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Malignant Tumors of the Small Intestine: Experience of Department of General Surgery at University Hospital Centre Mohammed VI of Marrakech in Morocco

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Abstract **Original Research Article**

Malignant tumors of the small intestine (MTSI) are rare. They account for 1-5% of all tumors of the digestive tract. They are characterised by a heterogeneous anatomopathology and a poor and non-specific symptomatology resulting in delayed diagnosis, therapeutic difficulties and therefore poor prognosis. We report the epidemiological, diagnostic and therapeutic characteristics of patients with MTSI in the visceral surgery department of university hospital Mohammed VI. This is a retrospective review of the clinical records of the 62 patients diagnosed with malignant small bowel tumors admitted to our service between 2000 and 2016. Median age was 50 years (40-60 years). The median time to diagnosis was 6 months (0-96 months). Abdominal pain was the most common symptom (77.8%). The anatomopathological study showed 41.93% adenocarcinoma, 20.96% non-Hodgkin lymphoma, 17.74% stromal tumor, 16.1% carcinoid and 3.22% epidermoidal carcinoma. 57 patients (91.93%) had surgical resection and 22 patients (35. 4%) had chemotherapy depending on stage of disease and histological type. Malignant tumors of the small intestine are rare. Their diagnosis is late limiting the therapeutic management. Clinicians should be warned of non-specific gastrointestinal symptoms.

Key words: Small intestine, malignant tumor, diagnosis, surgery, chemotherapy, Morocco.

INTRODUCTION

Primary malignant tumors of the small intestine (PMTSI) are rare. They represent 1-5% of all GI tumors although the small intestine represents 75% of the total length and more than 90% of the mucous surface of the GI tract [1-3].

According to a review of more than 11,000 primary malignant gastrointestinal tumors published by Martin and all, only 2.4%, 10.8%, 16.4% and 70.3% of primary malignant neoplasms are respectively small intestinal, esophageal, gastric , colic and rectal origin [4].

The multiplicity of histological types associated with the rarity of these tumors and the absence of prospective randomized trials elucidating the best diagnostic and therapeutic options make it difficult to establish valid statistics.

The small intestine is considered to be a clinically silent area and the result is a delay in diagnosis and therefore an unsatisfactory treatment and a severe prognosis. Reporting the epidemiological characteristics, diagnostics and therapeutics as well as the survival of patients with tumors of the small intestine within the department of general surgery at university hospital centre Mohammed VI of Marrakech in Morocco.

METHODS

This is a retrospective analysis of the clinical records of 62 patients diagnosed with PMTSI admitted to our service between 2000 and 2016. All patients with histological confirmation of a malignant neoplasm from the duodenum to the terminal ileum were included in the study.

The diagnosis of PMTSI was made on an anatomopathological study of either the intestinal surgical resection piece or on a tumor biopsy guided by the scanner or ultrasound. Diagnostic assessments were requested based on tumor location and histopathological nature. The treatment of each patient was decided in a

multidisciplinary consultation meeting based on the histological type of the tumor, its location, its remote extension and the initial clinical presentation. Patients received either surgery or chemotherapy or both therapeutic weapons. Surgery consisted of segmental resections based on the site and extent of the tumor.

RESULTS

Of the 62 patients in the service, 38 were male (61.29%) and 24 were female (38.70%). The median age was 50 years (17 - 77 years). The median time between onset of symptomatology and diagnosis was 19 months (1 - 69 months). Abdominal pain was present in 79.03% (49 patients), vomiting in 51.61% (32 cases); transient disorders, especially discontinuation of materials and gases, were noted in 38.70% (24 cases), inaugural bowel obstruction in 35.48% (22 patients) and peritonitis table in 3.22% (2 patients). Digestive endoscopy was performed in 30 patients, digestive opacification in 32 patients, and abdominal computed tomography in 27 patients.

In 49 cases (79.03%), a segmental intestinal resection with a curative aim was performed with the tumor and a small, longer (20 cm) segment of the intestine with a wide mesenteric resection (lymph node dissection). The restoration of continuity by immediate termino-terminal anastomosis had been accomplished 47 times and in 2 cases a double ileostomy had imposed a delayed recovery of continuity.An internal bypass allowed short-term Bypass the tumor with ilesigmoidoscopy. it was performed in 5 patients with peritoneal carcinosis with invasion of the surrounding organs. Eight patients benefited from a right hemiectomy with an ileal segment of about 80 cm, supplemented by lymph node cleansing in front of ileocacal locations.

The anatomopathological study showed that 41.93% of these intestinal tumors were adenocarcinoma (ADK) (26 patients), non-Hodgkin lymphoma (NHL) in 20.96% of cases (13 patients), stromal tumor in 17.74% of cases (11 patients), a carcinoid tumor in 16.12% of cases (10 patients) and an epidermal carcinoma in 3.22% of cases (2 patients) (Figure 1).

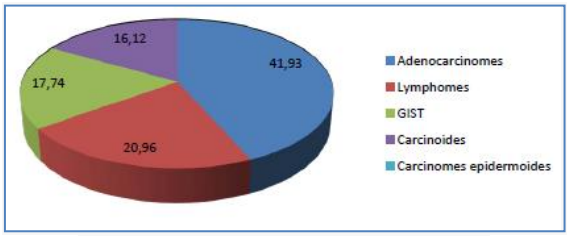

Fig-1: Histological type in our series

Advanced stage tumors (T3 and T4) were the most common (75.79%). Ganglion involvement was marked in 46.77% of patients (29 patients).

The long-term outcomes of our patients remain difficult to estimate in our context given insufficient distance and random follow-up since 28 of our patients (43.54%) have been lost and even some patients with associated adjuvant chemotherapy have been lost as a result of this chemotherapy. Recurrences were noted in 10 patients (16.12%): local in 7 cases and metastatic in 3 cases; therefore, 13 patients did not require adjuvant therapy with a favourable course with a 3-year regression.

DISCUSSION

Malignant tumors in the small intestine are rare [4-9]. Their carcinogenesis is not very clear. Nevertheless, their incidence is particularly low due to the rapid regeneration of the mucosa of the small intestine, the low bacterial density that produces carcinogenic metabolites, the speed of transit that reduces the contact time of certain carcinogens and the high rate of hydroxylase benzopyren that neutralizes the effect of carcinogens, thereby decreasing the likelihood of cancer generation. In addition, the importance of lymphoid tissue in the small intestine and the high concentration of Iga in the ileal level protect the small intestine from viruses and prevent tumor growth [10-12].

Small bowel tumors are characterized by non-specific clinical symptomatology due to its high distensibility and fluid content, which makes their diagnosis difficult and the disease is often discovered at an advanced stage [3]. Many authors reported that abdominal pain was among the most common symptoms in this tumor location. In our series, abdominal pain was the most common symptom (79.03%) [5-7, 13, 14]. Catena *et al*. reported the clinical aspects of hailstones and showed that they can often manifest in abdominal emergencies such as acute bowel obstruction [15]. In our series 38.7% of patients were diagnosed following an abdominal emergency.

The rate of malignant tumors in the small intestine is approximately 64% of which 40% are adenocarcinomas [14]. According to a series of Hatzaras *et al*. [5], hail carcinoid tumors are the most frequent tumors followed by ADK, however in our series hail ADK are the most frequent malignant tumors followed by NHL. Surgical resection of localized hailstones remains the only option for healing [9, 16]. It may also be indicated at the locally advanced stage of illness to compensate for symptoms or during abdominal emergencies [16].Many authors have reported the benefit of chemotherapy in malignant tumors of the small intestine, however the optimal chemotherapy protocol as well as the true definition of this benefit needs to be elucidated [17-19]. An international prospective Phase III study comparing adjuvant chemotherapy to surveillance is currently underway (Study PRODIGE 33-BALLAD NCT02502370). FOLFOX4 seems to be the most

effective combination in adjuvant and 5FU and platinum salts in palliative situations despite the absence of randomised prospective studies [20]. In our series the 22 patients with a hail ADK of which 5 were localized received adjuvant chemotherapy and 13 patients did not require adjuvant treatment with a favorable course with a 3-year setback. Other patients with metastatic disease did not receive chemotherapy due to altered general condition.

Much controversy persists over the role of surgical treatment in the treatment of localized hail NHL (Stage I and II) [21]. Indeed most of the available information on the effectiveness of surgery in NHL of the small intestine at the localized stage is based on restricted retrospective studies [22, 23]. The question that rigorous studies should address is whether or not post-operative chemotherapy is required after a complete resection of a localized small bowel NHL [24]. The treatment of patients with advanced small intestinal NHL (stage III and IV) is currently modeled on that of ganglion NHL, is based on a set of therapeutic options (chemotherapy, targeted therapy, immunotherapy, hematopoietic stem cell transplantation)[25]. In our series, the 13 patients with hailstorm NHL had a surgical resection either as part of a surgical abdominal emergency or as a curative gesture. The chemotherapy received by these patients was modeled on that of lymph node NHL and protocols varied depending on the availability of chemotherapy products in the hospital setting.

The prognosis for malignant tumors in the small intestine is very severe. It is related to their non-specific symptomatology, delayed diagnosis due to diagnostic difficulties, the presence of a loco-regional and remote extension at the time of diagnosis and the presence of more than 70% peritoneal or remote location at the time of surgery [26, 27].

In Howe *et al*. the median survival of patients with duodenal, jejunal and ileal tumors was 16.9, 28 and 31 months respectively [19]. According to the Han SL *et al*. study, the initial tumor site, tumor stage and histological type do not influence survival [28]. Ito *et al*. reported that the 5-year survival rate for patients with T1/T2 and T3/T4 is 82% and 58% respectively (p0.05) [29]. However, Bakaeen et al found that stage T cannot predict the survival of patients with malignant hail tumors [18].

Our study is retrospective, with many limitations that can bias the interpretation of the results. The two major limitations are, on the one hand, the absence of data on staging of the disease in certain dossiers used, and, on the other, the unavailability of certain chemotherapy or targeted therapy products in our institute at the time of patient management in this study.

CONCLUSION

PMTSI are rare tumors. Diagnosis is difficult due to non-specific symptomatology. The prognosis remains severe given the discovery of the disease at an advanced stage. The management of these malignant tumors depends on the histological type and remains a undone for the healthcare team. Prospective randomized trials should provide answers on diagnostic, therapeutic management and therefore improve the prognosis of our patients.

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