

## Diagnosis and Treatment of Digestives Cancers in Senegalese Rural Area

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### ABSTRACT

**Introduction:** Digestive cancers are becoming a global public health problem. Their management remains multidisciplinary, with surgery remaining the cornerstone. Our goal is to study the diagnostic approaches and treatment modalities for digestive cancers in rural areas with limited resources.

**Patients and Methods:** We conducted a retrospective, descriptive, and cross-sectional study over a period of one year, from January 1, 2023, to December 31, 2023, including all patients aged at least 15 years old, treated in the general surgery department of Cheikh Ahmadoul Khadim Hospital in Touba, located 200 km from the capital of Senegal (Dakar).

**Results:** We collected 85 files with a mean age of 48.5 years and a median age of 43 years. Between 46 and 60 years old was the age group with a majority of 30.6%. There was a sex ratio of 1.36. Esophageal cancer was the most prevalent cancer in 22 cases (22.5%), followed by stomach cancer in 19 cases (22.4%), and pancreatic cancer in 16 cases (18.8%). It took on average 2.2 months to go from surgery to diagnosis. In 50.6% of cases, surgery was curative. In 81 cases (98.8%), laparotomy was the surgical approach. 18 cases (22.8%) had feeding gastrostomy as the most commonly performed procedure, while 16 cases (20.3%) had gastrectomy and 11 cases (13.9%) had double biliary-digestive diversion. The average survival time was 11 months. The rate of postoperative morbidity after surgery was 9.4% (n=8) and the rate of postoperative mortality was 8.2% (n=7).

**Conclusion:** The palliative surgery rate in rural areas is still high, partly because of delayed treatment.

## Keywords

Digestive cancer, Digestive surgery, Touba, Senegal.

## Introduction

Digestive cancers are a public health problem because of their frequency and severity. Treatment, which was previously based on surgery, radiation and chemotherapy, is enhanced by the advent of targeted therapies and immunotherapy. The quality of surgical treatment influences not only the operative prognosis but also the risk of local recurrence and overall survival [1-3]. The objective of our work was to determine the epidemiological profile and describe the results of the management of digestive cancers at the general surgery department in rural area of Senegal.

## Patients and Methods

We did a retrospective descriptive and analytical cross-sectional study over 1 year from January 1, 2023 to December 31, 2023 including all patients aged at least 15 years old, in whom a digestive cancer was diagnosed with histological evidence, have undergone curative or palliative surgical treatment, alone or in combination with other treatment.

## Results

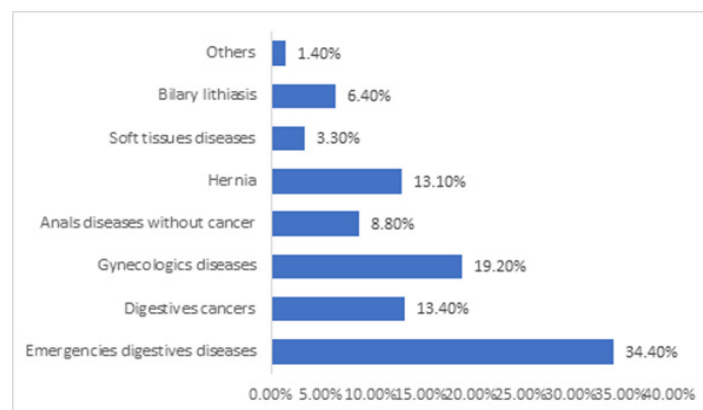
During this period, we collected 85 digestive cancers, which accounted for 13.4% of the pathologies managed in the department (Figure 1). The sex ratio was 0.73, with 49 women (57.6%). The mean age was 48.8 years with a predominance of the 46-60 age group in 27 cases, or 30.6% (Figure 2). The average consultation time was 3 months with extremes of 1 and 12 months. Most patients were seen after 3 months in 65.1% of cases (Figure 3).

The most prevalent cancer in 25.9% of cases was oesophageal cancers, with stomach cancers coming in second at 21.17% and pancreatic cancers coming in third at 18.8%. Colorectal cancer was found in 16.5% of cases and liver cancer in 14.1% of cases (Table 1).

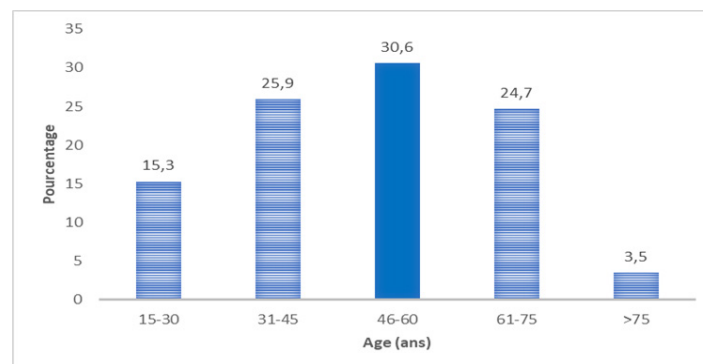
**Table 1:** Location of digestive cancer.

Organ	Number	Percentage
Esophagus	22	25.9%
Stomach	18	21.1%
Pancreas	16	18.8%
Liver	12	14.1%
Rectum	8	9.5%
Colon	6	7.1%
Anus	3	3.5%
Total	85	100%

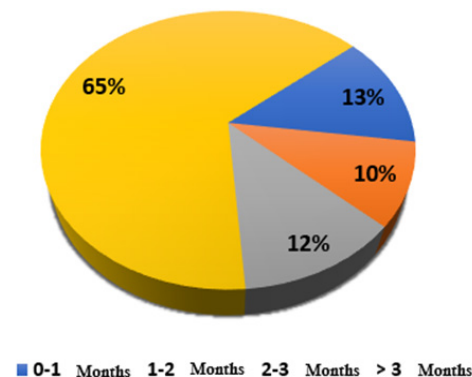
In all locations, adenocarcinoma was the most commonly diagnosed histological type with 44.4 percent of cases, followed by squamous cell carcinoma with 22.3% and CHC with 12.9%.



**Figure 1:** Frequency of digestives cancers of our study.



**Figure 2:** Age of our patients.



**Figure 3:** Dealine of consultation.

**Table 2:** Diagnostic stages of our patients.

	I	II	III	IV	Total
Esophagus	2	3	6	9	20
Stomach	0	0	7	5	12
Colon	0	0	1	2	3
Rectum	0	2	0	5	7
Anus	0	0	1	1	2
Pancreas	0	2	3	5	10
Total	2	5	17	27	

In 50.4% of the cases, surgery was curative. Laparotomy was the primary initial procedure in 96% of the cases. The most performed procedures in curative surgery were gastrectomies in 17.6% of cases, followed by hepatectomies in 9.4% of cases, then abdominopelvic amputations and colectomies in 7.1% of cases, and splenocephalic pancreatomes and esophagectomy in 5.8% of cases.

Palliative surgery was carried out on 44.7% of cases. Feeding gastrostomies were dominated in 21.1% of the cases, followed by biliodigestive derivations in 15.2% of the cases (Table 3).

**Table 3:** Surgical treatment of our patient.

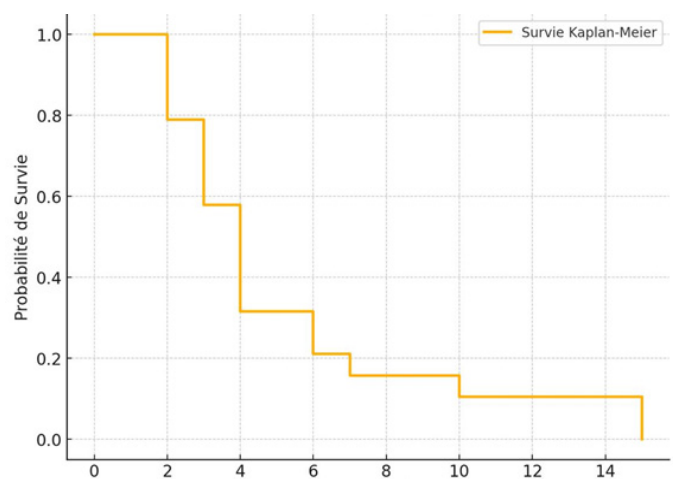
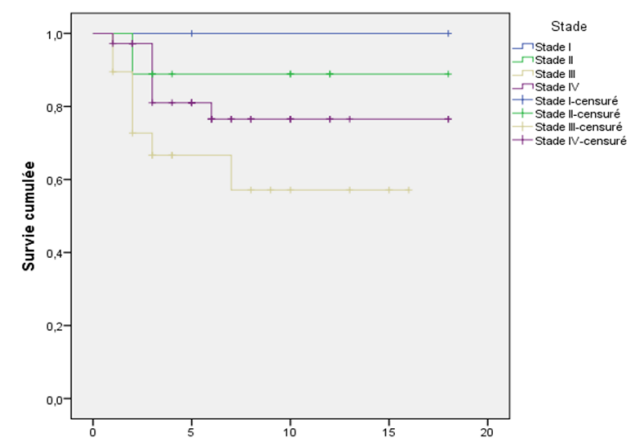
Chirurgie	Number	Percentage %
<b>Curative surgery</b>		
Lewis Santy esophagectomy	3	3.5%
Partial Gastrectomy	15	17.6%
Colectomy	6	7.1%
Total mesorectum resection (TME)	1	1.2%
Abdominoperineal amputation	5	5.8%
Hepatectomy	8	9.4%
Left splenopancreatectomy	3	3.5%
Duodenopancreatectomy	2	2.3%
<b>Palliative surgery</b>		
Feeding gastrostomy	18	21.1%
Biliodigestive anastomosis	13	15.2%
Colostomy	5	5.8%
Feeding jejunostomy	2	2,3%

Chemotherapy was performed in 64.7% of cases, while 27.1% of patients (n=23) received radiation therapy. XELOX was the main chemotherapy protocol.

In Figure 4 and 5, the overall survival rate was 77.6% after 10 months of follow-up, with an average duration of 7 months for any location. Postoperative morbidity was 4.7% (n=4) and post-operative mortality was 5.9% (n=5).

## Discussion

Overall, digestive cancers represent a significant burden of disease worldwide with more than 4,700,000 cases in 2022 [1]. In Europe, according to GLOBOCAN 2022, digestive cancers were 20.1% [1]. In our study, digestive cancers represent 13.4% of the pathologies treated in general surgery. This frequency is lower than that of the western countries and superposable to that observed in Morocco (12.62%) and Ivory Coast (12.3%) [2-5].

**Figure 4:** Survival curve.**Figure 5:** Survival according stage of diagnosis.

According to several studies, digestive cancers have a clear male predominance [2,6,7]. In our study, women were more represented than men with a sex ratio of 0.73. The predominance of women in our study contrasts with literature data from Mali, Africa and the world [2,6,7]. This could be explained by the presence of a majority of women in our sub-region (sex ratio of population at 0.8) [8].

Africa has a higher rate of cancer in younger individuals than Europe, regardless of their sex [9]. In Europe, the average age of GI cancers is high (60-85 years) [10]. The average age of our patients was 52.35 years. N'Diaye in Mali, Kpossou in Benin, and Peghini in Madagascar were 59.9 years old, 54 years old, and 55 years old, while Peghini in Senegal was 48 years old [10-13]. The African population's youth and early exposure to risk factors in our context, such as low fiber diets and GBR, explain the difference.

Our series had an average consultation time of 4 months. In 92% of cases, the cancer was discovered during an evocative symptomatology. This trend was observed in the work of Bang et al., Ouedraogo et al. and Ben Tabbal who had an average consultation time of 5 months, 8 months and 3 months respectively and a symptomatology in 57.2%, 70% and 83.8% [14-16]. This could be

explained by several reasons: the delay in consultation in specialized environment, ignorance or culture, poverty of populations, the use of traditional medicine and self-medication. They only consult in hospitals at an advanced stage of cancer. But also, this delay in consultation could be explained by the lack of a policy of mutualization of health and mass screening in digestive cancers.

Colorectal cancer (CRC) is one of the most common cancers worldwide with nearly 1.4 million new cases per year and 700,000 deaths globally in 2012 [17]. In 2020, 3 digestive tumours (liver cancer, colorectal cancer and stomach cancer) were among the 5 deadliest tumours in the world [18]. In our series, oesophageal cancer is the most common type of digestive cancer (25.9%), followed by stomach cancer (20%) as illustrated in Table 4.

**Table 4:** Location of digestive cancer in literature.

Location	Our study	Cameroon [14]	Benin [11]
Esophagus	25.90%	7.90%	11.40%
Stomach	21.10%	18%	12%
Colorectal	197	49%	22.80%
Liver	18.80%	2.1	38.30%
Pancreas	14.10%	19	11%

Surgery was curative in 50.4% of the cases. Laparotomy was the primary first route in 96% of the cases. The most performed procedures in curative surgery were gastrectomies in 34.9% of cases, followed by hepatectomies in 18.6% of cases, then abdomino-pelvic amputations and colectomies in 11.6% of cases, then spléno-cephalic pancreatectomies and esophagectomy in 6.9% of cases.

Palliative surgery was performed in 44.7% of cases. It was dominated by feeding gastrostomies in 47.3% of cases, followed by bilio-digestive derivations in 34.2% of cases.

Chemotherapy was performed in 64.7% of cases while 27.1% of patients (n=23) received radiation therapy. XELOX was the main chemotherapy protocol.

Conclusion

The management of digestive cancers must be collegial in which multidisciplinary concertation meetings are essential. The advanced stages observed in our series should encourage preventive measures through health education, especially on better hygiene of life especially food but also the need to set up a national cancer registry.

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