

Epidemiological and Anatomopathological Aspects of Stomach Cancers at the Koutiala District Hospital

Mahamadou Coulibaly^{1,2*}, Souleymane Sanogo^{1,3}, Samuel Kletigui Dembélé^{1,4},
Moussa Diassana^{1,5}, Brehima Ballo^{1,2}, Cheick Aka Waigalo^{1,2}, Bréhima Bengaly^{1,3},
Birama Togola^{1,3}, Drissa Traoré^{1,3}, Nouhoum Ongoiba^{1,3}

¹Faculty of Medicine, University of Science, Technique and Technologies of Bamako, Bamako, Mali

²Department of Surgery, Koutiala Hospital, Bamako, Mali

³Department of Surgery, University Hospital Center Point G, Bamako, Mali

⁴Department of Surgery, Tominian Hospital, Tominian, Mali

⁵Department of Surgery, Sikasso Hospital, Sikasso, Mali

Email: *cmahamadou38@yahoo.fr

How to cite this paper: Coulibaly, M., Sanogo, S., Dembélé, S.K., Diassana, M., Ballo, B., Waigalo, C.A., Bengaly, B., Togola, B., Traoré, D. and Ongoiba, N. (2024) Epidemiological and Anatomopathological Aspects of Stomach Cancers at the Koutiala District Hospital. *Surgical Science*, 15, 444-450.

<https://doi.org/10.4236/ss.2024.157041>

Received: May 25, 2023

Accepted: July 26, 2024

Published: July 29, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Aim: This paper aims to evaluate the epidemiological and pathological aspects of stomach cancer at Koutiala District Hospital. **Methods:** This was a retrospective study carried out in the General Surgery Department of the Koutiala District Hospital Health Centre. The records of patients admitted for stomach cancer in the period from August 1, 2017 to December 31, 2022 were collected. Patients who underwent surgery for stomach cancer were included in the study. Patients who had not undergone surgery were excluded. **Results:** We collected records from 40 patients operated on for stomach cancer. The median age was 58.4 years $\pm$ 5.7. Men were in the majority with 72.5%. The sex ratio was 2.6. The incidence rate of stomach cancer in the general population in the circle was 4.9 cases per 100,000 population. Patients had a history of gastric ulcer in 90%, Helicobacter pylori infection in 47.5% and a notion of excessive salt consumption in 47.5%. The median duration of disease progression was 5 years $\pm$ 2.3. The seat was antral-pyloric in 77.5%. The cancer was ulcerative budding in 23 patients. Adenocarcinoma was the histological type in all patients. The cancer was classified as stage III in 30 cases and stage IV in 10 cases. Palliative surgical treatment was the most performed (47.5%). Postoperative morbidity was 15% and mortality was 42.5% at one year. **Conclusion:** Stomach cancer is common in the ward. Most patients consult at the stage of metastasis. Palliative surgery remains the most practical. Postoperative morbidity and mortality is very high.

Keywords

Epidemiology, Stomach Cancer, Koutiala

1. Introduction

Stomach cancers are malignant tumors developed at the expense of the gastric wall. They are said to be primitive when they originate in the stomach and secondary when they come from another organ. It is essentially adenocarcinoma which represents by far the most frequent histological variety 90% to 95% [1]. In Africa, according to 2018 estimates, The age-standardized incidence rate for all sexes is 4.2 per 100,000 population [1]. In France, it affects 6.3 men and 2.7 women per 100,000 inhabitants [2]. Several African countries such as Morocco, Mali, Senegal, Togo and Benin converge to identify stomach cancer as the first digestive cancer [3]-[7]. Various works have suggested the role of *Helicobacter pylori* (HP) in many gastric and duodenal diseases. The prevalence rate of PH infection is higher as the lower socio-economic level. Despite the development of endoscopy, his diagnosis remains late and his prognosis is poor [8]. In view of the high number of stomach cancer in the region, we carried out this first study whose aim was to evaluate the epidemiological and anatomopathological aspects of patients presenting stomach cancer at the Koutiala district hospital.

2. Methodology

This was a prospective and descriptive study taking place from August 1, 2017 to December 31, 2022. Records of patients with stomach cancer in the general surgery department of Koutiala District Hospital were collected. Patients operated on for stomach cancer were included in this study. Non-operated patients were not included in the study. The comparison test was the Khi2 test and the $p < 0.05$ probability was considered significant. The realization of this work required a detailed database that was validated by our scientific staff, which we used for the medical file of the patients, the consultation register, the workbooks of the operative report and the result of the histopathological examination. The parameters studied were frequency, sex, age, incidence rate, geographical origin, duration of progression, contributing factors, tumour location, histological nature, morbidity and mortality.

3. Results

We collected the records of 40 patients operated on for stomach cancer. These cancers accounted for 0.4% of consultations ($n = 10,160$), 2% of surgical procedures ($n = 2006$) and 36% of digestive cancers ($n = 111$). It was the first digestive cancer ahead of esophageal cancer (30%, $n = 33$) and colorectal cancer (22.5%, $n = 25$). The average age was $58.4 \text{ years} \pm 5.7$ with extremes of 36 and 94 years.

The 41 to 59 age group was more common with 60% of cases. Men were in the majority with 72.5% (n = 29). The sex ratio was 2.6 (**Table 1**). The incidence rate of stomach cancer in the general population in the circle was 4.9 cases per 100,000 population. According to the origin, the patients came from within the circle (rural environment) in 80% of cases (n = 32) and from the city of Koutiala in 20% (n = 8). Patients had a history of gastric ulcer in 90% of cases (n = 36), *Helicobacter pylori* infection in 47.5% of cases (n = 19) and early consumption with potash (100%; n = 40). We also noted a notion of excessive salt consumption in 19 patients (47.5%), tobacco use in 15 (37.5%) and alcohol consumption in 9 patients (22.5%). The median duration of evolution was 24 months $\pm$ 7.3 with extremes of 6 and 62 months. The site was antro-pyloric in 77.5% of cases (n = 31), antral (12.5%, n = 5), gastric body (7.5%, n = 3) and cardia (2.5%, n = 1). The cancer was ulcerative budding in 23 patients (57.5%), ulcerated in 8 patients (20%) budding in 7 patients (17.5%) and invasive in 2 patients (5%). Adenocarcinoma was the histological type in all patients, which was moderately differentiated in 82.5% of cases (n = 33), well differentiated in 12.5% of cases (n = 5), and poorly differentiated in 5% of cases (n = 2). In all patients the tumor was at the level of the serosa, it was limited to the serous (T4a) in 32 patients (80%) and invasive of the organs of the vicinity (T4b) in 8 patients (20%). There were no lymph node metastases in 23 patients or 57.5% (N0). On the other hand, we noted 1 to 2 regional lymph nodes in 12 patients or 30% (N1) and 3 to 6 regional lymph nodes in 5 patients or 12.5% (N2). In 31 patients there were no distant metastases (77.5%) and in 8 patients we noted metastatic involvement of at least one organ (22.5%). The cancer was classified as stage IIIa in 12 cases, stage IIIb in 10 cases, stage IIIc in 8 cases and stage IV in 10 cases. infiltrating in 2 patients (5%). Surgical treatment was curative excision plus lymph node dissection in 17 patients (42.5%), palliative excision in 8 patients (20%), anastomosis gastroenterostomy in 11 patients (47.5%) and surgical abstention in 2 patients (5%). Postoperative morbidity was 15% of cases (n = 6). The complications recorded, classified according to Clavien-Dindo, grade II (3 cases), grade IIIb (2 cases), grade IV (1 case) and grade V (17 cases), consisting of 3 cases of parietal suppuration, 2 cases of external digestive fistula, 1 case of tumor recurrence and 17 cases of death in 1 year of follow-up. This mortality is a function of age because most deaths occurred around the age of 70, i.e. 82.4% of deaths (**Table 2**); but also contributing factors such as gastric ulcer with 52.9% of deaths and tobacco consumption (23.5% of deaths) (**Table 3**).

Table 1. Distribution of patients operated for stomach cancer in Koutiala between August 1, 2017 and December 31, 2022 by age group.

Slice	Male		Female		Total	
	number	%	Nb	%		
<40 ans	2	6.9			2	5
40 - 59 ans	17	58.8	7	6.1	24	60

Continued

60 – 79 ans	8	27.6	4	20	12	30
80 - 99 ans	2	6.9	0		2	5
Total	29	72.5	11	27.5	40	100

Table 2. Distribution of patients operated for stomach cancer in Koutiala between August 1, 2017 and December 31, 2022 according to mortality by age group.

Slice	Mortality					
	Male		Female		Total	
	number	%	Nbre	%	Nbre	%
<40 ans						
40 - 59 ans	3	17.6			3	17.6
60 - 79 ans	4	23.5	4	23.5	8	47.1
80 - 99 ans	5	29.4	1	5.9	6	35.3
Total	12	70.6	5	29.4	17	100

Table 3. Distribution of patients operated for stomach cancer in Koutiala between August 1, 2017 and December 31, 2022 according to mortality according to contributing factors.

Enabling factors	Mortality					
	Male		Female		Total	
	number	%	Nbre	%	Nbre	%
Gastric ulcer	6	35.3	3	17.6	9	52.9
Excessive salt con			2	11.8	2	11.8
Tabacco	4	23.5			4	23.5
Alcohol	2	11.8			2	11.8
Total	12	70.6	5	29.4	17	100

4. Discussion

Stomach cancer is common in our department, it is the first digestive cancer ahead of esophageal cancer and colon cancer with 26.2% ($p = 0.06$) [4]. This high incidence of stomach cancer in our environment could be explained by a low socioeconomic level of our populations. This result is similar to that provided by Gbessi ($p = 0.06$) [9]. The average age of 58.4 years is close to those of Ouattara in Burkina [10] and Richart in Madagascar [11] which were respectively 56.5 and 57 years and not far from that of Blinder-Foucard in France [12] 70 years. The male predominance is clear. Afuwape [13] brings a sex ratio of 1.2; Gwang [14] 1.2 and our study 2.6. This male predominance could be related to more frequent alcohol and smoking among male subjects. The incidence rate of stomach cancer in the general population in the region was 4.9 cases per 100,000 population. This rate is confirmed by the Globocan study, which provides that in Africa, according to 2018 estimates, the age-standardized incidence rate for all

sexes combined is 4.2 per 100,000 inhabitants [1]. In the literature, the most cited risk factor is infection with *Helicobacter pylori* and in our study it was present in 47.5% of patients. This result could be explained by the lack of permanent availability of diagnostic equipment for this infection in our region. On the other hand, according to Peek RM and Blaser MJ, the occurrence of invasive gastric cancer would affect only 3% of subjects carrying *H. pylori* [15]. In West Africa, the basis of the diet is the cereal with potash for its preservation and the fish preserved by salting and smoking. These foods have a big role in the genesis of stomach cancer. Our study provides a rate of 100% and 47.5% respectively. These data are similar to data from the West African literature [6, 16]. The predominance of the antro-pyloric site of stomach cancer is brought by several authors such as BAGNAN in Cotonou. [17] (61.9%, $p = 0.2$), Diop in Dakar [16] (79% $p = 0.79$) and our study (77.5%). Adenocarcinoma was the histological type in all patients. This result is not significantly different from those provided by Sanogo (97.40% $p = 0.66$) [18] and Diop (94% $p = 0.09$) [16]. All our patients have been classified at or above stage III intraoperatively. This would be related to a delay in consultation because the median duration of evolution of the symptomatology was $24 \text{ months} \pm 7.3$ and can wait up to 62 months. This delay could be explained by cultural beliefs leading to traditional treatment on the one hand and lack of financial means on the other. This is why we had a high palliative surgical treatment rate with a palliative excision rate of 20%. This practice is justified by Ahmet [19] who thinks that even palliative gastric excision seems to improve the survival rate compared to palliative surgery without excision. The complications were serious because half of our patients had a grade greater than or equal to III according to the Clavien-Dido classification. Mortality at one year of follow-up was 42.5% in our series. This rate is higher than those provided by the series from Mexico and Taiwan region [20] [21] which were respectively 4.2 and 9.9%. This difference can be explained by the large number of advanced evolutionary stages in our series but also by the advanced age of our patients because most of the patients who died were over 70 years old but also to the heavy consumption of tobacco and alcohol which was found in 35.3% of our deceased patients. Like most retrospective studies, our results were limited by the loss of certain data or even the entire file; And the limitation of our work was mainly linked to the insufficiency of the technical platform, the irregularity of patients in the follow-up, the refusal of the surgical procedure and the low income of the patients.

5. Conclusion

Stomach cancer is common in the ward. Most patients consult at the stage of metastasis. Palliative surgery remains the most practical. Postoperative morbidity and mortality is very high.

Authors' Contributions

All authors have read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Globocan (2018) Cancer Incidence, Mortality and Prevalence World Wide. <http://gco.iarc.fr/today/home>
- [2] Ooreka Health (2021) Stomach Cancer. <https://cancer-de-l-estomac.ooreka.fr/>
- [3] Turanli, S. (2010) The Value of Resection of Primary Tumor in Gastric Cancer Patients with Liver Metastasis. *Indian Journal of Surgery*, **72**, 200-205. <https://doi.org/10.1007/s12262-010-0053-0>
- [4] Peko, J.F., Ibara, J.R., Dangou, J.M. and Gombe Mbalawa, C. (2004) Histoepidemiologic Profile of 375 Primary Bowel Cancers at the University Hospital Center in Brazzaville, Congo. *Med Trop (Mars)*, **64**, 168-170.
- [5] Bouglouga, O., Lawson-Ananissoh, L.M., Bagny, A., Kaaga, L. and Amegbor, K. (2015) Stomach Cancer: Epidemiological, Clinical and Histological Aspects at the CHU Campus of Lomé (Togo). *Tropical Medicine and Health*, **25**, 65-68. <https://doi.org/10.1684/mst.2014.0415>
- [6] Diarra, M.T., Konate, A., Diarra, A.N., Sow, H., Coulibaly, E., Doumbia, K., Samake, E., Kassambara, Y., *et al.* Epidemiology and Prognosis of Stomach Cancer... *Mali Medical*, **29**, 45-48.
- [7] Dieng, M., Savadogo, T.J., Ka, O., KonatE, I., Cisse, M., Pmanyanka, M.A., Nyemb, P., *et al.* (2010) Surgical Treatment of Gastric Adenocarcinoma at Dakar University Hospital 1995 to 2005 Department of General and Visceral Surgery. *Journal of African Chirurgie Digestive*, **10**, 1059-1062.
- [8] Dembele, B.T., Togo, A., Kante, L., *et al.* (2012) Gastric Cancers in the General Surgery Department CHU Gabriel Touré Bamako. *Mali Medical*, **27**, 14-18.
- [9] Gbessi, D.G., Dossou, F.M., Soton, R.R., *et al.* (2013) Anatomoclinic Aspects of Stomach Cancer in Benin. *Benin Medical*, **53**, 33-37.
- [10] Sawadogo, A., Ouattara, H., Ilboudo, P.D., Bonkounou, B., Ouattara, T. and Sawadogo, A.B. (2004) Stomach Cancer at the Sanou Souro National Hospital Center (CHNSS) of Bobo Dioulasso. *Médecine d'Afrique Noire*, **51**, 423-425.
- [11] Richard, J. (1997) Epidemiology of Cancers of the Digestive Tract in Madagascar: Contribution of 14000 Endoscopies. Performed at the Soaviandriana Hospital in Antananarivo. *Black African Medicine*, **44**, 18-21.
- [12] Binder-Foucard, H. (2013) National Estimate of Cancer Incidence and Mortality in France. *Institute for Health Surveillance*, **25**, Article 126.
- [13] Afuwape, O.O., Irabor, D.O., Ladipo, J.K. and Ayandipo, B. (2011) A Review of the Current Profile of Gastric Cancer Presentation in the University College Hospital Ibadan, a Tertiary Health Care Institution in the Tropics. *Journal of Gastrointestinal Cancer*, **15**, 423-425.
- [14] Gwang, K.J. (2010) Recent Advances in Chemotherapy for Advanced Gastric Cancer. *World Journal of Oncology*, **15**, 287-294. <https://doi.org/10.4251/wjgo.v2.i7.287>
- [15] Peek, R.M. and Blaser, M.J. (2002) Helicobacter Pylori and Gastrointestinal Tract Adenocarcinomas. *Nature Reviews Cancer*, **2**, 28-37. <https://doi.org/10.1038/nrc703>
- [16] Diop, B., Dia, A.A., Ba, P.A., *et al.* (2017) Surgical Management of Gastric Tumors in Dakar: About 36 Observations. *Health Sciences and Diseases*, **18**, 34-38.

- [17] Bagnan, K.O., Padonou, N., Kodjoh, N. and Houansou, T. (1994) Stomach Cancer Has About 51 Cases Observed at the Cotonou Cnhu. *Black African Medicine*, **41**, 39-43.
- [18] Sanogo, S., Togola, B., TraorE, D., Bengaly, B., Coulibaly, M., Ouattara, D., Coulibaly, B., Ba, B., Diallo, S. and Ongoiba, N. (2020) Epidemiological Aspects of Stomach Cancer at Point G University Hospital in Bamako (Mali). *Natural and Applied Sciences*, **39**, 29-41.
- [19] Ahmed, A., Ukwenya, A.Y., Makama, J.G. and Mohammad, I. (2011) Management and Outcome of Gastric Carcinoma in Zaria, Nigeria. *African Health Sciences*, **11**, 353-361.
- [20] Hang, K.-H., Wun C.-W., Fang, W.L., *et al.* (2010) Palliative Resection in Patients with Non-Curable Gastric Cancer. *World Journal of Surgery*, **34**, 1015-1021.
<https://doi.org/10.1007/s00268-010-0467-7>
- [21] Luis, F., Guadalupe, Mendez-Cruz., Roberto, Hernandez-RAMOS. (2007) The Experience of the Operative Morbidity after Palliative Surgery in Patients with Gastric Cancer. *Japanese Gastric Cancer*, **10**, 215-220.
<https://doi.org/10.1007/s10120-007-0437-4>