SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Medical Imaging

Peritonites by Perforation of Gastroduodenal Ulcer in the General Surgery Department of Kankan Regional Hospital (Guinea)

Camara Mamoudou[1*], Camara Toumin[2], Diakite Aboubacar[3], Kone Abdoulaye Chomba[1], Diawara Youssouf[1]

[1]Medical Imaging Department, CHU Point G, Bamako, Mali
[2]Internal Medicine Department, Siguiri prefectural Hospital, Guinea
[3]General Surgery Department, Kankan Regional Hospital, Guinea

DOI: 10.36347/sasjs.2021.v07i11.018 | **Received:** 17.10.2021 | **Accepted:** 23.11.2021 | **Published:** 30.11.2021

***Corresponding author:** Dr. Camara Mamoudou

Abstract **Original Research Article**

The aim of this study was to gather epidemiological and diagnostic data, and to evaluate the therapeutic and evolutionary modalities of peptic ulcer perforation. Material and method: From October 1, 2012 to September 31, 2013, we performed a prospective descriptive study on 30 patients admitted to the general surgery department of Kankan hospital for peritonitis due to peptic ulcer perforation. ***Result***: During this study we treated 30 patients urgently for Peritonitis due to peptic ulcer perforation, ie 8.26% of all cases. The average age of our patients was 43.16 years with extremes of 15 and 74 years. We noted a male predominance with a sex ratio M / F equal to 14. The most affected socio-professional layer was the farmers / gold washers 20 cases, ie 66.66%. The signs in favor of peritonitis due to peptic ulcer perforation were dominated by abdominal pain, abdominal defense or contracture in 100% of cases. Simple suture was the most used surgical technique in 24 cases, ie 80%. The postoperative effects were simple in 10 patients, ie 33, 33% and complicated in 12 patients. We recorded 8 cases of death or 26.66%. The mean length of hospital stay was 12.83 days with extremes of 1 and 40 days. ***Conclusion:*** Our study shows that peritonitis due to peptic ulcer perforation is a serious condition that can be life-threatening. The improvement of this prognosis depends mainly on the early diagnosis of the condition, effective means of resuscitation and the speed of the surgical procedures.

Keywords: Peritonitis, perforation, peptic ulcer.

INTRODUCTION

Peptic ulcer disease is a disease that has long been considered chronic; it is anatomically defined as a loss of substance from the lining of the stomach or duodenum extending beyond the muscularis mucosae [1].

Peptic ulcer disease is a cosmopolitan condition; it affects 5% to 10% of people in the United States; in Europe, its prevalence is estimated at 8% for duodenal ulcer and 2% for gastric ulcer [1].

But in Africa, the data are patchy and variable depending on the series, Lawson [2] estimated the prevalence of peptic ulcer disease at 15.53%.

The development of peptic ulcer disease can cause complications, one of the most common of which is perforation. The incidence of these perforations is estimated between 4 cases and 14 cases per 100,000 inhabitants [1].

In Africa south of the Sahara, the frequency of gastro-duodenal perforations is variously assessed: Vignon [3] estimates them at 13.8 cases per year; for Ngo [4] in Cameroon and Dieng in Senegal [5], they constituted the first etiology of acute generalized peritonitis with respectively 32% and 52.7% of cases. Their care remains burdened with a heavy mortality: it reached 10.7% in the Chalya series in Tanzania [6].

Thus the absence of previous studies, the difficulties of care at the Kankan regional hospital motivated the choice of this study.

Our specific objectives were: to determine the frequency of peritonitis by peptic ulcer perforation, to describe the clinical and paraclinical signs, to describe the surgical techniques used and to determine the prognosis of peptic ulcer perforations.

PATIENTS AND METHODS

This was a descriptive prospective study lasting 12 months from October 1, 2012 to September 31, 2013 carried out in the general surgery department of Kankan Regional Hospital.

It involved 30 patients of sexes, aged 15 and 74, who had been operated on urgently for peritonitis due to peptic ulcer perforation.

The data was collected from pre-established survey forms. Each patient had a survey sheet in which were entered all administrative, clinical, diagnostic and therapeutic data.

The study variables concerned epidemiological, clinical, radiological and therapeutic variables. The results were analyzed on Epi-info version 3.51Fr, and data entry from Microsoft office 2007.

RESULTS

During the study period 363 patients had been treated in general surgery including 30 cases for acute generalized peritonitis by peptic ulcer perforation, ie 8.26% of cases. The average age of our patients was 43.16 years with extremes ranging from 15 to 74 years; a male predominance was evident with an M / F sex ratio = 14. The farmers and the artisanal miners or 66.66% constituted the most dominant socio-professional layer. Half of our patients had a history of epigastralgia. More than half of our patients, 53.32% had tobacco as a risk factor. Abdominal pain was the most consistent subjective sign 100% and tusk or contracture was the most common physical sign in 100% of cases. Complementary examinations focused on biology in 100%; the abdomen without preparation in 26.67%.

70% of peptic ulcer perforation peritonitis occurred in the bulb. Simple suture plus peritoneal toilet plus drainage dominated the treatment, ie 80%. The time to admission of more than 24 hours after the onset of perforation dominated the study. We had recorded 40.01% of complications among which parietal suppurations represented 30%. The overall mortality was 26.66%. The average length of hospitalization was 12.83 days with extremes of 1 and 40 days.

Table-I: Distribution of patients according to the history of ulcer disease.

History Number	of cases	%
Epigastralgia	**15**	**50**
No history of ulcer disease	12	40
Known ulcers	3	10
TOTAL	**30**	**100**

Table-II: Distribution of patients according to clinical signs. N = 30

Clinical and general signs Number	of cases	%
Abdominal pain	**30**	**100**
Vomiting	**28**	**93,33**
Stop of materials and gases	25	83,33
Fever	11	36,66
Hiccups	6	20
Diarrhea	2	6,66
Physical signs		
Defense or contracture	**30**	**100**
Cri du Douglas	**30**	**100**
Umbilical cry	**30**	**100**
Abdominal silence	27	90
Disappearance of pre-hepatic dullness	19	63,33

Site of perforation Number	of cases	%
Bulb	**15**	**50**
Small curvature	12	40
Ulcéreux connus	3	10
TOTAL	**30**	**100**

Table-III: Distribution of patients according to the site of the perforation.

Site of perforation Number	of cases	%
Bulb	**21**	**70**
Small curvature	5	16,66
The den	3	1 0
Large curvature	1	3,33
TOTAL	**30**	**100**

DISCUSSION

The study difficulties were: the interpretation of some ASP shots linked to the poor quality of the shots. Lack of an anatomopathological and bacteriological center to identify Helicobacter pylori and gastric ulcer cases to rule out metaplasia.

We noted 8.26% of PAG / PUGD, this frequency places PAG / PUGD in the 4th row of emergencies after appendicitis, peritonitis of other etiologies and intestinal obstruction.

Our results are lower than those of Harouna Y D *et al*. [7] in Niger who reported that PAG / PUGD occupy the 3emerang with a frequency of 11% after those by appendicular perforation and typhoid perforation.

This increase could be explained by the low socio-economic level, the stress and the use of non-steroidal anti-inflammatory drugs.

PUGD was the main cause of peritonitis with a rate of 29.70%; followed by typhus 24.75% and appendicular peritonitis 18.81%. For Ngo [4] in Cameroon and Dieng in Senegal [5], they constituted the first etiology of acute generalized peritonitis with respectively 32% and 52.7% of cases.

The increase in this frequency could be explained by the poor management of ulcer disease despite the current availability of effective medical therapy, but also smoking, alcoholism and the intake of gastro-toxic drugs.

In our series, the most affected age group was 35-44 years with a frequency of 30%. The average age was 43.16 years with extremes of 15 and 74 years. For Vignon [3], the average age was 34.2 years. This result shows that PUGD is a disease of young adults. We found a male predominance with a rate of 93.33%. The sex ratio M / F = 14.

This result is superimposable on that reported by Vignon [3] who found a sex ratio of 16.7 in favor of men. This male predominance can be explained by the fact that men are exposed to predisposing factors that promote the occurrence of ulcers (tobacco, alcohol, stress, etc.). In our study, the cultivators / artisanal miners were the most affected with a frequency of 66.66%.

This could be explained by the low socio-economic level of this layer. The majority of our patients, ie 76.66%, were admitted 24 hours after the onset of the perforation. Jhobta R *et al*. [8], noted 53% of patients who consulted after a development period of more than 24 hours. This delay in treatment could be explained by the failure to refer patients in time to health facilities, the lack of information and self-medication.

In our study, 50% of our patients had a history of epigastralgia without knowing they were carriers of an ulcer. This result is superimposed on that reported by Kafih [9] who found 61.4% of patients with a history of epigastralgia.

This could be explained by the use of non-steroidal anti-inflammatory drugs and antiulcer drugs obtained in non-expert hands.

In our study 53.32% of our patients were chronic smokers. In fact, smoking increases the risk of ulcer development, slows healing and increases the risk of recurrence. This effect is all the more marked the more smoking is heavy. In our study, abdominal pain was the most dominant sign, i.e. 100% of cases followed by vomiting in 93.33% of cases.

This frequency can be superimposed on that reported by Lunevicius *et al*. [11]. The physical signs were dominated by defense or contracture either 100% of cases followed by umbilical cry and Douglas cry or 100% of cases. This result is similar to that found by Kirshtein *et al*. [12]

- 26.67% performed the PSA x-ray.
- 73.33% did not take this exam.
- 83.33% presented images of pneumoperitoneum on the radiograph and 16.66% presented diffuse grayness. Kafih *et al.* [9] reported 68% of pneumoperitoneum on ASP radiography.
- 2 of our patients presented poor quality images. The high frequency of failure to perform ASP could be explained by the fact that some of our patients were admitted in critical hemodynamic condition and the reluctance of staff to the request for ASP.

In our study 70% of our patients had a perforation of the bulbar site. This result is superimposable on that of Kirshtein B *et al*. [12] who reported 91.1% perforation of the bulbar site.

These results demonstrate that the duodenal bulb is a predilection area for ulcers, while the stomach is a source of cancer. This predominance of bulbar ulcer is explained by the increase in the concentration of acid and pepsin in the duodenal bulb.

All our patients urgently benefited from preoperative resuscitation, venous access, rehydration and the installation of a nasogastric tube.

Median laparotomy was the rule for all patients operated on for peritonitis by perforation of peptic ulcer disease. We preceded either to:

- Simple suture + peritoneal toilet + drainage of the cavity for 80% of patients. Our result is superimposable on the 75.28% reported by Kirshtein *et al*. [12]. The predominance of the simple suture in our study could be explained by the presence in some patients have comorbid factors that do not allow prolongation of the operative procedure (septic shock, unstable hemodynamic state).
- Suture + epiplooplasty + peritoneal toilet + drainage of the cavity for 20% of patients.

The use of the epiplooplasty technique in our study intervened

In ulcers larger than 3cm or with friable edges and when the ulcer base was sclerotic. But it should be noted that no biopsy was done on the edges of the peptic ulcer perforation.

Postoperatively: all patients kept the nasogastric tube until resumption of transit. Antibiotic therapy, which began intraoperatively, and a proton pump inhibitor were maintained parenterally until the resumption of the oral route. The treatment aimed at eradicating Helicobacter pylori took over from parenteral treatment on discharge; patients were informed of the need to follow the hygieno-dietetic rules, to abstain from smoking, consuming alcohol and gastrointestinal drugs -toxic.

In our series, the operative consequences were simple in 33.33% of patients and complicated in 12 patients. These complications were: 30% parietal suppurations, 6.68% evisceration and 3.33% eventration. For Vignon [3], the overall morbidity was 28.5%, dominated by parietal suppurations in 16.7% of cases. We recorded 26.66% of deaths. This mortality is comparable to that of the Ohene series [13], 22.1%.

The high death rate in our series was linked to: the long diagnostic delay, the age over 60, the conditions (diabetes, arterial hypertension, etc.), and the insufficiency of resuscitation resources.

The length of hospitalization depends on the consultation time and the post-operative consequences. The average length of hospital stay was 12.83 days with extremes of 1 to 40 days. Kafih et al. in Morocco [9] reported a delay of 5.5 days. The prolongation of the length of stay in our study was due to the suppuration-type complication.

CONCLUSION

Our study shows that peritonitis due to peptic ulcer perforation is a serious condition that can be life-threatening. The improvement of this prognosis depends mainly on the early diagnosis of the condition, effective means of resuscitation and the speed of the surgical procedures.

REFERENCES

1. Lau, J. Y., Sung, J., Hill, C., Henderson, C., Howden, C. W., & Metz, D. C. (2011). Systematic review of the epidemiology of complicated peptic ulcer disease: incidence, recurrence, risk factors and mortality. *Digestion*, *84*(2), 102-113.
2. Kambire, J. L., Zida, M., Ouedraogo, S., Ouedraogo, S., & SANON, B. G. (2018). Les perforations gastroduodénales à propos de 25 cas au centre hospitalier universitaire régional de Ouahigouya au Burkina Faso/Gastroduodenal.
3. Vignon, K.C., Mehinto, D.K., Vignon, K.R. (2016). Perforations of a peptic ulcer at the Cotonou hospital and university center (Benin). *European Scientific Journal, 12*, 27: 117-28
4. Ngo, N.B., Mouafo, F.L., Ngowe, M.N. (2010). Etiologies of acute generalized peritonitis at the Yaoundé University Hospital. *Rev Afr chir, 4*; 7; 30-2
5. DIENG, M., NDIAYE, A., KA, O. (2006). Etiological and therapeutic aspects of acute generalized peritonitis of digestive origin: a series of 207 cases operated on in 5 years. Mali Med, 21; 4:47
6. Chalya, P. L., Mabula, J. B., Koy, M., Mchembe, M. D., Jaka, H. M., Kabangila, R., ... & Gilyoma, J. M. (2011). Clinical profile and outcome of surgical treatment of perforated peptic ulcers in Northwestern Tanzania: A tertiary hospital experience. *World Journal of Emergency Surgery*, *6*(1), 1-10.
7. Harouna, Y., Ali, L., Seibou, A., Abdou, I., Gamatie, Y., & Rakotomalala, J. (2001). Deux ans de chirurgie digestive d'urgence à l'hôpital national de Niamey (Niger): étude analytique et pronostique. *Médecine d'Afrique Noire*, *48*(2), 49-54.
8. Jhobta, R. S., Attri, A. K., Kaushik, R., Sharma, R., & Jhobta, A. (2006). Spectrum of perforation peritonitis in India-review of 504 consecutive cases. *World journal of Emergency surgery*, *1*(1), 1-4.
9. Kafih, M., Fekak, H., El Idrissi, A., & Zerouali, N. O. (2000, April). Perforated duodenal ulcer: laparoscopic treatment of perforation and ulcerous disease. In *Annales de chirurgie* (Vol. 125, No. 3, pp. 242-246).
10. Sarosi Jr, G. A., Jaiswal, K. R., Nwariaku, F. E., Asolati, M., Fleming, J. B., & Anthony, T. (2005). Surgical therapy of peptic ulcers in the 21st century: more common than you think. *The American journal of surgery*, *190*(5), 775-779.
11. Lunevicius, R., & Morkevicius, M. (2005). Comparison of laparoscopic versus open repair for perforated duodenal ulcers. *Surgical Endoscopy and Other Interventional Techniques*, *19*(12), 1565-1571.
12. Kirshtein, B., Bayme, M., Mayer, T., Lantsberg, L., Avinoach, E., & Mizrahi, S. (2005). Laparoscopic treatment of gastroduodenal perforations: comparison with conventional surgery. *Surgical Endoscopy and Other Interventional Techniques*, *19*(11), 1487-1490.
13. Ohene-Yeboah, M., & Togbe, B. (2006). Perforated gastric and duodenal ulcers in an urban African population. *West African journal of medicine*, *25*(3), 205-211.