ORIGINAL ARTICLE

Epidemiological and pathological aspects of gastrointestinal tumors in Togo

Aspects épidémiologiques et anatomopathologiques des tumeurs du tube digestif au Togo

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Summary

Purpose. — The incidence of gastrointestinal tumors is difficult to estimate in Togo, so the purpose of this report was to describe the tumors diagnosed by the national pathology laboratory.

Methods. — This was a retrospective descriptive study of 742 gastrointestinal tumors diagnosed between 1986 and 2005 by the pathology laboratory of the Tokoin university hospital in Lomé, Togo.

Results. — There was an annual incidence of 37 gastrointestinal tumors, including 27 cancers, with twice as many tumors diagnosed in men as in women. The average age of patients diagnosed with a benign tumor was 44 years compared with 52 years for those with a malignant tumor. Stomach tumors predominated \((n=306; 41.2\%\)) . Papilloma was the most frequent benign tumor type \((n=100; 47.8\%\)) , while malignant tumors were mostly gastric adenocarcinoma \((n=224; 42\%\) of all cancers), esophageal squamous cell carcinoma \((n=100; 19\%\)) and colorectal adenocarcinoma \((n=89; 17\%\)) .

Conclusion. — Gastrointestinal tumors are frequently seen in Togo, and an epidemiological monitoring program is needed.

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Résumé

Rationnel et objectifs. — L’ampleur des tumeurs du tube digestif est difficile à évaluer au Togo. Le but de ce travail était de décrire les aspects épidémiologiques et anatomopathologiques de ces tumeurs au Togo.

Malades et méthodes. — Il s’agit d’une étude rétrospective et descriptive portant sur 742 cas diagnostiqués entre 1986 et 2005 au laboratoire d’anatomie pathologique du CHU Tokoin de Lomé.

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Introduction

The incidence of gastrointestinal tumors varies, depending on geographical location and ethnic background. In Africa, the incidence has long been underestimated due to the lack of investigative means sufficient for satisfactory epidemiological assessment. In addition, the predominance of endemic infectious diseases has a serious impact on the healthcare services. However, the advent of gastrointestinal endoscopic methods in certain African countries has enabled earlier identification of many digestive-tract tumors, offering the opportunity to conduct studies of specific tumors, especially those that are malignant [1–3]. Little research has been devoted to gastrointestinal tumors in Togo, a small country on the west coast of Africa, where 6,145,000 inhabitants occupy a surface area of 56,600 km². The current population growth rate in Togo is 2.7%, with a life expectancy of 57 years. The population is very young (50% are under 15 years of age, and 60% are under 20). In 1987, 1% of the adult population was found to be HIV-seropositive. This rate increased to 6% in 2000, but was down to 4.5% in 2004 [4]. The purpose of our study was to describe the epidemiological and pathological features of gastrointestinal tumors in Togo using the currently accepted classifications [5].

Materials and methods

This retrospective descriptive report is based on 742 cases of gastrointestinal tumors diagnosed from January 1986 to December 2005 (20 years) at the pathology and cytology laboratory of the Tokoin university hospital in Lomé, Togo. These cases were collected from the laboratory’s registry. The study material included biopsy and operative specimens, fixed in 10% formol and furnished by a number of healthcare facilities across Togo. These specimens were examined using conventional histological methodology. The pathology slides and paraffin-block recuts were reexamined, and complementary tests were performed when necessary. Adnexal tumors were excluded from the analysis.

Results

Overall findings

Of the 742 cases of gastrointestinal tumors diagnosed during the 20-year study period, 209 were benign and 533 were malignant. The material received by the pathology laboratory comprised 563 endoscopic biopsy specimens (76%) and 179 surgical specimens (24%). The annual incidence ranged from 15 to 79 tumors, with a mean of 37 per year (including a mean of 27 malignant tumors annually) (Fig. 1). Male gender predominated: 499 tumors (359 malignant and 140 benign) were from male patients, and 243 tumors (174 malignant) were from female patients, comprising 67 and 32%, respectively, of all tumors examined in the study. The age range was wide (1–98 years), with a mean patient age of 50 years for all tumors, 43.6 years for benign tumors and 51.7 years for malignant tumors (the youngest patients were five years old) (Fig. 2). The predominant tumor sites were the stomach, esophagus and colorectum (Table 1). The histological type was epithelial for 90% of the benign tumors (100 papillomas, 47.8%; 81 tubular adenomas, 38.8%; and seven villous...
adenomas, 3.4%) and leiomyomatous for the remaining 10% (n = 20). Cancers included 360 adenocarcinomas (67.5%), 120 squamous cell carcinomas (22.5%), 30 lymphomas (5.6%), 11 undifferentiated carcinomas (2.1%), eight sarcomas (1.5%) and four carcinoid tumors (0.8%).

### Tumor locations

#### Esophagus

There were 93 benign tumors of the esophagus (88 papillomas, four tubular adenomas and one leiomyoma), involving 59 men and 34 women with a mean age of 47.8 years. Papillomas were more prevalent after 1994 (68% from 1994 to 2005).

A malignant tumor of the esophagus was found in 114 patients, 92 in men (74%) and 32 in women (26%). Mean age was 54.8 years, with most patients being within the 45–55 age range. One hundred tumors (80.6%) were squamous cell carcinomas and 24 (19.4%) were adenocarcinomas. Squamous cell carcinomas were classified as mature (90%), keratinizing (55%), nonkeratinizing (35%) and poorly differentiated (10%).

#### Stomach

These tumors were benign in 14.7% of cases, with a mean age of 42.5 years. The histology indicated adenoma (89%: 84% tubular and 5% villous) and leiomyoma (11%). Malignant tumors were diagnosed in 261 patients (184 men and 77 women), mean age 53 years (range 13–95 years). The tumors were located in the antrum (n = 162; 62%), the cardia (n = 31; 12%) or the fundus (n = 26; 10%), with the location not available for 42 cases (16%). The majority of the tumors were carcinomas (Table 1).

#### Small bowel

Small bowel tumors comprised 5.8% of our series: 37.2% of these were benign tumors in patients aged 40.6 years on average, and 62.8% were malignant tumors in patients aged 50.3 years (including two children aged five years). Small bowel cancer was found in 17 men and 10 women, and consisted of adenocarcinoma (n = 19; 70.4%), lymphoma (n = 4; 14.8%), sarcoma (n = 3) and carcinoid tumor (n = 1).

#### Colorectum

Benign colorectal tumors were documented in 37 patients (28 men and nine women), mean age 34.5 years. Histological types were: tubular adenoma (n = 28; 75.7%); villous adenoma (n = 4; 10.8%); and leiomyoma (n = 5; 13.5%). Colorectal cancer was diagnosed in 99 patients (60% male, 40% female), mean age 46 years. The annual incidence was five cases on average. These cancers were located in the rectum (64.7%) and colon (35.3%). Histological types were: adenocarcinoma (n = 89; 90%); lymphoma (n = 5; 5%); undifferentiated carcinoma (n = 2; 2%); carcinoid tumor (n = 2.2%) and squamous cell carcinoma (n = 1).

### Table 1

<table>
<thead>
<tr>
<th>Tumor Location</th>
<th>Malignant Tumors</th>
<th>Benign Tumors</th>
<th>All Tumors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagus</td>
<td>124 (23.3%)</td>
<td>93 (44.5%)</td>
<td>217 (29.2%)</td>
</tr>
<tr>
<td>Stomach</td>
<td>261 (49.0%)</td>
<td>45 (21.5%)</td>
<td>306 (41.2%)</td>
</tr>
<tr>
<td>Small bowel</td>
<td>27 (5.0%)</td>
<td>16 (7.7%)</td>
<td>43 (5.8%)</td>
</tr>
<tr>
<td>Colorectum</td>
<td>99 (18.6%)</td>
<td>37 (17.7%)</td>
<td>136 (18.3%)</td>
</tr>
<tr>
<td>Appendix</td>
<td>2 (0.4%)</td>
<td>0 (0.0%)</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Anal canal</td>
<td>20 (3.7%)</td>
<td>18 (8.6%)</td>
<td>38 (5.2%)</td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Histological Type</th>
<th>Tumors (n = 261)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intestinal adenocarcinoma</td>
<td>151</td>
<td>57.8</td>
</tr>
<tr>
<td>Mucinous adenocarcinoma</td>
<td>39</td>
<td>15.0</td>
</tr>
<tr>
<td>Signet-cell adenocarcinoma</td>
<td>34</td>
<td>13.0</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>21</td>
<td>8.0</td>
</tr>
<tr>
<td>Undifferentiated carcinoma</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>Squamous cell carcinoma</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>Malignant carcinoid tumor</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

#### Discussion

This study provided a panorama of the main tumors of the digestive tract observed in Togo, albeit limited to tissue samples examined by the national pathology laboratory. Several cases may have been missed because no biopsy or surgical specimen was available, or because patients sought care outside of healthcare facilities performing such surgical or endoscopic procedures. All pathological diagnoses were based on standard techniques, as the Togo laboratory lacks the facilities that would allow the more sophisticated methods, such as immunohistochemistry, that are indispensable for more precise diagnoses and would vastly improve the quality of service on offer.

During the period covered by the study, digestive-tract tumors were regularly diagnosed except for two periods of interruption: one in 1992–1993, due to a nationwide general strike; and the other in 1998–1999, when an anarchic
proliferation of private clinics and centers of traditional medicine compromised the transfer of tissue specimens to the pathology laboratory. The annual incidence of digestive tract tumors was 37 cases, including 27 malignant tumors. Swadogo et al. [2] in Burkina-Faso and Grizeau et al. [6] in Reunion Island reported 18 and 184 cases, respectively, of gastrointestinal cancers annually. These differences were related to population size and geographical differences in tumor distribution. In Togo, the reduced demand for pathology examinations in recent years has led to an underestimation of tumor incidence in general, and gastrointestinal tumors in particular.

The most common tumor location was the stomach, followed by the esophagus and colorectum. Benign tumors of the stomach were mainly adenomas, as most of the samples were from mucosal biopsy. Cancer of the stomach was the leading cancer, accounting for 49% of all malignant tumors in our series. Although it has declined considerably in industrialized countries, the incidence of stomach cancer remains high in our region. In France, it accounts for 12% of all digestive tract tumors and is the second leading gastrointestinal cancer after colorectal cancer [7]. The incidence of stomach cancer in Africa is related partly to diet and partly to precancerous lesions, particularly Helicobacter pylori-related chronic gastritis [8]. Improved living conditions would very likely contribute to regression of this type of cancer.

The mean age of our patients was the same as reported for Senegal [9], but lower than the 70 years seen in France [7]. In Africa, stomach cancer occurs in relatively young subjects, considering the shorter life expectancy of the population. We noted rates of 86% for adenocarcinoma and 8% for lymphoma, which were comparable to reports by Peghini et al. in Madagascar, which has rates of 88% for adenocarcinoma and 7% for lymphoma [3]. The two cases of squamous cell carcinoma in our series were due to spreading of esophageal cancer.

The high incidence of benign tumors of the esophagus, particularly papilloma, is probably related to the renewed resurgence of human papillomavirus (HPV) infection in association with HIV infection/AIDS in Togo. Nearly half of the papillomas were found in the last five years of the study period. Nevertheless, cancer of the esophagus is becoming less frequent in Togo as in most other black African countries [1,2,9]. The risk appears to be higher among black people in South Africa, where 240 cases were seen over 10 years in one Pretoria hospital [10]. Cancer of the esophagus predominantly affects men, with a gender ratio in Senegal of 2.5 [9] compared with 2.7 in the United States [11] and in our study. The gender difference may be related to diet and smoking habits [12]. Esophageal cancer is rarely seen before age 30, and most cases arise in the fifth decade [2,3,9]. Squamous cell carcinoma is the most common type of cancer at this site, arising from the esophageal mucosal lining. Adenocarcinoma develops on Barrett’s esophagus, or by localized spreading of a subcardial or greater-curvature adenocarcinoma [12].

Benign colorectal tumors are generally tubular or villous adenomas found in younger patients. These are precancerous lesions that can progress, leading to an increase in the incidence of colorectal cancer that, at the present time, is the third leading gastrointestinal cancer in Togo. Colorectal cancer is classically rare in intertropical Africa because of the low animal-fat-rich and high vegetable-fiber diet. The slight male predominance we observed has also been noted in Burkina-Faso [2] and in Auverge, France [13]. The mean age of African patients is much lower than in industrialized countries — 72 years in France versus 46 years in the Ivory Coast [1] — as was also the case in our study. Rectal tumors predominated, probably because of incomplete exploration of the colon. As also noted by Ayité et al. [14], we observed a predominance of adenocarcinoma in our series. The sole case of squamous cell carcinoma diagnosed was an extension of an anal lesion.

Small bowel tumors are rare, accounting for 5.8% of the tumors in our series, consistent to that reported by Naef et al. (3–6%) [15]. The mean age of our patients was also similar to that reported by other African studies [2,6,14], but lower than that reported in the developed countries (for example, 70 years in the US) [16]. The predominance of lymphomas reported by some researchers [14,15] was not supported by our results, in which adenocarcinoma was the most common histology, followed by lymphoma.

We found few tumors of the anal canal: 38 cases in 20 years, including 20 that were malignant. Ayité et al. [14] reported three cases in 10 years. This growing rate of anal tumors in Togo is likely to be related to the increase in sexually transmitted infections, which favors the development of cancer [17]. Unlike the data reported in the literature, the slight male predominance observed in our study is probably related to the emergence of a new, growing population of male homosexuals or of those with a history of condyloma [17]. However, the six cases of adenoma were, in fact, lower rectal tumors erroneously diagnosed as anal tumors. Similarly, the adenocarcinomas were certainly extensions of rectal cancer because these glandular tumors cannot develop in the anal canal, where tumors arise essentially in the malpighian layer.

Tumors of the appendix are unusual: our series included two cases; and Ayité et al. [14] reported four cases in 10 years. Inflammatory lesions, however, are commonly seen in the appendix.

Conclusion

Tumors of the digestive tract are not unusual in Togo. The annual incidence is 37 new cases, including 27 malignant tumors. Two-thirds of the tumors are diagnosed in men, and the mean age of the patients is 50 years. Stomach tumors make up the majority of cases. Carcinoma is the most common histological type found, followed by lymphoma. The high incidence of gastrointestinal tumors in general — and of malignant tumors in particular — in Togo emphasizes the importance of developing an epidemiological monitoring program to detect these tumors and provide early care for those patients who have precancerous lesions.

References


