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Epidemiological Aspects of Stomach Cancer in the Mopti Region

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Abstract | **Original Research Article**

Introduction: Stomach cancer is a real public health problem and is believed to be the second leading cause of cancer-related death worldwide. This mortality is partly linked to the advanced stage of the disease at diagnosis. ***Methodology***: From January 1, 2019 to December 31, 2021, we conducted a descriptive cross-sectional study on cases of gastric lesions seen by upper digestive endoscopy at Sominé Dolo Hospital in Mopti and the BRICO II medical center in Sévaré and which revealed gastric cancer on histology. The results of the histological examinations were collected from the KOMODi biological analysis laboratory in Sévaré. The data were entered into Excel version 2016 software and analyzed using SPSS 20.0 software. ***Results***: During the study period, 1894 gastroscopies were performed and 85 cancers were diagnosed, representing a frequency of (4.48%). The average age was 54.58 ± 13.73 years with extremes ranging from 18 years to 82 years. The most re-weighed age group was 55-64 years with 30.6%. Farmers/breeders (47.1%) and housewives (41.2%) were the most represented. The male sex predominated at (56.5%) against (43.5%) female sex with a sex ratio of 1.29. The majority of our patients came from a rural area 92.9%.2. The most common indications for gastroscopy were epigastralgia (31.7%), followed by orifice syndrome (27.1%), altered general condition (16.5%) and dysphagia (8.2%). The macroscopic appearance was dominated by the ulcerative-budding form (83.6%), followed by the budding form (8.2%) and infiltrating form (7.1%). Adenocarcinoma was the most common histological form (89.3%) and Helicobacter pylori was found in 93% of cases. ***Conclusion***: Stomach cancer remains a major public health problem in Mali and worldwide. Epigastralgia was the main indication for gastroscopy. The ulcerative-budding form was predominant and adenocarcinoma was the most common histological type. Helicobacter pylori was found in most of our patients.

Keywords: Cancer, Stomach, Mopti, Mali.

I-INTRODUCTION

Stomach cancer is a malignant tumor that affects the stomach tissues, most often in the form of adenocarcinoma that develops from the gastric epithelium [1]. It constitutes a real public health problem and is believed to be the second leading cause of cancer-related death worldwide. This mortality is partly linked to the advanced stage of the disease at the time of diagnosis [2].

Stomach cancer most often affects people over 65 years of age (61% of diagnosed cases) and more often men (65% of cases) [3].

The incidence of stomach cancer is declining sharply in Western countries, but remains a common and serious lesion in developing countries [4].

There are significant geographic variations:

- High-risk areas: Asia, South America, and Central America;
- Low-risk areas: Western Europe and North America. [5]

However, in Africa, the incidence in 2002 was estimated at 15/100,000 inhabitants in men compared to 8.5/100,000 inhabitants in women [6]. Some African

studies have found a significant frequency, such as in Madagascar at 38.09% [7], and in Burundi 38.5% [8].

A study carried out in 2011 in the hepato-gastroenterology department of Gabriel Touré University Hospital in 2011 found a frequency of 59.1% of digestive cancers [9]. In 2011, a frequency of 59.1% of digestive cancers was found [9].

In Mali, it ranks first among digestive cancers and remains a condition with a poor prognosis because therapeutic methods are limited and the 5-year survival rate is 20.9% [10].

Given this high frequency, we considered it interesting to use upper digestive endoscopy data to describe the clinical and histological epidemiological aspects of gastric cancer in the Mopti region.

II-PATIENTS AND METHODS

From January 1, 2019, to December 31, 2021, we conducted a descriptive cross-sectional study of gastric lesions in patients undergoing upper gastrointestinal endoscopy in the Medical Department of Sominé Dolo Hospital in Mopti and the BRICO II Medical Center in Sévaré.

Patients included in the study were those who underwent upper gastrointestinal endoscopy and a biopsy for histological examination and who were diagnosed with gastric cancer.

A questionnaire was used to collect variables from the upper gastrointestinal endoscopy registers of the Medical Department of Sominé Dolo Hospital in Mopti and the BRICO II Medical Center in Sévaré. The survey consisted of collecting the following variables:

- Sociodemographic (age, sex, occupation),
- Indications for fibroscopy,
- Endoscopic results,
- Histological examination results collected from the KOMODi biological analysis laboratory in Sévaré.

Data were entered into Excel version 2016 and analyzed using SPSS 20.0.

III-RESULTS

During the study period, 1,894 upper gastrointestinal endoscopies were performed and 85 cancers were diagnosed, representing a frequency of 4.48%.

The mean age in our study was 54.58 ± 13.73 years, with a range from 18 to 82 years. The most re-weighed age group was 55-64 years, at 30.6%. The poorest social classes (farmers/livestock farmers (47.1%) and housewives (41.2%) were the most represented. Males (56.5%) were more represented, compared to females (43.5%), with a sex ratio of 1.29. The majority of our patients came from rural areas (92.9%) Table I.

Table I: Patient Distribution by Sociodemographic Variables

Variables	Number	Percentage
Age Groups		
INF 25	1	1,2
25-34	9	10,6
35-44	8	9,4
45-54	17	20,0
55-64	26	30,6
65-74	20	23,5
75-84	4	4,7
Gender		
Male	48	56,5
Female	37	43,5
Occupation		
Farmer/Breeder	40	47,1
F Housewife	35	41,2
Shopkeeper	4	4,7
Quranic Teacher	2	2,4
Worker	2	2,4
Fisherman	Z	2,4
Origin		
Urban Area	6	7,1
Rural Area	79	92,9
Total	**85**	**100**

Table II: Distribution of patients according to indications for gastroscopy

Indications forgastroscopy	Number	Percentage
Orifice syndrome	23	27,1
Epigastralgia	27	31,7
Impaired general condition	14	16,5
Dysphagia	7	8,2
Ascites	5	5,9
Abdominal mass	3	3,6
Anemia	3	3,6
Hematemesis	2	2,4
Hiccups	1	1,2
Total	**85**	**100,0**

Epigastralgia accounted for 31.7% of indications for gastroscopy.

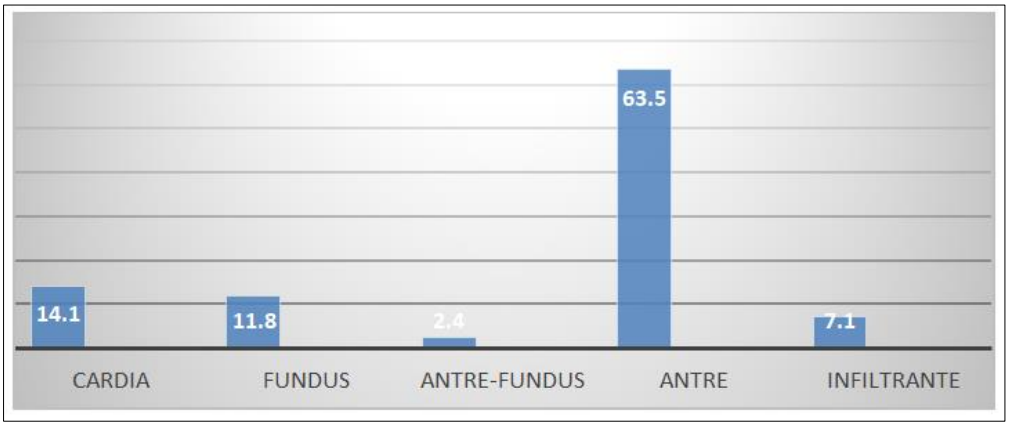

Figure 1: Patient presentation by location of lesion

Antral location was the most common, accounting for 63.5%.

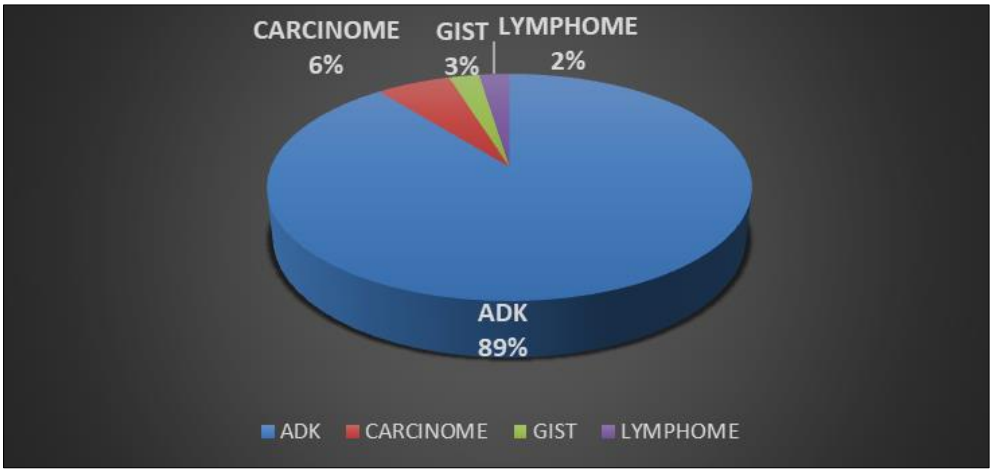

Figure 2: Patient representation by histological type

Adenocarcinoma was the most common histological form with 89%

VI-DISCUSSION

The aim of this study was to study the clinical and pathological epidemiological aspects of stomach cancer in the Mopti region, Mali's 5th region. To achieve this goal, we conducted a retrospective cross-sectional study including 85 patients over a 3-year period. This methodology allowed us to determine the frequency of stomach cancer, describe its sociodemographic and clinical features, and determine its pathological aspects.

Before engaging in any discussion with the other authors, it should be recognized that the Mopti region is a fishing area par excellence, characterized by overconsumption of smoked fish (due to a lack of means

of preserving them in the cold in most cases), as well as a significant use of potash in the preparation of the traditional 'Kto' cake (a staple food in some local communities), two potential risk factors for gastric cancer.

1-Epidemiology

The incidence of gastric cancer in our study represented 4.48% of upper gastrointestinal endoscopies. Our result is almost identical to that of M. Diarra *et al*., who found a frequency of 4.57% [11], higher than that of Sanogo *et al.*, [12], who found 2.8% in 2023. The size of the study population, the study period, and regional risk factors are likely to modify the frequency.

The average age in our study was 54.58 ± 13.730 years with extremes ranging from 18 years to 82 years. This was comparable to that of Diakité A [13], with 56.70 years in 2014; Traoré C.A. [9] with 54.38 years in 2019 and Diawara D [14], with 57.89 years in 2018 in MALI. On a global scale, the average age of this study is different from that of Meyer with 65.3 years ($p<0.001$) in 1995 [15], and that of Glehen with 68.8 years ($p<0.001$) in 2000 in France [16]. The young age in Africa could be explained on the one hand by late treatment of predisposing conditions and on the other hand by the frequency of Helicobacter pylori, especially since Helicobacter pylori was found in 93% of our samples.

We noted a male predominance with a sex ratio of 1.29. This male predominance was found in most authors such as: Sanogo *et al*., in 2023 [17], M. Diarra *et al.*, in 2005 [17], Diakité A. in 2014 [13], in Mali. All socio-professional classes were represented in our study with a predominance of farmers/breeders 47.1% followed by housewives 41.2% and traders 4.7%. Our result is close to that of Diakité A. in Mali [10], with a predominance of farmers 35.5% and lower than that of Diarra M *et al*., in 2005 in Mali, who found 50.5% [17]. This predominance could be explained by the precarious socioeconomic conditions and an increased risk of gastric cancer in most of our patients.

2. Clinical Data

Clinically, epigastralgia was the most common indication for gastroscopy at 31.7%, followed by orifice syndrome at 27.1%, altered general condition at 16.5%, and dysphagia at 8.2%. This result is significantly lower than that of A. Togo *et al.*, [18], with epigastralgia at 91.4% followed by vomiting and weight loss in 2008 at the Bamako University Hospital GT. The predominance of these signs can be explained by the fact that epigastralgia represents the inaugural and predominant symptom; it is frequently accompanied by vomiting, particularly in cases of pyloric stenosis. A progressive deterioration in general condition (anorexia, asthenia, weight loss) reflects an advanced tumor syndrome.

3-Anatomopathological Data

In our series, the macroscopic appearance at endoscopy was dominated by the ulcerative-budding form with 83.6%, followed by the budding form (8.2% and the infiltrating form (7.1%). In our study, the ulcerative-budding form is significantly higher than that of Sanogo and Traoré C.A., which found 57.14% and 75%, respectively [9-12].

Among the histological types, adenocarcinoma is the most represented, with nearly 89.3% of cases. This result is almost identical to those obtained by D. Diawara in 2019 with 87.3% [19], by Traoré C.A. in 2019 with 97.5% [9], in Mali, and by Bouglouga O *et al*., in 2014 in Togo with 94% [20], by A. Sawadogo in 2000 in Burkina Faso with 87.23% [21], by Peghini M *et al*., in 1997 in Madagascar with 87.5% [22].

CONCLUSION

Stomach cancer remains a major public health problem in Mali and worldwide. Epigastralgia was the main indication for gastroscopy. The ulcerative-budding form was predominant, and adenocarcinoma was the most common histological type. Helicobacter pylori was found in most of our patients.

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