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Peritonitis due to peptic ulcer perforation: Epidemiological, diagnostic and therapeutic aspects in the general surgery department of the Idrissa POUYE general hospital

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Abstract

Introduction: Peritonitis is an acute inflammation of the peritoneal serosa due to the presence in the peritoneal cavity of an aggressive liquid, but not necessarily septic, which may be generalized or localized, primary or secondary often to a perforation of peptic ulcer. The objective of our work is to study the epidemiological, diagnostic and therapeutic aspects of acute generalized peritonitis due to peptic ulcer perforation in the General Surgery Department of the Idrissa POUYE General Hospital.

Patients and Method: This was a retrospective and descriptive monocentric study of 72 cases of acute generalized peritonitis due to peptic ulcer perforation from January 1st 2008 to December 31st 2021.

Results: The prevalence of peritonitis due to peptic ulcer perforation was 4.3% in surgical emergencies at the Idrissa POUYE general hospital in Dakar.

The average age of our patients was 36.3 years with extremes of 16 and 67 years. The clinical signs were mainly abdominal pain (100%), vomiting 75% (N=54), transit arrest 69.44% (N=50). An X-ray of the abdomen without preparation was performed in 79.17% of cases (N=57) with the presence of pneumoperitoneum in 89.4% of cases (N=51). Surgical treatment was performed in 95.83% of patients (N=69). Postoperative complications were observed in 9 patients (13.04%) and operative mortality was 2 patients (2.89%).

Conclusion: Peritonitis due to ulcer perforation is a medical-surgical emergency that mainly affects young subjects. The diagnosis is above all clinical, confirmed by the radiography of the abdomen without preparation.

Keywords: Peritonitis, perforation, ulcer, resuscitation, surgery

Introduction

Peritonitis is an acute inflammation of the peritoneal serosa due to the presence in the peritoneal cavity of an aggressive, but not necessarily septic, liquid that may be generalised or localised, primary or secondary, often to a digestive perforation^[1]. This pathology is often revealed by an acute abdomen and imaging, particularly the unprepared abdominal X-ray but especially the CT scan, helps in the diagnosis^[2]. Its treatment is medical and surgical. Its prevention or reduction of its prevalence will come from the improvement of the eradication treatment of *Helicobacter pylori*^[3,4].

The objective of our work is to study the epidemiological, diagnostic and therapeutic aspects of acute generalized peritonitis due to peptic ulcer perforation in the General Surgery Department of the Idrissa POUYE General Hospital.

Patients and Methods

This was a retrospective and descriptive monocentric study of 72 cases of acute generalized peritonitis due to peptic ulcer perforation from January 1st 2008 to December 31st 2021.

Results

The prevalence of peritonitis due to peptic ulcer perforation was 4.3% of surgical emergencies at the Idrissa POUYE general hospital in Dakar.

The average age of our patients was 36.3 years with extremes of 16 and 67 years. The age group between 20 and 29 was the most affected with a peak of 40.7%.

Males accounted for 79.16% of cases with a sex ratio of 4.07. Medical history and lifestyle are reported in Table 1.

Table 1: Distribution of patients by history and lifestyle.

Antecedents	Number
Chronic epigastralgia	16
Gastroduodenal ulcer	11
Smoking	16
Alcoholism	4
Taking anti-inflammatory drugs	6
Rheumatic fever	1

The clinical signs were mainly abdominal pain (100%), vomiting 75% (N=54), transit arrest 69.44% (N=50), fever 91.66% (N=66), abdominal defence 54.16% (N=39), abdominal contracture 44.44% (N=32), umbilical cry 94.44% (N=68), Douglas cry in 45.83% of cases (N=33)

An unprepared abdominal X-ray was performed in 79.17% of cases (N=57) with the presence of pneumoperitoneum in 89.4% of cases (N=51). Ultrasound was performed in 18.04% of cases (N=13) and showed a liquid peritoneal effusion in 100% of cases.

Abdominopelvic CT was requested in 22.22% of cases (N=16) and showed a liquid peritoneal effusion associated with pneumoperitoneum in all cases.

Medical treatment was systematic in all our patients with pre-, per- and postoperative resuscitation, analgesic and antibiotic treatment.

The Taylor method was used in 4.16% of patients (N=3).

Surgical treatment was performed in 95.83% of patients (N=69) of which 62 patients (89.85%) were approached by midline laparotomy and 7 patients (10.14%) by laparoscopy. Perforation was duodenal in 69.56% (N=48) versus 30.44% (N=21) of gastric perforation. Postoperative complications were observed in 9 patients, i.e. 13.04%. They were distributed as follows: infectious syndrome in 2 cases, parietal suppuration in 3 cases, postoperative peritonitis in 3 cases, evisceration in 1 case (1.7%). Operative mortality concerned 2 patients or 2.89%.

Discussion

The prevalence of peritonitis by ulcer perforation was 4.3% of surgical emergencies in our series. A Dakar series at the Hôpital Générale Idrissa POUYE showed that peptic ulcer perforation was the second most common cause of acute peritonitis with a frequency of 35% [2].

Peritonitis due to ulcer perforation occurred in young male subjects in our series. The average age of our patients was 36.3 years. Similar results have been found elsewhere in Africa [5,6,7]. The male predominance in our series is corroborated by several other African studies [5, 6, 7]. Abdominal pain is the main symptom in acute generalised peptic ulcer perforation peritonitis and was present in all our patients. Our results are in agreement with those of other authors. Vomiting concerned 54 patients, i.e. a frequency of 75%. [7]. The etiology of gastroduodenal lesions is multifactorial. Several factors are incriminated, notably the use of NSAIDs, which concerned 6 cases in our series. Our results are consistent with those of other studies [8,9]. The role of *Helicobacter pylori* in peptic ulcer disease is now well established. Numerous studies throughout the world show that this germ is ubiquitous with variable frequencies from one continent to another and its frequency is particularly high in developing countries where the hygiene of life is uncertain [10, 11, 12]. In our series, smoking was found in 22.21% of patients. Abdominal contracture is pathognomonic of acute generalised peritonitis, abdominal contracture was present in 44.44% of the cases and defence in 54.16%. In our series, ASP was performed

in 79.17% of cases, 89.4% had pneumoperitoneum. This high frequency has been reported in several series [13, 14, 15]. Abdominal CT scan was not systematic in our context, it was performed in 16 cases or 22.22%. This low rate can be explained by the fact that most of our patients presented a typical clinical picture. Acute generalised peritonitis due to peptic ulcer perforation is a medical-surgical emergency whose treatment should not be delayed. Surgical treatment remains the cornerstone of the strategy and must be supported by pre, per and postoperative resuscitation. In our series, resuscitation, antibiotic therapy and analgesic treatment were systematic. The surgical approach may involve laparotomy or laparoscopy, depending on the terrain, the experience of the surgeon and the availability of equipment [10]. Morbidity represented 12.5% in our series. Dieng in Senegal [had found respective proportions of 15.4% and 30.7% [1]. Acute generalised peritonitis due to peptic ulcer perforation, despite the progress made, is still associated with a non-negligible mortality rate [17]. The mortality rate attributed to peritonitis due to ulcer perforation is high and estimated at between 5 and 10% in the literature [16, 18, 19]. In our series the mortality rate was 2.76%. This decrease in mortality rate could be explained by the improvement of diagnostic and therapeutic means, a reduction in the consultation time and especially the segregation of the surgical emergencies in our hospital.

Conclusion

Peritonitis due to ulcer perforation is a medical and surgical emergency which mainly affects young subjects. The diagnosis is above all clinical, confirmed by the radiography of the abdomen without preparation. The improvement of the technical platform in recent years shows a clear reduction in morbidity.

Conflicts of interest

The authors declare no conflict of interest.

Authors' contributions:

All the authors contributed to the drafting and correction of this article under the supervision of Pr DIOP Papa Saloum.

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