

Colorectal Cancer in the Oncology Department at the Joseph Ravoahangy Andrianavalona, Antananarivo, Madagascar: Retrospective Study

Toky Rakotoarivo^{1*}, Malala Razakanaivo², Mirana Christiana Ranaivoson³,
Ny Ony Andrianandrasana³, Florine Rafaramino³

¹Department of Oncology, University Hospital Tanambao, Antsiranana, Madagascar

²Department of Radiotherapy, University Hospital Joseph Ravoahangy Andrianavalona, Antananarivo, Madagascar

³Department of Oncology, University Hospital Joseph Ravoahangy Andrianavalona, Antananarivo, Madagascar

Email: *rakotoarivotoky@gmail.com

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Abstract

Introduction: Colorectal cancer is one of the most common causes of cancer morbidity. The epidemiological and therapeutic data available are very limited in Antananarivo. The aim of this study was to provide an updated report on the management of colorectal cancer and know the survival of patients. **Patients and Methods:** A descriptive retrospective study during 2018 and 2019 carried out in the oncology department of Joseph Ravoahangy Andrianavalona Antananarivo Hospital. Newly diagnosed patients with histological evidence were included in the study. **Results:** Sixty-five cases of cancer were collected, including 39 colon cancers and 26 rectal cancers. The average age was 53 years with extremes of 18 and 83 years. In 41.53%, the patients were young people under 50 years old. The sex ratio was 0.95. Four patients (6.15%) had a family history of first degree cancer. The left colon was the most common location in 43.06% of cases. Only 39% of patients were diagnosed within 6 months of the first symptoms. The most common histological type was lieberkuhnian adenocarcinoma (87.69%). None of the patients underwent an immunohistochemistry examination. Stage IV and III accounted for 41.53% and 35.38% respectively. The majority (55.38%) of patients had benefited from surgery. Chemotherapy was performed in 56.89% of cases. One metastatic patient had received targeted therapy. Nine patients (34.61%) among the 26 with rectal cancers had benefited from concomitant radiochemotherapy. Survival at 30 months was 20%. **Conclusion:** The survival rate of patients at 30 months is very low. Improving the management of colorectal cancer requires awareness-raising and early detection.

Keywords

Colorectal Cancer, Surgery, Chemotherapy, Radiotherapy, Antananarivo

1. Introduction

Colorectal cancer is the third most common cancer in the world in terms of incidence, but the second in terms of mortality [1]. In Africa the incidence rates of colorectal cancer tend to be low compared to Europe and North America. In Madagascar, the absence of a cancer registry makes it difficult to really assess the burden of colorectal cancer on the population. The oncology department of the Joseph Ravoahangy Andrianavalona University Hospital Center is the largest cancer center in Madagascar. In 1988, Pignon had reported 86 cases of colorectal cancer in 8 years [2]. In 2009, colorectal cancer was the third most common cancer found in the oncology department [3]. A decade has passed since this study, if the organization of a mass screening for colorectal cancer is not feasible. The understanding of the disease and its management has evolved a lot in Madagascar. Our objective is to provide an updated report on the management of colorectal cancer and know the survival of patients.

2. Methods

We carried out a retrospective and descriptive study during 2018 and 2019. The date of last follow-up was in June 2022. We included all new cases of patients with colorectal cancer confirmed by histological examination. The files excluded were incomplete medical files, recurrent colorectal cancers and secondary colorectal cancers. We have collected data by consulting each file of patients with colorectal cancer. The files were recorded and processed using Excel® 2007 software. The variables studied were incidence, age, gender, family history of cancers, circumstances of discovery, diagnostic delay, histological type, imaging cancer (Abdominal X-ray, Chest X-ray, Abdominal ultrasound, Chest scan, Pelvic MRI, Abdomino pelvic CT), TNM staging and therapeutic parameters (surgery, chemotherapy, radiotherapy, targeted therapy).

Owing to the fact that study was retrospective and data was from records and not directly from the patients, our study was not submitted to an ethics committee. We had the agreement of the Head of Department to carry out the study. We have respected the anonymity and confidentiality of the data.

3. Results

Among the 85 records, 20 were excluded. We recorded 65 cases of colorectal cancer including 39 (61%) colon cancers and 26 rectal cancers (39%). These were 33 female genders and 32 male genders. The sex ratio was 0.95. The average age was 53 years old with extremes of 18 and 83 years old. Twenty seven patients (41.53%) were under 51 years old. Four patients had a family history of first-

degree cancer. Only 39% of patients were diagnosed within 6 months of the first symptoms (**Figure 1**). The most common histological type was lieberkuhnian adenocarcinoma (87.68%). Mucinous adenocarcinoma and squamous cell carcinoma each accounted for 3.07%. None of the patients underwent an immunohistochemistry examination. The diarrhea alternation Constipation was the most frequent circumstance of discovery in 38.46% then rectal bleeding in 23.07%. Ten patients (15.38%) were in occlusion (**Table 1**). An initial colonoscopy was performed in 53.54% of cases. The left colon was the most common site in

Table 1. Circumstances of discovery, Topography of lesions, imaging cancer TNM staging.

Feature	Colon		Rectal		Total	
	n	(%)	n	(%)	n	(%)
Circumstances of discovery						
Transit disorder	20	(30.76)	5	(7.69)	25	(38.46)
Rectal bleeding	10	(15.38)	5	(7.69)	15	(23.07)
Intestinal Obstruction	6	(9.23)	4	(6.15)	10	(15.38)
Rectal syndrom			11	(16.92)	11	(16.92)
Anemia	1	(1.53)			1	(1.53)
Others	2	(3.07)	1	(1.53)	3	(4.6)
Subsite distribution						
Right colon					11	(16.92)
Left colon					28	(43.06)
Upper rectal					11	(16.92)
Middle rectal					6	(9.23)
Low rectal					9	(13.83)
Imagery						
Abdominal X-ray	5	(7.69)	5	(7.69)	10	(15.38)
Chest X-ray	10	(15.38)	12	(18.46)	22	(33.84)
Abdominal ultrasound	9	(13.84)	6	(9.23)	15	(23.07)
Chest scan	25	(38.46)	14	(21.53)	39	(60)
Pelvic MRI			5	(7.69)	5	(7.69)
Abdomino pelvic CT	30	(46.15)	20	(30.76)	50	(76.92)
TNM Stage						
I					8	(12.30)
II					7	(10.76)
III					23	(35.38)
IV					27	(41.53)

43.06%, then the rectum in 40% of cases (**Table 1**). The majority of patients had benefited from an abdomino-pelvic CT scan (76.92%) and thoracic CT scan (60%). Pelvic MRI was performed in 5 patients with rectal cancers (7.69%). According to the TNM 8th edition 2017 classification: stage IV was the most common in 41.53% of cases. Eight patients (12.30%) were at stage I (**Table 1**). Surgery was performed in 36 patients (55.38%). Colectomy was the most frequent intervention (52.77%). Ten patients underwent emergency surgery for acute intestinal obstruction (**Table 2**). Twenty patients (55.55%) benefited from lymph node dissection. Nine patients (34.61%) with a rectal tumor had benefited from concomitant radiochemotherapy among the 26 rectal cancers. Thirty-three patients (56.89%) had benefited from chemotherapy among the 58 patients who needed it. The FOLFOX (**FOL**inic acid, **FLU**orouracil, **OX**aliplatin) type chemotherapy protocol was used in 60% of patients. One patient at the metastatic stage had received targeted therapy in combination with chemotherapy. Survival at 30 months was 20%.

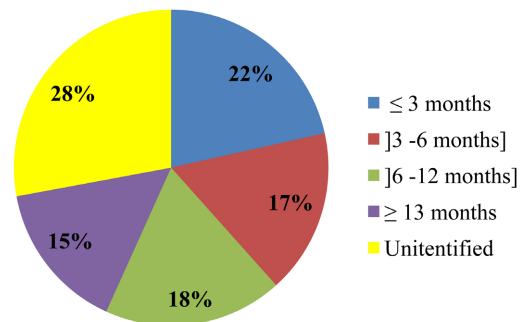


Figure 1. The diagnosis delay.

Table 2. Surgical treatment, chemotherapy, targeted therapy, radiotherapy.

Treatment	Colon		Rectal		Total	
	n	(%)	n	(%)	n	(%)
Type of Surgery						
Colectomy	15	(41.66)	4	(11.11)	19	(52.77)
Palliative colostomy	5	(13.88)	5	(13.88)	10	(27.77)
Abdomino-perineal resection			7	(19.44)	7	(19.44)
Chemotherapy						
Neoadjuvant			8	(13.79)	8	(13.79)
Adjuvant	10	(17.24)	1	(1.72)	11	(18.96)
Palliative	10	(17.24)	4	(6.89)	14	(24.13)
Targeted therapy	1	(1.53)			1	(1.53)
Radiotherapy						
Neoadjuvant			8	(30.76)	8	(30.76)
Adjuvant			1	(3.84)	1	(3.84)

4. Discussion

We collected 65 cases of colorectal cancer in the oncology department in 2 years. The sex ratio was 0.95. The average age was 53 years with extremes of 18 and 85 years, 41.3% were young subjects. In the study by Raherinanatenaina [4], he had reported 121 cases of colorectal cancer in 4 years, which is about double the number of our patients. The average age was 53.08 years and the sex ratio 0.95. The young population accounted for 35.45% of cases. If the female predominance of patients has not changed; there was a slight there is a slight increase in young subjects with colorectal cancer. According to the census in 2018, the majority of the Malagasy population were young people [5]. A study on the habits and risk factors of patients should be carried out to better understand and improve prevention. In the United States, the incidence of colorectal cancer in patients under the age of 50 had increased steadily at a rate of 2% per year from 1995 to 2016 [6]. These increases are mainly due to cancers of the rectum and right colon, especially for the whites races.

Four patients had a family history of first degree cancer. Unfortunately there was no laboratory to do an immunohistochemical examination and molecular biology in Madagascar. It is therefore impossible to establish the diagnosis of a syndrome of hereditary colorectal cancer. According to the literature, 5% of colorectal cancers are hereditary [7].

Only 39% of patients were diagnosed within 6 months. This result is consistent with data from developing countries such as Pakistan or African countries [8] [9]. In Europe, more than 70% of patients were diagnosed within 6 months [10]. In Madagascar, this diagnostic delay is probably linked to the country's economic problems, to false diagnoses by attending physicians and especially the use of traditional treatments [11].

The majority of patients had benefited from an abdominopelvic CT scan (76.92%) and a chest CT scan (60%) for the extension assessment. Five patients had performed a pelvic MRI. In 2011, 39.3% of patients had benefited from an abdominopelvic CT scan and no patient had benefited from an MRI. These results show an evolution and the accessibility of medical imaging examinations in the management of cancer.

The left colon was the most common location in 43.6% of cases followed by the rectum 40% and right colon 16.92%. According to Raherinantenaina, the left colon predominated in 50.02% of patients [4]. In Refeno's study in Mahajanga, the rectosigmoid and anal locations were the most frequent [12]. In Egypt, the right colon predominated in 48% and the left colon in 19% [13]. For decades, there has been a movement of tumors from more distal sites to more proximal sites in the colon in developed countries [14]. The rectal cancer decreases with age and right colon cancer increases with age [14].

In our study, 41.53% of patients were in the metastatic stages. These results were similar to African studies [15]. In Madagascar, there is no organized screening campaign. The high cost of mass screening prevents such screening from

being free.

One of the factors leading to tumor progression is the delay in diagnosis. However, published studies had shown no association between the longer delay and the stage of the disease [16]. Longer delays were associated with more advanced stages for rectal cancer, but with earlier stages for colon cancer [16].

Surgery was performed in 55.38% of patients. This rate is lower than that found by Pignon and Raherinantenaina [2] [4]. These differences could be explained by a higher number of metastatic patients in our study and the method of recruitment of patients in each study. Radiotherapy is necessary in the management of rectal cancer [16] [17].

Raherinantenaina reported that 28.6% of patients with rectal tumors had benefited from radiotherapy [4]. In our study, 34.5% of patients had benefited from concomitant radiochemotherapy for rectal cancers. At the end of 2019, the reopening of the cobalt therapy center in the public sector would lead to an increase in the number of patients benefiting from radiotherapy.

Chemotherapy is indicated for patients from stage II [18]. Eight patients (12.30%) at stage I did not need chemotherapy. However, 56.89% of patients had benefited from chemotherapy. This low rate reflects the difficulty of Malagasy patients to undergo treatment. The most widely used chemotherapy protocol was FOLFOX. According to Raherinantenaina, from 2008 to 2011 LV5FU2 (5 Fluorouracil, Leucovorin) or 5FU alone was the most used [4]. Currently, conventional chemotherapies are widely available to the general population. Immunotherapy is a molecular targeting treatment used for patients with advanced stages [19]. In Madagascar, only a few first-generation monoclonal antibodies are available (Bevacizumab). The costs of these new drugs are beyond the reach of Malagasy patients.

In our study, survival at 30 months for all stages was 20%. In Cameroon, survival at 36 months was 46.3% and 12.2% at 5 years [20]. In South Korea, the 36-month survival rate was 87.8% and 82.5% respectively in the 18 - 64 and 65 - 74 age groups [21]. These large differences could be attributed to the poor accessibility to diagnosis and treatment in our country. In addition, the COVID 19 pandemic in 2020 and 2021 will have impacts on the lifestyle of cancer patients. In a low-income country without social security like Madagascar, providing care is a real challenge for each patient and their loved ones.

The limitations of the study reside in the fact that it is a monocentric and retrospective study. Many patient files were unusable due to missing essential information, thus considerably reducing the size of our sample.

5. Conclusion

Malagasy patients with colorectal cancer were increasingly young. The establishment of a new laboratory for immunohistochemical and biomolecular examinations would improve care. Patient survival was very low despite the standardization of therapeutic protocols and progress *in vivo* medical imaging in

oncology. Public awareness-raising is therefore essential to prevent colorectal cancer.

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Conflicts of Interest

The authors have no conflict of Interest to declare for this study.

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