97%) were the main etiologies of surgical abdominal emergencies. The diagnosis was clinical in the majority of cases. An imagery examination for diagnostic purposes has been achieved among 34 patients or 26, 56%. The average time for surgical management was 15 hours. The exclusive spinal anesthesia with 85 cases or 66.41% was the more practiced. The approach was laparotomy among all patients. The Antibiotic therapy was probabilistic and systematic. The morbidity was 17.97% (23 cases) dominated by parietal suppurations (15 cases / 23); and mortality of 2.34%. **Conclusion:** Surgical abdominal emergencies are frequent. Their diagnosis is still mainly clinical and their care is burdened with a non negligible morbidity. Improvement of the technical tray would help to reduce postoperative complications.

Keywords: Abdominal emergencies, Appendicitis, Morbidity, Parietal suppuration, Peritonitis.

INTRODUCTION

Surgical abdominal emergencies (SAE) are a common reason for admission to surgical services in Africa. ^[1] They are characterized by a delay of consultation and by important diagnostic and therapeutic difficulties. These difficulties are bound to the precariousness of the clinical state of the patients at the time of the admission, and to the insufficiency or even the unavailability of some lab diagnostic exams and imagery. ^[2-3] They constitute a real public health problem in Africa, because they essentially touch the young and active population. ^[1] In developed countries, a surgical abdominal emergency is taken promptly and adequately allowing a better prognosis. ^[4] The surgical treatment is even more problematic in the peripheral sanitary structures in underprivileged environments. ^[5] The objective of this work was to describe the epidemiological, diagnostic and therapeutic aspects of the surgical abdominal pathologies of emergency operated in the department of general surgery of Savalou - Bantè Zonal hospital of Benin.

PATIENT AND METHOD

It was about a prospective survey going from November 01, 2016 to August 31, 2017 in the general surgery and gynecology and obstetric services of Savalou-Bantè zonal hospital in Benin. It was about the patients operated of a surgical abdominal emergency. The obstetric emergencies have been excluded of our survey. The sampling consisted in an exhaustive recruitment. The treatment and the analysis of the data have been achieved with the help of the software Epi-info version 3.5.4. The surgical activities in the services were led by general surgeons assisted by physicians in general surgery specialization and anesthesia nurses.

*Corresponding author:

Josaphat Paluku Katswere

University clinic of visceral surgery " B" at the national university hospital center Hubert Koutoukou Maga of Cotonou, Benin.

Email:

josaphatpalkat[at]gmail.com

RESULTS

Epidemiological aspects

During the period of survey, 406 patients have been admitted for surgical emergencies and 128 patients thus 31.52% have been operated for surgical abdominal emergencies. The middle age of the patients operated for a surgical abdominal emergency was of 30±10.66 years with extremes of 3 years and 80 years. We counted 81 male patients and 47 female patients thus a sex-ratio of 1.72.

Diagnostic aspects

Admission mode

Seventy-one patients (55.47%) came by themselves, 55 patients (42.97%) were referred and 2 patients (1.56%) were transferred from another department of the hospital.

Admission Motives

Chief complains for admission were as follows: abdominal pain for 95 patients (74.22%), Inguino-scrotal pain for 20 patients (15.63%), absence of gaz and faeces for 6 patients (4.69%), fever for 4 patients (3.12%) and vomiting for 3 patients (2.34%).

Consultation delay

The average consultation delay of patients was of 5±2.14 days with extremes of 3 hours and 7 days. 106 patients thus 82.81% had consulted beyond the 72nd hour and 22 patients thus 17.19% before the 72nd hour.

Paraclinical aspects

For the diagnosis of the surgical abdominal emergencies, 34 patients (26.56%) had received an imagery exam. It was about an upright X-ray of the abdomen for 27 patients (21.09%) and abdominal ultrasound for 7 patients (5.47%).

At the end of the clinical and paraclinical exam, it was about 125 cases (97.66%) of non traumatic surgical abdominal emergencies and 3 cases (2.34%) of traumatic surgical abdominal emergencies. The digestive surgical abdominal emergencies with 110 cases represented 85.94% of the surgical abdominal emergencies and 88% of the non traumatic surgical abdominal emergencies (**Table 1**).

Therapeutic aspects

All operated patients had benefitted from a resuscitation preoperatively, perioperatively and postoperatively. A systematic probabilistic parenteral antibiotic therapy perioperatively was installed alongside the resuscitation among all patients. The average delay for surgery was 15 hours. One hundred and fifteen (115) patients thus 89.84% have been operated in the first 24 hours. The types of anesthesia performed among patients are as follows: exclusive spinal anesthesia for 85 patients (66.40%), spinal anesthesia completed by sedation for 10 patients (7.80%), spinal anesthesia secondarily converted into general anesthesia for 2 patients (1.55%) and general anesthesia for 31 patients (24.25%). All patients have been operated by laparotomy. The operative acts have been achieved according to the etiology (**Table 2**).

Post operative evolution

In post operative, 23 patients (17.97%) had complications. They were dominated by the infectious complications and were distributed as follows: parietal suppuration (15 cases /23), anemia (4 cases /23), post

operative peritonitis (3 cases /23) and enterocutaneous fistula (1 case /23). The post-operative mortality was 2.34% (3 patients). The average duration of hospitalization was 7± 5.88 days with extremes of 3 days and 56 days.

Table 1: Distribution of the patients according to the surgical abdominal emergencies etiologies

SAE etiologies	Frequency	Percentage
NON TRAUMATIC SAE		
Acute appendicitis	58	45,31
Acute peritonitis generalized	24	18,75
Appendicular	14	10,94
By ilium perforation	8	6,25
By gastric or duodenal perforation	2	1,56
Strangled hernias	23	17,97
Inguinal	12	9,37
Inguino-scrotal	5	3,90
Linea alba	3	2,34
Umbilical	2	1,56
strangled disembowelment	1	0,80
Broken extrauterine pregnancies	11	8,59
Acute intestinal obstruction	4	3,12
Intestinal invaginations	3	2,34
Inflammatory bridles	1	0,80
Torsion and rupture of ovarian cysts	4	3,12
Enteromesenteric infarction	1	0,80
Under total	125	97,66
TRAUMATIC SAE		
Splenic fractures by APV	3	2,34
General Total	128	100

APV= Accident on the public way SAE= Surgical Abdominal Emergencies

DISCUSSION

Surgical abdominal emergencies occupy an important part of the admissions to the emergencies with a frequency that varies according to the authors. [2, 5] In our survey the frequency of the surgical abdominal emergencies was of 31.52%. This frequency is beyond 15% and 25.6% returned respectively by Gbessi et al. in 2016 in Benin [2] and Harouna et al. in 2001 in Niger. [5] The digestive surgical abdominal emergencies with 88% dominated the surgical abdominal emergencies in our set. These same results had been returned by Chaibou et al. in Niger at 2014 with a frequency of 85.3%. [6] The surgical abdominal emergencies concerned mostly the young adult of the third decade of masculine sex. These same observations had been reported by many authors. [1-2, 5, 7-8]

In our series, 55.47% had come themselves and 42.97% were referred from a peripheral structure. These results translate the awareness of the population to the first resort to the quality medical care by consulting in a qualified structure. However, they go in opposition to the reference standards, which would require that patients admitted to referral hospitals, are mostly by reference, because seen initially by the peripheral structures. [9]

Table 2: Distribution of operative acts according to etiological diagnoses

Etiological diagnoses	Number of cases	Operative acts	Number of cases
Acute Appendicitis	58	Appendicectomy	58
Acute peritonitis generalized	24	Appendicectomy, washing, drainage	14
		Excision, ileal suture, washing, drainage	6
		Resection- ileal anastomosis, washing, drainage	2
		gastric Suturing , washing, drainage	2
Strangulated Hernias	23	Kelotomy + cure by raffia	23
Broken extra uterine pregnancies	11	Salpingectomy + washing, drainage	11
Acute intestinal obstruction	4	Bridles Section	1
		Résection- anastomosis	2
		Intussusception reduction	1
Torsion and rupture of ovarian cysts	4	Ovariectomy	4
Enteromesenteric infarction	1	Intestine resection	1
Splenic fractures	3	Splenectomy	3
Total	128		128

The abdominal pain with 74.22% was the main symptom that led patients to consult in emergency. Indeed the pain is a nociceptive unpleasant sensation for which the patients seek immediate treatment to relieve themselves. [10-11]

The average delay of admission for patients after the beginning of the symptoms was of 5 days and 82, 81% of the patients consulted beyond the 72nd hour. These results translate the delay of consultation characteristic of the African population especially in rural environment due to the fact that most turn to traditional treatment, the self-medication, the non availability of a health insurance for all and the lack of financial means. [8, 12]

For the diagnosis of the surgical abdominal emergencies, in addition to the clinical examination that led to the diagnosis at, 26.60 % had achieved an imagery exam with the upright X-ray of the abdomen with 21, 1% and the abdominal scan 5.5%. This weak rate of realization of the imagery exams is first and for most explained by the importance granted to the clinical exam in the diagnosis of these abdominal emergencies, by the non availability of these imagery exams in emergency and the lack of the financial means. Yet these exams of imagery especially the abdominal ultrasound and the abdominal scan are fundamental and vital in the diagnosis of the abdominal emergencies. [11, 13] In our survey, the non traumatic surgical abdominal emergencies represented 97.66% against 2.34% for the traumatic surgical abdominal emergencies. The same report had been made by Kassegne et al. in Togo in 2015, [3] Gbessi et al. at Comè in Benin [5] and Chaibou et al. in Niger at 2014, [6] with respectively the rate of 95% and 96% and 88% of non traumatic surgical abdominal emergencies. The acute appendicitis with 45.31% consistent with generalized acute peritonitis and strangulated hernias with respectively 19%, 18% were the main non- traumatic surgical abdominal emergencies. All as in our set, the acute appendicitis were the first reason of the non- traumatic surgical abdominal emergencies in the other African countries with the percentage of 31.95%, 36.26% and 65.90% respectively. [5, 7, 8] This frequency of the acute appendicitis is distinctly superior to the one found by Etienne et al. [10] (32%), Gaudeuille and al. [14] (32.4%), Koumaré et al. [15] (11.2%). In other studies the acute generalized peritonitis occupied the first place on the other hand. [6, 16-17] All patients in our set had benefitted from an antibioprohylaxis peroperatively that has been pursued in post operative. This antibioprohylaxis was probabilistic using the association of

amoxicilline clavulanic acidic (or the ceftriaxone) and metronidazole. It is there about an attitude encouraged by many authors of which Kassegne et al., [3, 4] Attipou et al., [7] Rasamoelina et al. [18] and Mariette et al., [19] in order to considerably reduce the risks of post-operative infectious complications. However, it is important to do some research in order to determine the intra hospital bacterial ecology to adapt the antibiotic prophylaxis to every type of intervention in order to significantly reduce the bacterial antibiotics resistance.

The average delay of surgery in our patients was of 15 hours and 89.84% have been operated in the first 24 hours.

This delay in surgical treatment of 15 hours comes closer of 18 hours of Gbessi et al. [5] and is beyond 8 hours and 9 hours returned by Sima Zué et al. at Libreville [20] and of Chaibou et al. at Niger. [6] This delay is due to the absence of health insurance, the low socioeconomic level of the patients and the non-existence of an emergency kit for patients; [1, 8] as well as the fact that the operating room is used by the department of gynecology-obstetric and general surgery simultaneously. [5, 18]

The spinal anesthesia with 66.41%, was the most popular type of anesthesia used in the surgical treatment of surgical abdominal emergencies in our set. On the other hand, in the sets returned by Chaibou et al. [6] at the national hospital of Niamey in 2014 and Ibrahim et al. [17] to the academic hospital center Aristide the Dantec in Senegal in 2016, the general anesthesia with 90, 4% and 95.6% respectively, was the most rampant and popular anesthesia practiced. This strong predominance of the spinal anesthesia in our survey can be explained by the fact that the anesthesia is practiced solely by anesthetist nurses because of the non-availability of the physicians' anesthetist. It is there about an attitude to correct because the spinal anesthesia, contrary to the general anesthesia does not allow a good relaxation of the patient making the interventions on the abdominal viscera difficult.

The morbidity in our survey was of 17.97%. It was dominated by the infectious complications (18 cases out of 23); notably the parietal suppuration with 15 cases out of 18. This morbidity is less than 31% and 33% reported respectively by Kassegne et al. and Attipou et al. [3, 7] This difference could be due to the fact that in their samples, contrary to ours where the acute appendicitis was the most frequent etiology of the abdominal surgical emergencies, the generalized acute peritonitis dominated their sets. However the generalized acute

peritonitis is known to be the more notable infectious post-operative complications. [1, 8, 13] Yet, like our set, other African studies returned the predominance of the infectious complications dominated by the parietal suppurations. [3, 7, 16, 21] A non-negligible part of these infectious complications could be bound to the defect of rigorous asepsis in our workplace. A global mortality of 2.34% was driven by the acute generalized peritonitis. This death rate remains below those reported by Harouna et al. at Niger (14.8%), [2] Kassegne et al. at Togo (11.4 % and 21.8%), [3-4] Gbessi et al. in Benin (7%) [5] and Rasamoelina et al. at Madagascar (37.5%). [18] In spite of progress achieved in the domain of the resuscitation and surgery, the abdominal surgical emergencies are burdened again with heavy mortality. The reasons of these deaths returned in the African sets stay essentially the septic shock, the hypovolemic shock and the MODS (Multiple Organ Dysfunction Syndrome); this is explained by the explanation in the delay and the insufficiency of resuscitation. [9, 12, 22]

CONCLUSION

The abdominal surgical emergencies occupied a non negligible part of the surgical emergencies in the department of general surgery in Savalou-Bantè zonal hospital. This essentially involved young male patients. The etiologies were multiple and dominated by acute appendicitis. Their diagnosis was essentially clinical and the delay in treatment is due to several factors of which the low socioeconomic level of the patients and of the underequipped technical environment. The latter is burdened with a non-negligible post-operative morbid mortality. To improve the prompt treatment of the surgical abdominal emergencies, it is important to facilitate the access to quality care for patients.

Conflicts of interests: All authors do not claim any conflict of interests.

Author's contribution

Josaphat PALUKU KATSWERE and Akintola Loukoumanou LIADY: acquisition of data, drafting the article, substantial contribution to conception and design,
Habib N'Domè NATTA N'TCHA, Setondji Gilles Roger ATTOLOU, Alexis MUPEPE KUMBA, Demaison KAMBASU T.: Revising it critically for important intellectual content
Delphin Kuassi MEHINTO: final approval of the version to be published

Contributions to the study

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