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Research Article

Non-Traumatic Gastro-Intestinal Perforations in Bujumbura. About 141 Cases

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Abstract

Aim: The aim of our study was to determine etiologic, therapeutic and prognostic aspects of non-traumatic Gastro-Intestinal (GI) perforations in the three main hospitals of Bujumbura.

Patients and Methods: It was a retrospective and descriptive study carried out in the departments of General surgery of the Kamenge University Teaching Hospital, Kamenge Military Hospital and Prince Regent Charles Hospital for a 2 years period between September 1st, 2018 to August 31st, 2020. We have included all the cases of non-traumatic perforations of the GI tract diagnosed and operated during the period of the study. A total of 141 cases have met the criteria and been included.

Results: Non traumatic GI perforations represented 10.6% of all abdominal emergencies. The male gender was represented at 71.63% with a sex-ratio of 2.52. and the mean age was 33.37 years. The chief complaint was abdominal pain in 96.45% and physical signs were dominated by abdominal tenderness in 87.94% of the cases. Abdominal X-ray was the most performed imaging examination and revealed a pneumoperitoneum in 51.31% of the cases. The time between symptoms onset and surgery was superior to 48h in 80% of the patients. Pre-operatory resuscitation was dominated by the sole administration of analgesics in 73.75%. The approach that was used for surgery was an extended midline laparotomy in 82.98%. Upon perioperative exploration, the perforated gastroduodenal peptic ulcer was the main etiology in 41.13% followed by appendicular perforation in 30.49% and small bowel perforation in 10.63% of the cases. Excision and suture were the most performed procedures in 48.22% of the patients followed by appendectomy in 30.49% and anastomosis after a segmental resection in 13.47%. The of the hospital stay duration was 13.1 days and the mortality rate averaged 14.18%.

Conclusion: Non-traumatic GI perforations are attached to a high mortality and morbidity which are highly linked to factors such as delayed consult and management which are mainly encountered in low resource areas. Perforated gastroduodenal ulcers and appendicitis are the main etiologies and can be avoided as well when managed in time and appropriately. The age, the perforated organ and the surgical procedure are also well reported factors determining the outcome of the pathology.

Keywords: *GI Perforation; Peritonitis*

Introduction

GI perforations are defined as leaks of the GI tract [1]. These leaks can be seen at all levels of the GI tract from the esophagus to the rectum. Etiologies vary from traumas (penetrating wounds and abdominal contusions), iatrogenic injuries (endoscopic and surgical maneuvers) but most often, the GI perforation is atraumatic usually perforated GI ulcers, appendicitis, small bowel infection or perforation on a segment of the GI tract with cancer [2].

Non-traumatic GI perforations are among the main causes of peritonitis with a post operatory mortality rate of 16.49% [3]. In Africa, complications of the typhoid fever and peptic ulcer disease are the main etiologies [4,5].

The absence of specific data in Burundi beside the data regarding post-operative morbidity and mortality of peritonitis caused by non-traumatic GI perforations was the main motive to perform our study in the main public hospitals in Bujumbura which are the Kamenge University Teaching Hospital, Kamenge Military Hospital and the Prince Regent Charles Hospital.

Aim of the Study

The main goal of our study was to describe the etiologic, therapeutic and prognostic aspects of non-traumatic GI perforations to contribute to the improvement of their management with precise and accurate data.

Patients and Methods

It was a retrospective and descriptive study carried out in the departments of General surgery of the Kamenge University Teaching Hospital, Kamenge Military Hospital and Prince Regent Charles Hospital for a 2 years period between September 1st, 2018 to August 31st, 2020. We have included all the cases of non-traumatic perforations of the GI tract diagnosed and operated during the period of the study. We have excluded the patients for whom medical records were unusable. A pre-established form was utilized to collect the data from the patient's medical records, major surgery, postoperative and entry logbooks from the departments of General Surgery, Anesthesia and Reanimation, Pediatrics and Neonatology. The Epi Info software version 7.2.2.6 was used to treat the collected data.

Results

During the study period, 141 cases of non-traumatic GI perforations have been retained. They represented 10.6% of all surgical procedures (n = 1329) and 79.21% of acute peritonitis (n = 178). The mean age was 33.37 years with extremes of 2 days and 74 years. The male gender was predominant with 71.63% of the cases and a sex ratio of 2.52. The majority of the patients were referred from peripheral healthcare structures.

The main symptom was abdominal pain in 96.45% of the patients. During physical examination, abdominal tenderness was mostly retrieved in 87.94% of the patients. Abdominal Xray was performed in 53.31% of the patients and revealed a pneumoperitoneum in 51.31% of the patients and air-fluid levels in 27.63%. Abdominal and pelvic ultrasound were performed in 51.77% of the patients and revealed a localized intraperitoneal fluid collection in 64.38% of the patients. Preoperative resuscitation was dominated by a sole administration of analgesics in 73.75% of the cases. The preferred approach for surgery was an extend midline laparotomy in 82.89% of the patients. The main etiologies confirmed perioperatively were dominated by gastric peptic ulcer perforation in 38.29% of the patients (Table 1). Analysis of the peritoneal fluid was only performed in half of the patients. The mostly performed surgical procedure was excision-suture in 48.22% of the patients and systematic peritoneal lavage was performed in all the patients. The surgical procedures are mentioned in table 2.

Perioperative diagnosis	n = 141	%
Gastric Perforation	54	38.29
Appendicular Perforation	43	30.49
Ileal Perforation	24	17.02
Colonic Perforation	9	6.38
Duodenal Perforation	7	4.96
Jejunal Perforation	2	1.41
Biliary Perforation	2	1.41

***Table 1**: Perioperative diagnosis.*

Surgical procedure	n = 141	%
Excision + suture	68	48.22
Appendectomy	43	30.49
Resection + anastomosis	19	13.47
Colostomy	5	3.54
Cholecystectomy	2	1.41
Ileostomy	2	1.41
Partial gastrectomy	2	1.41

Table 2: *Surgical procedures.*

Postoperative care was comprised of antibiotic regimen, analgesics and hydro-electrolytic equilibration in all the patients. The most used antibiotic regimen associated a third-generation cephalosporin, an aminoglycoside and metronidazole.

Hospital stay duration averaged 13.1 days. The main postoperative complication was parietal suppuration in 12.5% of the cases. The mortality rate was 14.18%.

Discussion

The goal of our study was to describe etiologic, therapeutic and prognostic aspects of non-traumatic GI perforations in the main public hospitals of Bujumbura. They represented 79.21% of the acute peritonitis cases operated during the period of the study which confirms the literature stating them as the main cause of acute peritonitis [6,7]. The mean age of 33.37 years old and the predominance of male gender are reported in other series but remain objectively unexplained [3,6,8,9]. Abdominal pain which was the chief complaint in 96.52% of our patients is reported as well in other series even at higher rates like Harissou., *et al*. with 100% [10]. Abdominal Xray was the most performed imaging examination (51.31%) which is comparable to the results of Coulibaly., *et al*. in Mali [6].

Gastroduodenal ulcer perforations accounted for 41.13% and this can be explained by a high frequency of auto medication with NSAIDS but also poor management of peptic ulcer disease for people delay or rarely consult in areas with low resources [12]. Perforated appendicitis represented 30.49% of the cases and came in the second place of etiologies, many authors correlate these high rates with delayed diagnosis of acute appendicitis [6,13,14].

On a therapeutic aspect, non-traumatic GI perforations are surgical emergencies and 94.33% of our patients have been operated urgently. A midline extend laparotomy was the preferred approach in 82.98%. This can be explained by the fact that most patients present at complicated stages of generalized peritonitis and an extended incision makes it easier to perform a thorough lavage of the peritoneal cavity.

Excision-suture was the most performed procedure with 48.22% of the patients followed by appendectomy in 30.49% and resection-anastomosis in 13.47%. Abdominal lavage was systematic in all the patients. About 77% of the patients had an uneventful postoperative period, but in 12.5% of the patients there was a surgical site infection. The mean hospital stay duration was 13.1 days. This is higher than series in western countries, the delay of treatment in low resource countries increase the hospital stay as people consult at complicated stages [15,16]. Beside the delay of consult and management; extreme ages, the level of the perforation and the surgical procedure are other factors increasing the morbidity well investigated in the literature [10,15,17]. The mortality rate of 14.18% recorded in our study is comparable to other authors' [3,8].

Conclusion

Non-traumatic GI perforations are attached to a high mortality and morbidity which are highly linked to factors such as delayed consult and management which are mainly encountered in low resource areas. Perforated gastroduodenal ulcers and appendicitis are the main etiologies and can be avoided as well when managed in time and appropriately. The age, the perforated organ and the surgical procedure are also well reported factors determining the outcome of the pathology.

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