

Gastrointestinal Tumors in the Hepatology and Gastroenterology Department of the National Hospital of Niamey: Socio-Demographic, Endoscopic, and Histological Aspects

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Abstract

Introduction: Digestive tumors are increasingly diagnosed at HNN, in a valid and active population (young adult males). Indeed, in Niger, despite relatively frequent endoscopic examinations, digestive tumors are, however, diagnosed late, because most patients consult at a time when the symptoms are obvious and worrying, thus worsening the prognosis. **Patients and methods:** Our study was retrospective, analytical, and descriptive and took place from December 14, 2019, to December 17, 2023, a total of 4 years. **Results:** One hundred and six (106) patients were included. The age group of 50 to 65 was the most represented. The sex ratio M/F was 1.72 and the median age of patients was 54 years. Epigastralgia (42.37%) was the main indication for upper digestive endoscopy and hematochezia (42%) for lower digestive endoscopy. Gastric (46.22%) and anorectal (38.68%) tumors were the most represented. The tumors were macroscopically ulcerative-budding with stenosis. Anatomopathological examinations enabled the diagnosis of 66.67% of digestive tract cancers. Malignant tumors (66.67%) were more frequent than benign tumors. Hyperplastic/inflammatory polyps (76.92%) represented the predominant histological type of benign tumors, and well-differentiated adenocarcinoma (30.77%) represented the predominant histological type of malignant tumors. **Conclusion:** Diges-

tive tumors constitute a major public health problem in our context, due to their frequency, severity, and constant increase. Improving the technical platform and training healthcare personnel in the management of these pathologies could improve the prognosis of these patients.

Keywords

Digestive Tumors, HNN, Epidemiology, Endoscopy, Histology, Niger

1. Introduction

A tumor is an excessive proliferation of cells resulting in a tissue mass that more or less resembles normal adult or embryonic tissue, with a tendency to persist and grow, demonstrating its biological autonomy [1].

Digestive tumors are proliferative neoplasms that develop at the expense of one of the organs of the digestive tract. They may be formed of normal cells and remain strictly localized (benign tumor) or be composed of atypical cells and gradually invade neighboring tissues or spread distantly through metastasis (malignant tumor) [2].

The digestive tract is in constant contact with all the carcinogens in our food, which is why it is the segment most affected by malignant tumors in both sexes. Added to this are the rapid changes in eating habits, especially in urban areas [3].

According to the WHO, cancer is one of the leading causes of morbidity and mortality worldwide; in 2020, there were approximately 19.3 million new cases and nearly 10 million deaths related to the disease. Digestive cancers are the most common, with colorectal cancers ranking second (9.4%) after lung cancer, followed by liver cancer (8.3%) and stomach cancer (7.7%) [4].

Malignant tumors are more common than benign tumors in humans. The distribution of these tumors across the different segments of the digestive tract varies, as does their sociodemographic distribution from one country to another [5].

The diversity of tumors affecting all parts of the digestive tract requires in-depth knowledge of these pathologies and collaboration between different areas of expertise in order to establish a diagnosis and develop a treatment strategy [6].

In Africa, the development of digestive endoscopy, exploratory surgery, and anatomopathological examination makes it possible to diagnose many cases of digestive cancers at a very early stage and to determine the histological type.

In Niger, despite relatively frequent endoscopic examinations, digestive cancers are nevertheless diagnosed late, as most patients consult at a time when the symptoms are obvious and worrying, thus worsening the prognosis. In addition, there are only a limited number of pathology and cytology laboratories for pathological diagnosis.

Histology remains essential for the definitive diagnosis of these tumors. We therefore undertook this study at the National Hospital of Niamey with the aim of describing the sociodemographic, endoscopic, and histological aspects of diges-

tive tumors.

2. Methodology

The Hepato-Gastroenterology Department of the National Hospital of Niamey (HNN) served as the setting for our study.

This is a retrospective, descriptive, and analytical study covering the period from December 14, 2019, to December 17, 2023, *i.e.*, four years.

The study population consisted of all patients who underwent digestive endoscopy in the Hepato-Gastroenterology Department of the HNN. Our study included all patients diagnosed with a tumor-like lesion by digestive endoscopy. An endoscopic tumor lesion refers to an abnormal tissue growth visible during endoscopy, appearing as a mass, thickening, or deformation of the mucosa, which can be of benign or malignant origin. These endoscopic lesions were either exophytic (protruding, polypoid), or infiltrative (rigid thickening, loss of mucosal relief), or ulcerative-proliferative.

Data were collected on a pre-established individual survey form using the digestive endoscopy registry of the Hepatology and Gastroenterology Department at HNN and those of the pathology laboratories at HNN, FSS, and the private medical practice LIKITA NONO.

The data were processed using Microsoft Office 2016 Word and Excel software, and the analysis was performed using Epi-Info software version 7.2.4.0.

The information collected for each of the patients included in this study remained confidential. We also received:

- Research authorization from the FSS/UAM;
- Authorization from the National Hospital of Niamey (HNN).

During this study, we encountered certain obstacles, including:

- The lack of certain data;
- Not all patients underwent biopsy;
- The absence of pathological examinations in some patients.

Despite these shortcomings, this study provides a comprehensive overview of digestive tumors in the Hepatology-Gastroenterology Department at HNN.

3. Results

Over a four-year period (from December 14, 2019, to December 17, 2023), 2779 digestive endoscopies were performed, including 1810 upper digestive endoscopies and 969 lower digestive endoscopies. Among upper endoscopies, 57 cases of tumors (3.15%) were recorded, compared to 49 for lower endoscopies (5.06%), for a total of 106 cases of tumors.

The graph provides an estimate of the annual evolution of tumor-like lesions in the HGE department of the HNN from 2019 to 2023.

From 2020 onwards, there is a trend towards an increase in tumor-like lesions, reaching a peak in 2021, then decreasing and gaining considerable momentum again in 2022, reaching its peak in 2023 (**Figure 1**).

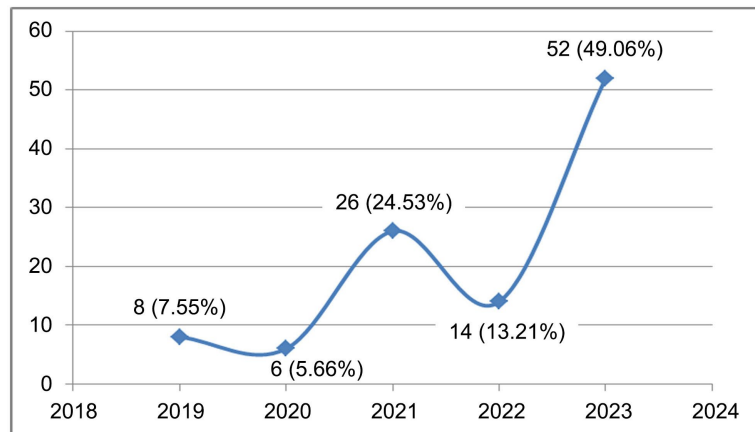


Figure 1. Annual distribution of patients.

Males predominated, accounting for 63.21% of patients, with a sex ratio of 1.72 (**Figure 2**).



Figure 2. Gender and patients.

The 50 - 65 age group was the most common, accounting for 44.34%. The median age was 54, with extremes of 10 and 80 (**Table 1**).

Table 1. Age groups.

Age groups	Number	(%)
[5 - 20 years old[2	1.89
[20 - 35 years old[15	14.15
[35 - 50 years old[28	26.42
[50 - 65 years old[47	44.34
≥65 years old	14	13.21
Total	106	100

Epigastric pain was the most common indication for upper gastrointestinal endoscopy (42.37%), while hematochezia was the most common indication for lower gastrointestinal endoscopy (42.00%).

Upper digestive tract tumors were the most common, accounting for 53.77% of

cases (Table 2).

Table 2. Location of the tumor in the digestive tract.

Tumor location	Number	(%)
Upper digestive tract tumor	57	53.77
Lower digestive tract tumor	49	46.23
Total	106	100

In the upper digestive tract, the antrum was the predominant site of tumor lesions (64.91%), while rectal lesions were the most common (55.10%) in the lower digestive tract.

In most cases, the tumors were macroscopically ulcerative with stenosis (Table 3).

Table 3. Endoscopic appearance of tumor lesions.

Macroscopic appearance	Number	(%)
Ulcerative with stenosis	41	38.68
Ulcerative without stenosis	35	33.02
Polyploid	30	28.30
Total	106	100

Biopsies were performed in 92 of our patients, or 86.79%. So the biopsy was not done in 14 patients.

All 92 patients who underwent biopsy underwent histological examination, but results were only available for 71 (77.17%).

Of the 71 histological reports found, 39 were tumorous (54.93%) and 30 were non-tumorous lesions (42.25%). So the histological analysis was therefore only performed on this subset of 39 cases.

Malignant tumors (66.67%) were more common than benign tumors (Figure 3).

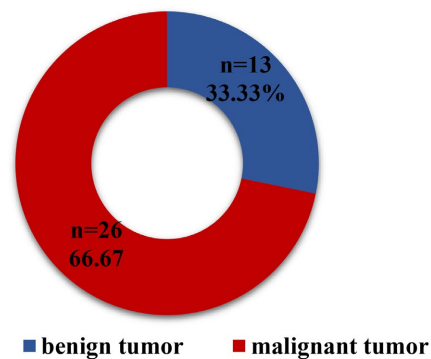


Figure 3. Histological type of tumors.

Hyperplastic/inflammatory polyps represent the most predominant histological type of benign tumors (76.92%) and well-differentiated adenocarcinoma that of malignant tumors (30.77%) (Table 4 and Table 5).

Table 4. Histological type of benign tumors.

Benign tumors	(n)	(%)
Hyperplastic/inflammatory polyp	10	76.9
Adenomatous polyp	2	15.3
Papilloma	1	7.7
Total	13	100

Table 5. Histological type of malignant tumors.

Malignant tumors	(n)	(%)
Well-differentiated adenocarcinoma	8	30.77
Moderately differentiated adenocarcinoma	6	23.08
Poorly differentiated adenocarcinoma	7	26.92
Adenocarcinoma with unspecified differentiation	5	19.23
Total	26	10

4. Discussion

During the period of our study, 106 cases of tumor-like lesions were identified in 2779 upper and lower digestive endoscopy reports, representing 3.81%. This rate is comparable to that reported by Soumia A. in 2017 in Morocco (3.40%) [7]; higher than that reported by Daouda M. in 2017 (1.32%) [8]; but lower than that reported by Modibo M. in 2020 (7.4%) [9].

Our study reported a male predominance with a frequency of 63.21% and a male-to-female sex ratio of 1.72. Our results are consistent with those reported in the literature. Mamoudou G. in Niger in 2014 [6], Fasseu M. in Mali in 2016 [10], and Rharrabti A. in Morocco in 2014 [11] reported sex ratios of 1.62, 1.27, and 1.70 in favor of men, respectively. This male predominance could be explained by the fact that men are more prone to risky behaviors, such as smoking, drinking alcohol, or working in occupations that involve greater exposure to carcinogens.

The median age of our patients was 54, with extremes ranging from 10 to 80. The 50 - 65 age group was the most represented, with a frequency of 44.34%. Our results are similar to those reported by Sacko O. *et al.* in 2014 [12], E. Olivier in 2017 [13] and Check A. in 2019 [14], all in Mali, where the average age was 55, 55.30, and 54, respectively, for gastric cancers only. However, they differ from those of Mamoudou G. *et al.* in 2014 [6], Sani R. *et al.* in 2004 [15], and Moustapha in 2013 [16], all from Niger, reported 47 years, 47.16 years, and 47.01 years, respectively. This difference could be explained by a predominantly young population, as young people are more likely to seek medical advice.

The main indication for upper gastrointestinal endoscopy was epigastric pain in 42.37% of cases, followed by vomiting in 30.51% of cases. Our results are similar to those of Bouglouga O. *et al.* in 2015 in Togo [17] and Sanogo S. *et al.* in 2023 in Mali [18] with 44% and 33.4% respectively; but also to those of Togo A. *et al.* in 2009 in Mali [19] with 91.4% who found epigastric pain to be the main indication. The frequency of vomiting in our study is indicative of late consultation.

Hematochezia was the most frequent indication for lower digestive endoscopy, at 42%. This rate is comparable to that reported by Muka A. *et al.* in 2024 in Congo, which was 49.1% [20].

At the oesophagogastrroduodenal level, the antrum was the predominant site in 64.91% of cases in our study. Our results are comparable to those of Youssouf O. in 2022 [21] and Diakité A. in 2014 [22], both in Mali, who reported 51.35% and 40.3% respectively. But also to those of Talfi M. in 2021 [23] and Oumarou A in 2024 [24], both in Niger, who found a predominance of antral localization with 28.57% and 75%, respectively. In our region, the tumor was predominantly distally (antrally) located. This high frequency of distal location may be linked to the prevalence of *Helicobacter pylori* infection, which plays a significant role in carcinogenesis, as reported by Rajesh. P and various authors [25]. Indeed, *H. pylori* infection is very common in developing countries, particularly in Africa. Studies report an overall prevalence in West Africa ranging from 60% to 95%. A prospective study carried out at the Niamey General Hospital found an *H. pylori* infection prevalence of 66.4% among patients seen in gastroenterology, diagnosed using a rapid stool antigen test. This prevalence suggests that the infection is common in Niger, although it may be lower than in some neighboring countries, which can be explained by differences in the populations studied, diagnostic methods, and access to healthcare. In our study, most tumors were macroscopically ulcerative with stenosis (38.68%). This differs from other studies such as Sanogo D. *et al.* in Mali in 2023 [18], Mali K. in Burkina Faso in 2019 [26], Diop B. *et al.* in Senegal in 2017 [27], and Sayri A. in Niger in 2021 [28], in which the ulcerative-proliferative aspect was predominant. Other authors, however, report a predominance of ulcerated lesions (Engbang *et al.* in 2017 in Cameroon [29]) or stenotic forms (Gbessi *et al.* in 2013 in Benin [30]). These differences in the description of the macroscopic appearance can be explained by the experience of the operator and, above all, by the lack of standardization in the description of endoscopic lesions. Hyperplastic/inflammatory polyps are the most prevalent histological type of benign tumors, followed by adenomatous polyps, with 76.92% and 15.38%, respectively. This is consistent with the study by Ibara *et al.* in Congo [31] in their study on upper digestive tract pathology, where hyperplastic polyps ranked first with 58.33%, followed by adenomatous polyps with 41.67%. Our results contrast with those of Sissoko A. in Mali [32], who found a predominance of adenomatous polyps (85.3%), followed by leiomyomas (8.8%), villous polyps (3.8%) and only two fibroids and one case of lipoma in his study on benign stomach tumors. In the study by Bougouma A. *et al.* in Burkina Faso [33] on lower digestive endoscopy, 8 hy-

perplastic polyps, 2 adenomatous polyps and 1 case of villous adenoma were observed. Yamada *et al.* [34] in their study on gastric adenoma, found 48 cases of adenomatous polyps over 8 years.

Well-differentiated adenocarcinoma was the predominant histological type, accounting for 30.77% of cases, which is comparable to the findings of Diakité A. in 2013 [22] and Diarra N. in 2011 [35], both in Mali, where well-differentiated adenocarcinoma also predominates, accounting for 38% and 57.7% of cases, respectively.

5. Conclusions

Digestive tumors are a major public health problem in our context, due to their frequency, severity, and constant increase.

Digestive tumors are increasingly being diagnosed at the HNN in a healthy and active population (young adult males).

This study provides an overview of these tumors at the HNN and finds more upper digestive tract tumors than lower digestive tract tumors, contrary to what is found in most studies. This can be explained by the easier accessibility to gastroscopy, which is relatively cheaper than colonoscopy for our population with limited resources, where the costs are entirely borne by them.

Study limitations

The limitations of the study were related to the difficulty in retrieving the histological results because the biopsies were sent to several pathology centers in Niamey without any traceability.

Conflicts of Interest

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

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