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Stomach Cancer in the General Surgery Departement at the Teaching Hospital Gabriel Toure

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Abstract

Introduction: Stomach cancer is a malignant tumor developed at the expense of the gastric wall. Gastric cancer is a common cancer occupying the 5th rank of cancers in the world, or 5.7% of all cancers. **Purpose:** To study epidemiological, diagnostic, therapeutic, and prognostic aspects of stomach cancer. **Methodology:** This was a retrospective and prospective study, which was carried out in the General Surgery Department at the teaching hospital Gabriel Touré between January 1, 1999, and December 31, 2020, and all cases of stomach cancer were confirmed by histological examination. **Result:** We recorded 857 cases of stomach cancer or 40.1% of digestive cancers. The sex ratio was 1.6. The average age was 55 years ± 13 years. The main clinical signs were epigastralgia (98.6%), vomiting (93.34%), weight loss (96.03%), and anorexia (46.1%). It was adenocarcinoma (97.55%), and antropyloric location (78.64%). Patients were Stage IV (72.817%) cases. Among the 857 patients, 722 were operated on, accounting for 84.25% of the cases. Surgery was palliative in 60.66% and curative in 25.62%. Gastrectomy of 4/5 plus D2 type curage was the most performed in curative surgery. The median overall postoperative survival was 5 months. **Conclusion:** Stomach cancer is the most common digestive cancer in our department, the diagnosis is most often late, so palliative surgery occupies an important place.

Keywords

Cancer, Stomach, Surgery, Survival

1. Introduction

Stomach cancer is a malignant tumor developed at the expense of the gastric

wall [1].

Gastric cancer is a common cancer occupying the 5th rank of cancers in the world or 5.7% of all cancers [2].

In the countries of Western Europe and North America, the disease is in relative decline occupying the 4th or 5th rank of cancers. In the United States, the death rate from gastric cancer is 7.5 men and 3.7 women per 100,000 inhabitants [2].

According to age-standardized rates for both sexes, the Asian continent has the highest rate at 14.3 per 100,000 populations. The most affected countries are the Republic of Korea, Mongolia, and Japan. In China, it is the second leading cause of cancer mortality. Asia is calibrated by Latin America and the Caribbean at 8.7 per 100,000 and the European Continent at 8.1 per 100,000 [2].

In Africa, several recent studies have found an increasing frequency of gastric cancer in hospitals; it occupies the first place of all cancers of the digestive tract in Burkina Faso [3] and Togo [4].

In the Maghreb, stomach cancer ranks 9th among all cancers, the second highest among cancers of the digestive tract [5].

In 2019, according to the Cancer Registry of Mali, stomach cancer ranked first among all cancers with 5.7 per 100,000 inhabitants, of which 9.5% in men and the third in women (4% per 100,000 inhabitants) [6].

The diagnosis is made by histological examination of the biopsies [7].

Curative treatment is based on surgical resection, although perioperative chemotherapy has shown to be effective [7].

Prognosis remains grim, the fourth leading cause of cancer mortality in the world [5].

In view of its frequency and the absence of recent studies on the general overview of stomach cancer in the general surgery department at the teaching hospital Gabriel Touré, we initiated this work on the study of epidemiological aspects, diagnoses, therapies, and prognoses of this pathology.

Overall objective:

To study stomach cancer in the general surgery department of CHU Gabriel Toure.

Objectives specify:

Determine the frequency of stomach cancer;

Describe clinical and para-clinical features;

Describe the management of stomach cancer;

Determine the prognosis.

2. Methodology

2.1. Study Framework

This study was conducted in the general surgery department at teaching hospital Gabriel Touré.

It's a third-tier hospital in our health care system.

2.2. Study Type and Period

This was a retrospective and prospective descriptive study that took place from January 1, 2002 to December 31, 2020, a period of 19 years.

2.3. Population

All patients were hospitalized in the gastric cancer ward.

1) Inclusion criteria:

It was included in the study that all patients received in the gastric cancer ward, whether operated or not in whom the diagnosis of gastric cancer was confirmed by the pathological examination.

2) Criteria for not including:

Patients who were not hospitalized in the department;

3) Sampling:

The data were collected using a questionnaire on an individual survey sheet containing demographic, clinical and therapeutic data.

2.4. Media

The documents used as data sources were consultation registries, hospital registries, patient records, registries of surgical reports, results of pathological examinations.

2.5. Data Processing

Data capture and analysis was performed on Excel 2016, Epi info version 7. The statistical comparison test used was Chi2 with a significance threshold $p < 0.05$.

2.6. Ethical Consideration

Data were collected in a manner that respects patients' anonymity and confidentiality.

3. Result

We collected 857 gastric cancer cases in 19 years, representing 25.46% of the 3366 cancers; 40.1% of the 2102 digestive cancers.

The number of stomach cancers per year ranges from 2 (2005) to 85 (2012; 2017).

Men represented 529 and women represented 328.

The 60 - 69 age group accounted for 236 (27.53%); the under-20 age group accounted for 3 cases, see **Figure 1**.

The average age was 55.44 years with a standard deviation of 13.07 years and extremes of 16 and 98 years.

The average consultation time was 13.87 months and extremes of 1 and 240 months. The mode was 12 months. The 7 - 12 months range was the most represented with 46.09%.

Housewives accounted for 40.49% and peasants for 30.34%.

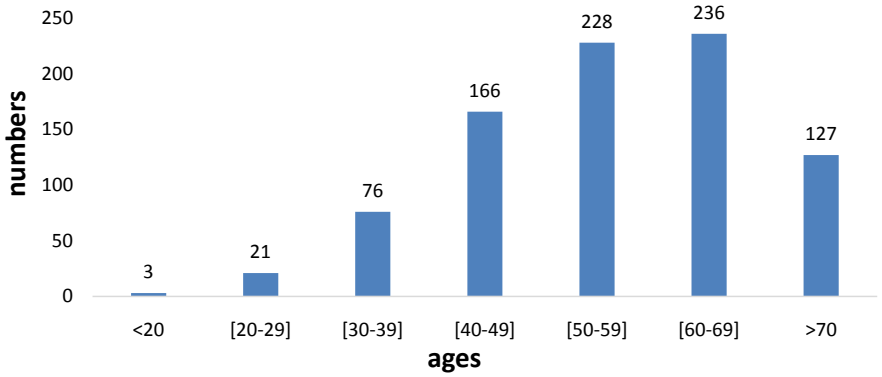

Figure 1. Breakdown by age.

Patients who had regular visits accounted for 96.26% and patients who had emergency visits accounted for 3.74%.

Compared to functional signs, 98.6% of patients had epigastralgia and 93.34% of patients had vomiting, see **Table 1**.

Abdominal mass accounted for 38.79% of the physical signs, ascites for 19% and fasting clapping for 17.85% of the physical signs.

Thirty-three decimal eighty-four percent of patients had a documented history of peptic ulcer.

Sixteen decimal sixty this percent of patients had a history of surgical gastric perforation.

We found 44.81% of ulcerobudding tumor cases, 40.26% of budding tumor cases, 9.33% of ulcerative tumor cases and 5.60% of infiltrating tumor cases. The anatomical location of stomach cancer is summarized in **Table 2**.

Antropyloric localization was the most frequent at 78.64%, followed by corporeal and corporeal localization at 5.37% and 5.25% respectively.

Adenocarcinoma was the most common histological form with 97.55% followed by the other forms: GIST (1.4%); MALT lymphoma (0.82%); carcinoma in situ (0.23%).

Abdominal ultrasound found deep lymphadenopathy in 22.69% of cases, ascites in 15.82% of cases, gastric tumor in 15.52%, liver metastasis in 15.22% of cases.

The scanner showed liver metastases in 17.39% of cases and lung metastases in 7.25% of cases.

The T4 tumor invasion was observed in 75.96% of patients, 21.47% of patients were at a T3 tumor invasion.

Nodular flooding NX was found in 38.62% of patients; N2 (25.79%); N1 (22.87%).

Metastases were observed in 35.94% of patients.

In this study 72.81% of patients were in stage IV; 23.0% of patients were in stage III.

The clinical stage is summarized in **Table 3**.

Chemotherapy associated with surgery was performed in 47.02% of patients, exclusive surgery was performed in 37.22% of patients.

Table 1. Functional signs.

Signs	Workforce	%
Epigastralgia	844	98.6
Vomiting	799	93.34
Anorexia	395	46.1
Asthenia	368	43
Dysphagia	72	20.81
Gastroesophageal reflux	51	14.05
Melena	49	14.12
Hematemesis	39	11.21
Constipation	30	28.84
Hiccups	13	7.47

Table 2. Anatomical location of stomach cancer.

Localization	Workforce	%
Antropyloric	674	78.64
Body	46	5.37
Body + antral	45	5.25
Fundus + antral	40	4.67
Pylorus	19	2.22
Subcardial	16	1.87
Fundus	10	1.17
Fundus + Body	7	0.82
Total	**857**	**100**

Table 3. TNM clinical stage.

Stage	Workforce	%
I	4	0.47
II	31	3.62
III	198	23.1
IV	624	72.81
Total	**857**	**100**

Palliative surgery was performed in 60.66% of patients, curative surgery (25.62%) and therapeutic abstention in 13.71% of cases.

The intraoperative tumor invasion concerned:

Transverse mesocolon 22.07%; pancreas 21.40%; liver 17.73%.

Palliative surgery included gastroenteroanastomosis: 91.6% of cases; gastrectomy cleanliness: 6.85%; gastrostomy diet: 1.37% and jejunostomy diet: 0.23%.

Curative surgery included gastrectomy of 4/5 (85.41%) of cases; total gastrectomy: 7.03% of cases; atypical gastrectomy 5.41% and upper polar gastrectomy: 1.16% of cases.

D1 cleaning was performed in 21.62%; D1, 5 cleaning was performed in 1.62%; D2 cleaning was performed in 63.24% of cases.

The different techniques were carried out:

Jejunal gastro derivation: 66.5%; Bilroth I: 13.70%; Bilroth II: 14.19%; Y-shaped roux: 4.95%; oesogastric anastomosis: 0.66%.

We have 54.05% of R0 cases; 29.73% of R1 cases; 16.22% of R2 cases.

At 3 months post-operative, the sequelae were simple in 53.32% of cases, marked by vomiting in 9.97% of cases, 24.65% of deaths.

We found 79.93% deaths in 12 months, 89.99% deaths in 2 years.

The average survival time for palliative surgery was 7.17 ± 11.16 months with a median of 4 months and extremes of 1 and 60 months. The mode was one (01) month.

The mean survival time after curative resection was 21.18 ± 23.47 months with a median survival of 8.5 months, and 3 patients followed were alive at 5 years.

The median overall post-operative survival of our patients was 5 months, see Figure 2.

4. Comments and Discussions

This retrospective and prospective descriptive study involved 857 patients over a 19-year period. The analysis of these 857 files allowed us to have an overview of stomach cancer in the Department of General Surgery at the teaching hospital Gabriel Touré.

In our study, gastric cancer is the first digestive cancer with 857/2102 cases or

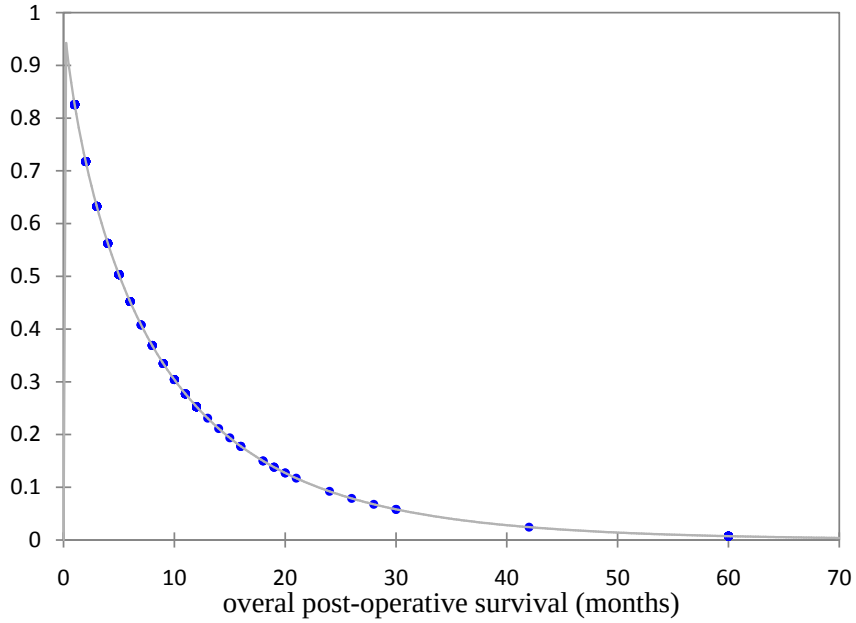

Figure 2. Overall post-operative survival curve.

40.1%. This frequency is statistically lower than those reported by Benhamiche *et al.* [8] in France, Gbessi, D.G. *et al.* [9] in Benin with $p < 0.05$.

This difference could be explained by the sample size; cold storage of food, early eradication of Helicobacter pylori more effective in these countries.

We found 61.73% man, this result is lower than that of B Diop in Dakar [10] who reported 83.33% man in his series; however we have the same result as some authors [2] [11]. Male predominance in the various studies could be explained by the higher alcohol-smoking consumption in the male sex.

The average age in our series is 55.44 years with a standard deviation of 13.074.

This result does not differ statically from those found in other series [12] [13].

The frequency of epigastralgia was 98.6%, there is no difference between our result and that of Koffi who found 88.9%; however, it is higher than those of some authors [11] [14] with a statistically significant difference $p < 0.001$. This difference could be explained by the sample size and also the selection bias.

Gastric adenocarcinoma is the most common histological type of gastric cancer [15]. Its frequency in our series is 97.43%, there is no difference from those of Ivorian, Beninese, and Senegalese authors [3] [9] [10] who reported 72.94% and 83.7% respectively. Our frequency is statistically higher than that of Saleh, K.A. [16] of Kuwait with $p < 0.001$. This difference could be explained by the sample size and also the selection bias.

Stage IV accounted for 72.81% of our study. This frequency is statistically lower than those found in the American [16] and Nepalese [17] series.

This difference would be related to early detection in these countries and also to selection bias.

-Surgery remains the benchmark treatment for early diagnosed gastric cancer. Surgical treatment has been palliative in 60.66% of our series. This frequency does not differ from that of Mohamed, F.K. [18] in Egypt $p = 0.1$.

There is a statistically significant difference with Claassen, Y.H.M. who performed 19% of palliative surgery in her series. This difference would be related to the late diagnosis in our country.

The resection of stomach cancer depends on the clinical stage and nutritional status of the patient.

Our resection rate was 24.85%, which is lower than those of US authors [19], Japanese authors [20] and Egyptian authors [18] with $p < 0.05$.

This difference can be explained by the delay in diagnosis in our context.

Lymph node invasion is a prognostic factor [21].

Lymph node D2 was performed in 58.55% of the resections.

There is a statistically significant difference with that of Bausys, A. ($p = 0.00$) [22].

This difference would be related to the clinical stage of the disease and also to the selection bias.

The anatomical location of the tumor defines the type of gastrectomy [23].

In our series, the lower 4/5 polar gastrectomy represented 21.88%. This result

does not differ from that of Mohamed, F.K. [18] ($p = 0.3$) and Bausys, A. [22] ($p > 0.05$).

Gastroentero-anastomosis was performed in 66.5% of anastomoses. This frequency is higher than that of other authors [10] [24] ($p < 0.001$). This difference would be related to the size of our sample, the proportion of late stages in our study, and selection bias.

Post-operative morbidity in our series was 11.23%. It does not differ from that recorded by Diop, B. [10] in Senegal ($p = 0.5$), but it is statistically low compared to those reported by the other authors [19] [25] ($p < 0.05$). This difference could be explained by the size of our sample and the high frequency of leads in our series.

Surgical mortality has been defined as any surgical-related death within one month of surgery. We recorded a rate of 11.63%. This rate does not differ from those of Guinean authors [26], Japanese authors [20] and Senegalese authors [10] ($p > 0.05$).

On the other hand, it is higher than that of Claassen, H.Y.M. [19], which reported 2.2%, $p = 0.004$.

This difference could be explained by the early management of the disease in Europe, the size of our sample and also the confounding bias between surgical-related deaths and the natural course of the disease.

This is a retrospective and prospective descriptive study, so we have eliminated some incomplete records in the retrospective portion resulting in a decrease in sample size.

However, an analytical study would help us better assess the risk factors for stomach cancer.

Notwithstanding these limitations, this descriptive study allowed us to know the frequency of stomach cancer in our service to evaluate our practice.

It will serve as the basis for a multi-center analytical study across the country to improve planning for the fight against stomach cancer.

5. Conclusions

Stomach cancer remains the first digestive cancer in the general surgery department at teaching hospital Gabriel Touré.

Generally diagnosed at a late stage, low socio-economic social strata are most affected. Esophageal and gastro-duodenal fibroscopy coupled with biopsy histology help find it possible to make the diagnosis. A discussion of files in a multidisciplinary consultation meeting (RCP) is essential for a better therapeutic option.

Late diagnosis leads to palliative management. At an early stage, curative surgery can provide hope for healing.

Conflicts of Interest

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

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