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SMALL BOWEL CANCER: EPIDEMIOLOGICAL AND HISTOPATHOLOGICAL CHARACTERISTICS

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ABSTRACT-
Cancer of the small bowel is rare. Due to the difficulty of exploring this part of the digestive tract, tumors are often diagnosed at advanced stage.
The aim of this study was to determine the epidemiological and anatomopathological aspects of small bowel cancers in Madagascar. This is a retrospective, monocentric, observational, descriptive study, realized at the Department of Pathology of JRA University Hospital, during 10 years.
There were 33 cases, with an average of 49 years and a predominantly female (sex ratio = 0,7). Abdominal mass was the most clinical presentation. Histologically, 61% were adenocarcinoma, 30% of lymphoma and 9% of gastrointestinal stromal tumor.

Keywords – Adenocarcinoma, GIST, Lymphoma, Small bowel cancer

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1. Introduction

Cancer of the small bowel is defined as malignant tumor proliferation of the cells making up the small intestine. It is an uncommon pathology, with an overall incidence of less than 0.6 cases per 100,000 inhabitants. The lowest incidence was recorded in sub-Saharan Africa, at 0.12 cases per 100,000 inhabitants [1]. Despite this rarity, it is a serious condition, as the small intestine is the most difficult part of the gastrointestinal tract to examine, despite the many advanced imaging techniques available. Consequently, lesions are often diagnosed at advanced, metastatic or complication stages [2, 3
The aim of this study is to determine the epidemiological and anatomopathological profile of small bowel cancers in Madagascar.

2. Method

This is a retrospective, monocentric, observational, descriptive study of small bowel cancers diagnosed at the Department of Pathology of JRA University Hospital in Antananarivo, over a 10-year period from January 2013 to December 2022.

3. Results

During the study period, 33 cases of small bowel cancer were collected. Age ranged from 3 to 89 years, with an average of 49 years. The age group between 40 and 60 was the most affected. The sex ratio was 0.74, with 14 (42%) were male and 19 (58%) female.
According to clinical information, 13 patients (39%) presented abdominal mass, 6 (18%) occlusive syndrome, 5 (15%)
digestive hemorrhage, 3 (9%) abdominal pain, 2 (6%) abdominal pain, and 1 patient (3%) vomiting and jaundice.
The affected organ was the jejuno-ileum in 55% of cases (n = 18) and duodenum in 45% (n = 15). The macroscopic appearance was budding in 70% of cases (n = 23), 24% ulceration (n = 8), and 6% nodule (n = 2). Histologically, 20
(61%) were adenocarcinoma, 10 (30%) were lymphoma, and 3 (9%) were gastrointestinal stromal tumor (GIST) Figure
1, Table I.

Table I: Distribution of histological types

Histological type	n (%)	Histological subtype	n (%)
Adenocarcinoma (61)	20		
		Adenocarcinoma NOS	16 (49)
		Independent cell adenocarcinoma	2 (06)
		Mucinous adenocarcinoma	1 (03)
		Papillary adenocarcinoma	1 (03)
Lymphoma (30)	10		
		Diffuse large B cell lymphoma	4 (12)
		Burkitt lymphoma	2 (06)
		MALT lymphoma	2 (06)
		Hodgkin lymphoma	2 (06)
GIST	3 (09)		

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4. Discussion

There were 33 cases of small bowel cancer, representing an annual average of 3.3 cases. This finding has been mentioned by some authors, such as Raharisolo et al, a malagasy study (2.5 cases/year) [4] or Moroccan studies by Mellouki et al, Halima et al observed respectively 2.4 and 2.7 cases/year of small bowel cancer [2,6]. A series carried out in Abidjan by Ouedraogo et al, showed a frequency of 5.4 cases/year [5]. All these results confirm the rarity of this pathology. According to the literature, this may be linked to the characteristics and structures of the small intestine. Indeed, the rapid regeneration of the intestinal mucosa, the low bacterial density producing carcinogenic metabolites, and the rapid transit through the small intestine reducing the contact time with carcinogens are involved in the protection of the small intestine against the appearance of neoplasms. The ileal wall also has a large lymphoid tissue and a high concentration of immunoglobulin A, which also plays a major role [6, 7].

In this study, the mean age at diagnosis was 49 years. Several authors such as Didier et al [2], Mellouki et al [6], Halima et al [6] found similar cases, with a mean age of 46 years. However, some authors, such as Raharisolo et al [4] (36 years) or Yoo et al [8], Koc et al [9] (55 years), found a younger mean age.

In this series, a female predominance was noted, with a sex ratio to 0.74. This has been observed in numerous studies. Raharisolo at al [4], Ouedraogo et al [5], Cardoso et al [10] observed a sex ratio of 0.78, 0.63 and 0.85 respectively. However, some authors such as Yoo et al [8], Halima et al [6] have noted a male predominance.

Concerning the clinical features, abdominal mass was the most common clinical finding in this series, accounting for 39% of cases, which is also the most frequently mentioned symptomatology in the literature. For example, Zhou et al
[11] found a rate of 57.3% of cases. Intestinal obstruction was reported in 13% of cases in the series by Rangiah et al
[12] and in 11% of cases in that of Honda et al [13].

The jejuno-ileum is the preferred site for lesions in the different segments of the bowel, accounting for 55% of cases, as confirmed by studies such as those by Cardoso et al [10] and Farhat et al [14], with proportions of 62.07% and 62.5% respectively.

Concerning the macroscopic appearance, cancers are most often budding lesions (70% of cases). Mărgăritescu et al [15] also noted that the budding form was the most common (58% of cases), but less frequent in the series conducted by Cheung et al [16] (19.3% of cases). On microscopic examination, adenocarcinoma was the most common histological type observed, both in the present study and by other authors [12]. However, a lower proportion was found for some, such as Raharisolo et al [4] (30%), Farhat et al [14] (33%). In fact, there is a variation in frequency depending on geographical location, with higher rates in North America and Western Europe, and lower rates in Asian and African countries [17]. The most common tumour site is the duodenum [9], in 68% of cases. According to the literature [18, 19], this may be linked to exposure of the duodenal wall to bile and its metabolites.

Lymphoma was the second most common histological type of small bowel cancer, accounting for 30% of cases. Other authors had same result such as Yoo et al [8], Koc et al [9], with a proportion of 28.57% and 25% respectively. In the study made by Raharisolo et al [4], lymphoma was the most type histological encountered (40%). This diagnostic entity concerns the entire ileum noted in this series and in the literature. Razafindrafara et al [20] found an ileal localization of lymphoma in 63% of cases, and 65% for Cheung et al [21]. This affinity for the ileum may be explained by the wealth of lymphoid organs in this region of the small intestine [22].

Gastrointestinal stromal tumours are less frequent in this work (9%), but higher in others such as Yoo et al [8] (25%), Robles et al [23] (28.5%) and much higher or even predominant in the serie of Mellouki et al [2](51% of cases), constituting the first histological type encountered.

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5. Conclusion

Cancer of the small bowel is rare. It is predominantly found in women between the ages of 40 and 60. Although rare, it is important to be aware of this pathology, which is most often diagnosed at a late stage. This is due to the difficulty of exploring the small intestine, the lack of specificity of the clinical manifestation, and the fact that different histological types of cancer can be observed in this part of the digestive tract. Adenocarcinoma is the most frequent type.

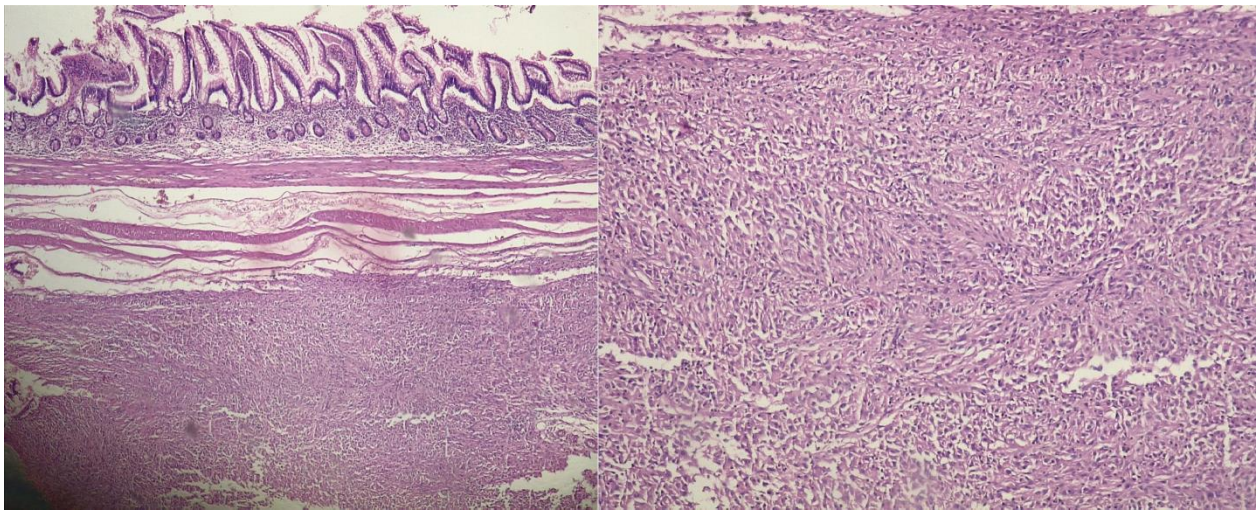

Figure 1 : Small Bowel. GIST, proliferation of spindle-shaped, monotonous cells with eosinophilic cytoplasm and ovoid nuclei (HEx10) with no connection to the overlying intestinal mucosa (HE x4).

Source: Department of Pathology, Joseph Ravoahangy Andrianavalona University Hospital, Antananarivo, Madagascar

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