

Review Of Activities In Non-Traumatic Digestive Surgical Emergencies At The Brazzaville University Hospital Centre

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Abstract :

The aim of this study was to contribute of improving the management of non-traumatic digestive surgical emergencies at the Brazzaville University Hospital.

Patients and method : This was a descriptive study with prospective data collection from ¹January 2022 to 31 December 2022. The epidemiological, diagnostic, therapeutic and prognostic aspects of 458 patients operated on for non-traumatic digestive tract surgical emergencies were collated and analysed.

Results: The hospital frequency was 9.8% of all surgical emergencies. The average age of patients was 40 ± 11.7 years. The age group most affected was 28 to 37 years. Patients were predominantly male, with a sex ratio of 1.3. The average consultation time was 72 hours. Peritonitis was the most frequent aetiology, with appendicitis in the foreground. All patients underwent exploratory laparotomy, 98.2% of which was open. The most common procedure was appendectomy. The average hospital stay was 5 days. Morbidity was around 15%, dominated by parietal suppuration.

Conclusion : Non-traumatic gastrointestinal surgical emergencies represent an important diagnostic entity in our context and affect young adults; their aetiology is dominated by secondary acute generalised peritonitis.

Keywords : surgical emergencies, acute abdomen, non-traumatic, Brazzaville

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I. Introduction :

Abdominal surgical emergencies reflect an acute pathological or traumatic abdominal process that compromises one or more vital functions in very short term, thereby justifying a diagnostic assessment and rapid surgical treatment [1]. They are dominated by acute non-traumatic abdominal conditions, which represent the leading cause of emergency surgical indications in all regions of the world [2]. They can be life-threatening in the short term if treatment is delayed [3]. In the medical and surgical emergency department of the Brazzaville University Hospital, there is little data on the management of non-traumatic digestive surgical emergencies. We therefore decided to lead this study with the aim of improving the management of non-traumatic digestive surgical emergencies.

II. Patients And Methods:

This was a descriptive study with prospective data collection covering a period of twelve (12) months, from 1 January 2022 to 31 December 2022.

The study population consisted of patients admitted to and operated on in the surgical emergency department of the Brazzaville University Hospital Center for an acute non-traumatic digestive abdomen. We did not include records of patients who had not undergone surgery or who had died on admission.

The variables studied were :

- Epidemiological: frequency, age, sex, profession, origin and aetiologies.
- Clinical: Consultation time (time elapsed between the onset of symptoms and admission to the surgical emergency department). Functional signs (subjective signs reported by the patient and/or those around him, i.e. abdominal pain, vomiting, intestinal transit disorders such as cessation of bowel movements and/or gas), General signs (clinical manifestations indicating an impairment of the general condition: fever or hypothermia,

clinical anaemia, weight loss, physical asthenia, anorexia, haemodynamic state, state of consciousness), Physical signs (clinical elements reported by the medical or paramedical team during the physical examination of patients: peritoneal irritation syndrome, occlusive syndrome, appendicular syndrome, painful swelling in the natural orifices and/or areas of weakness in the abdominal wall.

- Biological: these were the results of additional tests carried out on blood samples: haemogram, creatinine clearance, blood urea, blood ionogram.
- Radiological: these were the results of radiological examinations: abdominal computed tomography (CT), standard unprepared abdominal X-ray (UPX) coupled with chest X-ray, abdominal ultrasound.
- Therapeutic: these were actions related to medical treatment (means implemented to prepare the patient before surgery) and surgical treatment (surgical means and gestures used during the management of patients admitted for a non-traumatic digestive surgical emergency).
- Prognosis: we assessed the average length of hospital stay, morbidity by classifying the post-operative course into two types: simple (characterised by regression of signs and healing in the first instance), complicated (characterised by secondary healing after intervention by nursing staff, parietal suppuration); in hospital mortality.

The data was recorded on a pre-established survey form and analysed using Excel 2016 software.

III. Results

Frequency

During the study period, 4633 patients were admitted to the surgical emergency unit, 458 of whom were operated on for non-traumatic digestive surgical emergencies, representing 9.8% of all surgical emergencies.

Age and sex

The average age of the patients was 40 ± 11.7 years, with extremes of 17 and 90 years. The most common age group was 28 to 37 years, with 148 patients (32.31%) (Table I).

Table I: Breakdown of patients by age

Age groups	Workforce	%
17 - 27 years old	77	16,81
28 - 37 years old	148	32,31
38 - 47 years old	89	19,43
48 -57 years	64	13,97
58 - 67 years old	39	8,52
68 - 77 years old	27	5,90
78 and over	14	3,06
Total	458	100

There were 260 male patients and 198 female patients, giving a sex ratio of 1.3.

Clinical aspects

The average consultation time was 72 hours, with extremes ranging from 2 to 720 hours (01 month). 198 patients (43.2%) had a low socio-economic status.

Among the functional signs, abdominal pain was found in all patients (100%). It was followed by nausea or vomiting in 116 cases (25.3%), cessation of bowel movements and gas in 84 cases (18.3%), painful swelling of the abdominal wall in 64 cases (13.9%) and diarrhoea in 8 cases (1.7%).

72 patients (15.7%) had a co-morbidity. These included heart disease in 42 patients, diabetes in 11 patients, renal failure in 9 patients, human immunodeficiency virus (HIV) infection in 6 patients, and sickle cell disease in 4 patients.

Fever was present in 306 patients (66.8%). General condition was altered in 91 patients (19.86%). 45 patients (9.8%) were in shock. Thirty-seven patients (8%) had poor hydration status, 29 patients (6.33%) had haemodynamic instability and 27 patients had poor nutritional status.

The physical examination revealed peritoneal irritation syndrome in 244 patients (53.3%), occlusive syndrome in 84 patients (18.4%), Blumberg's sign in 66 patients (14.4%) and painful abdominal wall swelling in 64 patients (13.9%).

Paraclinical aspects

Biologically (Table 2), all patients had a haemogram. Serum nitrogen, creatinine and blood ionograms were performed in 217 patients. Hyperleukocytosis, predominantly granulocytic, was found in 166 patients, and functional renal failure in 51 patients. Hyponatraemia and hypokalaemia were found in 56.2% and 51.1% respectively.

Table II: Breakdown of patients by biological work-up

Biological tests	Lower values	Normal values	Higher values	Averages
Leukocytes	34	98	326	11665 ± 2687
Haemoglobin	97	340	21	11,2 ± 3,7
Inserts	42	405	11	305817 ± 84520
Creatinine	-	157	60	13,7 ± 4,2
Urea	-	157	60	0,33 ± 0,15
Na+ and	122	82	13	
Cl-	96	111	10	
K+	111	98	8	

The radiological investigations performed were PSA, abdominal ultrasound and abdomino-pelvic CT, in 304 patients, 54 patients and 9 patients respectively. The APS revealed pneumoperitoneum (Figure 1) in 140 patients, hydroaerosal levels (Figure 2) in 84 patients and diffuse greying in 80 patients.

Diagnostic aspects

The various diagnoses (table 3) were represented in decreasing order of frequency by peritonitis (53.2%), acute intestinal obstruction (17.9%), strangulated hernia and eventration (14.9%) and acute uncomplicated appendicitis (14%).



Figure 1: X-ray image showing pneumoperitoneum



Figure 2: X-ray image showing water-aerated levels

Table III: Breakdown of patients by diagnosis

Diagnostics	Causes	Workforce	%	
Peritonitis	Appendicular	100	21,9	53,2
	Perforation of UGD	94	20,6	
	Ileal perforation	32	6,8	
	Colonic perforation	12	2,6	
	Primitives	3	0,7	
	Ruptured liver abscess	2	0,4	
	Pycholecyst	1	0,2	
OIA	Flange	48	10,5	17,9
	Tumour	21	4,6	
	Volvulus	11	2,4	
	Acute intestinal invagination	2	0,4	
Uncomplicated appendicitis		64		14
Strangulated hernia		59		12,9
Strangulated ventricle		9		2
Total		458		100

Medical treatment

The treatment included pre-, intra- and post-operative resuscitation and a combination of antibiotics and analgesics. All patients received dual antibiotic therapy with a 3rd generation cephalosporin and an imidazole. Injectable paracetamol was used in combination with injectable nefopam or injectable tramadol. Anti-ulcer treatment with injectable omeprazole was used in 25 cases.

Surgical treatment

After preoperative resuscitation, all patients underwent surgical exploration. The open approach was used in 450 patients (98.2%) and the laparoscopic approach in eight patients (1.7%).

Surgical investigations revealed: For acute generalised peritonitis, the aetiologies were dominated by complicated appendicitis in 100 cases (21.83%), peptic ulcer perforation in 94 cases (20.52%) and ileal perforation in 32 cases (6.9%). In the case of acute intestinal occlusions, bridges were in first place with 48 cases, i.e. 10.48%, followed by intestinal tumours and volvulus with 21 cases (4.5%) and 11 cases (2.4%) respectively. In strangulated hernias and eventrations, the contents of the sacs were intestinal loops in 42 cases (9.1%), 17 of which were necrotic (3.71%). In the group of acute uncomplicated appendicitis, phlegmonous appendices, abscessed appendices and catarrhal appendices were the most frequent, with 28 cases (6.1%), 14 cases (3%) and 13 cases (2.8%) respectively.

Surgical attitudes depended on the preoperative findings (table 4). Appendectomy was the most common surgical procedure (35.8%), followed by gastro-duodenal excision and suture (20.5%), stoma after intestinal resection and hernia repair.

Table IV: Breakdown of patients by surgical procedure

Gestures	Workforce	%
Appendectomy	164	35,08
Excision suture	94	20,52
Stoma	71	15,50
Hernia repair	59	12,88
Flange section	34	7,42
Anastomosis resection	22	4,80
Venture cure	9	1,96
Abdominal toilet + drainage	4	0,87
Drainage of liver abscesses	1	0,21

Treatment results

The average hospital stay was 5 days, with extremes of 3 and 29 days. Post-operative follow-up was straightforward in 362 patients (79.1%); post-operative complications were noted in 69 cases, giving a morbidity rate of 15%. These included parietal suppuration in 50 cases, stercoral fistulas in 11 cases, evisceration in 5 cases and deep suppuration in 3 cases. 27 deaths were recorded, giving an overall mortality rate of 5.9%. Eighteen deaths (3.9%) resulted from acute generalised peritonitis, eight (1.7%) from acute intestinal obstruction and one (0.2%) from strangulated hernia.

IV. Discussion

During the study period, 7026 patients were consulted in the surgical unit of the emergency department, 4633 were hospitalised, including 458 patients for a non-traumatic digestive surgical emergency, representing a hospital frequency of around 9.8%. Our result is lower than that of KAMBIRÉ and al [4] in Burkina Faso, who

reported a frequency of around 16.7%. This difference can be explained by the size of the sample and the number of patients admitted during the study period; however, it is similar to that of Ananivi and al in Togo [1]. In our series, as in most scientific studies on the subject [5, 6, 7, 8], surgical emergencies mainly affect adult males, but there is no parallelism between sex and the occurrence of these pathologies. It is an entity that affects young adults in African series [1, 2, 9]; this can be explained by the fact that in the majority of sub-Saharan countries, more than half of the working population is young. The average age of our patients was 40 years. The low socio-economic level, the lack of universal health insurance in certain African countries, and self-medication are factors in delayed consultation in Africa; this delay in consultation and therefore in treatment is a negative factor in the postoperative course [10, 11]; the average delay in consultation in our series was 72 hours. In all abdominal surgical emergencies, whether traumatic or non-traumatic, pain remains the main symptom [12,13]; it may be isolated or associated with other functional signs and/or general signs related to the aetiology. Abdominal pain was present in all our patients. Certain clinical pictures are pathognomonic of the main aetiologies of non-traumatic abdominal emergencies; these may be localised or generalised peritoneal irritation, an occlusive syndrome, or an irreducible painful parietal tumefaction. These symptoms may or may not be associated with an infectious syndrome or a change in general condition. Acute generalised secondary peritonitis was the most common aetiology identified. They were either related to perforation of a hollow organ or to diffusion of an intra-abdominal infectious focus, in this case the appendix. Our results are similar to those of KAMBIRE and al [4] ; KINDA and al [14] ; ADAMOU and al [15] ; KASSENE and al [6]. Hollow organ perforation, in particular peptic ulcer perforation, predominated in our series, and may be explained by inadequate prevention of ulcer disease: self-medication (in particular NSAIDs), consumption of gastro-aggressive foods (tobacco, alcohol, spices); then inadequate diagnosis and treatment of peptic ulcer disease. This result is comparable with other African series [14, 16, 17]. Morphological assessment plays an important role in the management of non-traumatic gastrointestinal surgical emergencies. The gold standard remains the abdomino-pelvic CT scan with injection of contrast medium, which in our series was performed in only 9 patients. The CT scan is an indispensable tool, conditioning therapeutic management, enabling a positive, topographical and aetiological diagnosis to be made, and above all a diagnosis of severity [18]. However, this examination is still a luxury in our context. In the absence of an abdomino-pelvic CT scan, ultrasound and/or an unprepared abdominal film can confirm the positive diagnosis of a non-traumatic digestive surgical emergency [5, 19]. All this morphological work-up must not delay therapeutic management; this therapeutic management must be preceded by a pre-therapeutic biological work-up, which most often includes a haemogram, creatininaemia, blood grouping, blood urea and blood ionogram [5]. After preoperative resuscitation measures, all our patients underwent surgery, with an open approach in 98.25% of cases. In laparotomy, the median incision above and below the umbilicus was the dominant approach, followed by the McBurney incision. The laparoscopic approach was used for uncomplicated appendicitis. This low rate of laparoscopy may be explained by the non-availability of emergency laparoscopic equipment and the lack of expertise in this technique in our context. Parietal suppuration was the main short-term complication in our series, and has also been found in several African studies [1, 8, 12]. Mortality was around 2.18%. This rate is similar to that of a series in Togo [1], which reported a rate of 2.14%. This low rate may be explained by early management in our series due to a subsidy budget granted by the general management of the Brazzaville University Hospital Centre for the management of surgical emergencies in patients with low socio-economic status.

V. Conclusion

Non-traumatic digestive surgical emergencies are common in surgical emergencies at Brazzaville University Hospital. The most of cases involve young adult males. Their aetiology is dominated by acute generalised secondary peritonitis. Median laparotomy above and below the umbilicus remains the most commonly used approach in our context.

Conflicts of interest: The authors declare no conflicts of interest.

Authors' contributions: All the authors played an active part in drafting and editing the article. They have read and approved the final version of the manuscript.

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