



Research Article

JMR 2019; 5(5): 227-230
November- December
ISSN: 2395-7565
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www.medicinarticle.com
Received: 09-11-2019
Accepted: 16-12-2019

Surgical emergencies of the gastrointestinal tract at the Mbaïki District Hospital in the Central African Republic

Issa Mapouka PA¹, Dibert-Bekoy-Nouganga E², N'doma Ngatchoukpo V³, Doui Doumgba A⁴

1 Surgical Emergencies Department, Bangui Community University Hospital Centre, BP-1379, Bangui, Central African Republic

2 M'baiki District University Hospital, Mbaiki, Central African Republic

3 Department of Pediatric Surgery, Bangui Pediatric University Hospital Centre, Bangui, Central African Republic

4 Department of General and Digestive Surgery, University Hospital Centre of the Friendship of Bangui, Bangui, Central African Republic

Abstract

Objective: To describe the epidemiological, etiological, therapeutic and evolutionary aspects of digestive surgical emergencies in rural areas. **Patients and Methods:** This is a descriptive prospective study of digestive surgical emergencies treated over a 9-month period (August 2011 to May 2012) at the M'baiki District Hospital. **Results:** Digestive surgical emergencies accounted for 32.2% of surgical emergencies; the average age of patients was 39.1 years with a male predominance (87.5%); farmers were involved in 64.6% of cases. The most commonly used means of transport were motorcycle taxis (48%). The average time to get a consult was 7.3 hours. Strangulated inguinal hernia dominated with 73% of cases. In pre-hospital settings, 81.3% of patients had self-medicated or been treated by a traditional healer. The average operating time was 2.1 hours. Patients were operated under general and local anaesthesia in 47.9% and 45.8% of cases. Ileal necrosis (75%) dominated the lesions found. Simple kelotomy and resection-anastomosis (45.8% each), 27.1% of which were associated with kelotomy, were the main surgical procedures performed. Antibiotic therapy was used for all patients. The morbidity and mortality rate was 45.8% and 14.6%. The average hospitalization period was 9 days. **Conclusion:** Digestive surgical emergencies in rural areas are dominated by the strangulated inguinal hernia. Delayed hospital visits, lack of adequate facilities and staff shortage result in high morbidity and mortality.

Keywords: Digestive emergencies, Rural area, Surgery, Evolution.

INTRODUCTION

Digestive surgery emergencies are an important part of the emergency department's activities. Prerogative of all ages, the acute surgical abdomen is of several etiologies and still poses a problem of management especially in Third World hospitals [1]. The under-equipment of the healthcare facilities and the glaring absence of qualified personnel constitute a real handicap in the approach of the digestive surgery [2]. Surgical treatment is even more problematic in peripheral healthcare facilities in less privileged areas [3]. The purpose of this study was to describe the epidemiological, diagnostic, therapeutic and evolutionary aspects of digestive surgical emergencies in a rural district hospital.

PATIENTS AND METHODS

This is a prospective descriptive study conducted at the M'baiki District Hospital; city of a population of 214,137 inhabitants, located 107 km southwest of Bangui. It focused on gastrointestinal surgical emergencies treated from August 1st, 2011 to May 31st, 2012. The study was conducted during surgical consultations, from the operating room logbook and hospitalization records. A survey sheet was developed for data collection. The studied parameters were: age, sex, occupation, origin, means of transport, consultation time, diagnosis, prehospital treatment, operating time, treatment and evolution.

Included were patients of both sexes and all ages presenting with a gastrointestinal surgical emergency. Patients with non-urgent conditions were excluded. Data was captured and analyzed using Epi Info 2008 software.

***Corresponding author:**

Dr. Issa Mapouka Pierre Alfred

Surgical Department, Emergencies
Bangui
Community University Hospital
Centre, BP-1379, Bangui,
Central African Republic
Tel: 00236-7504302/72194323
Email: issamapouka[at]yahoo.fr

RESULT

During the study, 149 patients were admitted for a surgical emergency including 48 patients for a gastrointestinal surgical emergency, which represents 32.2% of cases. The average age of patients was 39.1 years (range, 15 to 65 years). Socio-professional characteristics and means of transport are presented in Tables 1 and 2. The average time to get a consult was 7.3 hours (range, 1 hour to 72 hours). Strangulated inguinal hernia had predominated with 73% (n = 35) of which 37.1% (n = 13) with intestinal obstruction syndrome; then came the other bowel occlusions with 14.6% of cases (n = 7), generalized acute peritonitis (10.4%) (n = 5) and one case of acute appendicitis (2%). Paraclinical examinations were blood group / Rhesus factor in 34 cases (70.8%), hematocrit level in 33 cases (68.7%) and hemoglobin level in 2 cases (4.2%) The average operating time was 2.1 hours (range 1 hour and 18 hours). Before admission, 39 patients (81.3%) had self-medicated. Preoperatively, 32 patients (66.6%) were resuscitated. peroperative, 7 patients (14.6%) were transfused with whole blood. Twenty-three patients (47.9%) were operated under general anesthesia, 22 (45.8%) under local anesthesia and 3 (6.3%) under mixed anesthesia. The intraoperative diagnosis was 35 cases of strangulated hernia 73%, 4 cases of generalized peritonitis (8.3%) probably typhoid, 3 cases (6.2%) respectively of small bowel obstruction with volvulus and with flanges and 1 case (2 , 1%) of respectively pelvic colon volvulus, primitive peritonitis and gangrenous appendicitis. Twenty-four cases of the lesions (50%) were found intraoperatively, including 18 cases (75%) of ileal necrosis, 4 cases (16,6%) of ileal perforation and a respective case of colon necrosis and gangrenous appendix. The procedures performed are shown in Table. Postoperative resuscitation was performed in 36 patients (75%), antibiotic therapy consisted of monoantibiotherapy in 23 patients (47.9%), biantibiotherapy in 5 patients (10.4%) and triantibiotherapy in 20 patients (41%). Operative follow-up was complicated in 22 patients (45.8%) consisting of 10 cases of parietal suppuration (45.4%), 3 cases (13.6%) respectively of septicemia and hypovolemic shock and 2 cases (9.1%) of gastrointestinal fistula, anemia and undernutrition. The mortality rate was 14.6% (n = 7). The causes were 3 cases of septic shock, 2 cases of hypovolemic shock, 1 case of malnutrition and anemia respectively. The average hospital stay was 9 days with extremes of 1 day and 21 days.

DISCUSSION

Gastrointestinal surgical emergencies accounted for 32.2% of surgical emergencies during the period of our study. In a previous study by Gaudeuille et al [4] in another city of the country, this frequency was 36.6% while in the series of Harissou et al [5], it was 22%. This explains the similarity of emergencies in some regions of our country but also their variation from one country to another. The average age of patients was 39.1 years with a male predominance (sex ratio: 7). This average age is higher than the series of Harissou [5] and Assouto et al [2] who found respectively 23 years and 30 years and a sex ratio of 3/1 and 1.6 in favor of men. In rural areas, adult subjects, especially men, are the most active. Farmers were the majority in our study with 64.6% of cases. Agriculture is the main income generating activity of farmers; which requires intense physical efforts, in conditions of life and precarious hygiene. All patients came from the M'baïki district, 12.5% of whom were from the city and 85.5% from the villages, and the most popular means of transport were motorcycle taxis (48%) followed by non-medically equipped ambulances (16%). 6%) and private vehicles (12.5%). In the Harissou [1] series, 59% of patients were transported by non-medically equipped ambulances and 41% by improvised vehicles (public transport, wagons, and motorcycles). In our country, motorcycle taxis have been used as the first means of transport in both urban and rural areas and constitute a faster means of transport compared with four-wheeled vehicles in rural areas; considering our roads being very degraded. Added to this is the problem of the financial contribution of the families of patients to the payment of fuel for the ambulances. Delayed consultation was 7.3 hours; it varied from 1 hour and 20 days in certain series [1, 6, 7-9].

Table 1: Epidemiological characteristics

Items	Effectif	Percentage
Age group (years)		
15-24	7	14,6
25-34	7	14,6
35-44	13	27,1
45-54	15	31,2
55-56	5	10,4
60 and above	1	2,1
Total	48	100
Sex		
Male	42	87,5
Female	6	12,5
Total	48	100
Profession		
Farmer	31	64,6
Student	4	8,3
Unemployed	4	8,3
Worker	3	6,2
Trader	2	6,2
Housewife	2	4,2
Public servant	1	4,2
Traditional healer	1	2,1
Total	48	100
Provenance		
M'baïki and about	6	12,5
Village	42	87,5
Total	48	100

Table 2: Distribution of means of transport

Means of transport	Number	Percentage
Motorcycle-taxis	23	48
Ambulance	8	16,6
Private vehicle	6	12,5
Public transport vehicle	4	8,3
Goods vehicle	3	6,2
Feet	2	4,2
Bicycle	1	2,1
Cart	1	2,1
Total	48	100

Nevertheless, this timeframe seems long to us because patients take time to self-medicate, try traditional treatments and only go in for consult after failure of the above. Strangulated hernia was the first gastrointestinal emergency observed in our study with 73% of cases. This rate is similar to that of the Gaudeuille series [4] which had also found 73%; on the other hand, in the Harissou series [10], acute peritonitis dominated with 38.3% of cases. The cultivators being the majority in our series, exerting intense efforts, justifies the

predominance of this condition. In our series, the workup done was the blood group / Rhesus factor (70,8%), the hematocrit levels (68.7%) and hemoglobin levels(4.2%) as preoperative workup while in the series of many authors [11-13, 5, 14], imaging tests including ultrasound and abdominal x-ray more than half of the patients, and biological examinations such as FBC, hematocrit and hemoglobin, urea, serum creatinine, blood glucose were 75% to 100% patients. In our healthcare facilities in the inner country, the absence or insufficiency of the means for additional workups, the recurrent lack of reactants and a poorly qualified staff, justify the insufficiency of the complementary assessment carried out. We noted that 81.3% of patients had self-medicated before admission. This practice was reported in the series of some authors [1, 5, 15]. In our country in general and in the rural world in particular, in case of abdominal pain, patients try to treat themselves with "street drugs" or traditional medicines or confide in traditional healers and consult the healthcare facilities only in case of failure of the above. The average operating time was 2.1 hours in our series. This delay varies from 6 hours to 5 days in other series [1,16,17]. This could be justified in our context by the fact that when patients decided to consult the healthcare facility after the failure of self-medication or traditional treatment, they were forced to sell part of their crops or small livestock to raise the financial means to meet hospital costs. Preoperative resuscitation was performed in 66.6% of patients consisting of crystalloids fluid therapy in amounts ranging from 1.5 to 2 liters. Rasamoelina[17] reported the same experience in her series in which 66.6% of patients received less than one liter of crystalloids while in most authors' series[7, 8, 18-20] all patients received effective per operative resuscitation. This insufficient resuscitation is explained by the insufficient financial means of the patients or the family to pay for all the consumables prescribed. 47.9% of our patients were operated under general anesthesia, 45.8% under local anesthesia in 45.8% of cases and 6.3% under mixed anesthesia. In contrast, in the series of Faik et al[21] and Lebeau[7], patients were operated on with local anesthesia in 52.1% of cases and under general anesthesia in 89% of cases respectively. The inadequacy of the anesthetic setting, the incomplete minimal paraclinical check-up and insufficient preoperative resuscitation justified the choice of the type of anesthesia; general anesthesia was reserved for midline laparotomies and cases of strangulated hernia requiring intestinal resection and local anesthesia for other patients who required a simple cure of the hernia. In the Faik series[21] local anesthesia was converted to general anesthesia in 5 patients, 3 of whom were reluctant and 2 were obese. Only 14.6% of patients were transfused intraoperatively with family member's donations and this is justified by the reluctance of the escort to donate blood. The etiologies of bowel obstructions apart from the 13 cases of intestinal obstruction syndrome by strangulated hernia were 3 cases of small bowel obstruction with volvulus and with flanges respectively and 1 case of pelvic colon volvulus and for peritonitis, it was 4 cases of peritonitis secondary to perforation and 1 case of primitive peritonitis; the appendicitis was at the gangrene stage. Small bowel necrosis predominated in intraoperative lesions with 75% of cases. In some African studies, this rate varies from 7% to 37%[1, 5, 7, 8]. The degree of strangulation and delay to get a consult are the main causes of this complication. The surgical procedures performed were a simple kelotomy in 45.8% of cases, an ileal terminal resection-anastomosis followed by a kelotomy in 27.1% of cases, a resection-anastomosis of the small bowel and colon the same operating time in 18.7% and 2.1% of cases respectively, a section of flanges and an adhesiolysis in 2.1% of cases each and an appendectomy (2.1%). All cases of laparotomy were washed peritoneally with 500 ml to 1 litre of saline followed by drainage and in cases of ileal resection-anastomosis of strangulated hernias, no stoma was performed. These surgical procedures associated with the stoma are classic in gastrointestinal surgery [5,2,7,18,22]. Bowel resection-anastomosis at the same time in all our patients is justified by the lack of stoma bags, hence the risk taken by the operators. Antibiotic therapy was initiated for all patients peroperatively and continued postoperatively for 4 to 5 days as monotherapy with betalactamine in cases of simple hernia repair and

appendectomy and bi or triantibiotherapy combining betalactamine and imidazole or betalactamine, imidazole and aminoside for a duration of 7 to 10 days for betalactamine, 3 to 5 days for imidazole and 7 days for aminoside. In the Lebeau series[7] 46.30% of patients received antibiotic prophylaxis, while 53.70% of patients received antibiotic therapy for a period of 5 to 10 days. On the other hand, for several authors[5,17- 20] biantibiotherapy was instituted in pre, per and postoperative settings, and in our context the setting did not allow us to limit ourselves to antibiotic prophylaxis in certain cases. The postoperative outcomes were complicated in 45.8% of cases dominated by parietal suppuration (45.4%). This complication was found in most studies in proportions ranging from 2.2% to 79% of cases[1.5, 7, 8, 21, 22]. Washing the peritoneal cavity with insufficient saline and irregular antibiotic therapy are the causes of the high rate of this complication in our series. We recorded a mortality rate of 14.6%, which is higher than the series of Dieng[8], Harissou[5] and Assouto[2], which had recovered 0.4%, 11.70% and 13% respectively. The causes were 3 cases of septic shock, 2 cases of hypovolemic shock and 1 case of undernutrition and anaemia respectively. These causes were found in the Razamoelina series[17] in 33.3% and 37% of cases. The average length of hospitalization was 9 days; similar to that of the Harissou series[5]. Our series being dominated by strangled hernias, of which surgical procedure was simple kelotomy in almost half of the cases and of which patients left on the 7th postoperative day, explains this relative short duration of hospitalization.

CONCLUSION

Gastrointestinal surgical emergencies are common in rural areas, dominated by strangulated hernias. They pose a problem of delayed consultation influenced by self-medication and traditional treatment on the one hand and rapid and effective hospital care on the other. Poverty and cultural beliefs worsen these factors. Supplying healthcare facilities with equipment and qualified personnel, improving the socio-economic status of the population, could reduce morbidity and mortality.

Conflict of Interest

The authors have declared no conflict of interest. They have approved the final version of the manuscript contributing equally.

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