

Clinicopathologic features, surgical treatments and outcomes of small bowel tumors

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Abstract

Introduction: Small bowel tumor is a rare disease, mainly malignant, with diverse clinical morphology. This study aims to describe the clinical, para-clinical morphology, pathology, and early outcomes of surgical treatment for patients with small bowel tumor at Viet Duc University Hospital.

Patients and methods: Descriptive retrospective study, patients with small bowel tumors were operated at Viet Duc University Hospital from January 2015 to December 2020.

Results: 64 patients (mean age 54.12 ± 15.49 , 30 men, 34 women) underwent surgery at Viet Duc University Hospital from January 2015 to December 2020. Acute form: 32.1%. Chronic clinical forms: 62.5%. Malignant tumors account for 52/64 cases (81.2%) while GISTs intermediate risk- high risk accounted for 61.5% mainly. The percentage of small bowel resection was 89.1%. There was no other postoperative complication, except one case of postoperative death. The survival time after surgery was 58.82 ± 3.04 months, the best case was GIST 61 months, the worst was Adenocarcinoma 6 months.

Conclusion: Small bowel tumor is a rare disease, mostly malignant at the middle age with silent progression, often detected when the disease at a last stage. GIST accounts for the high proportion (57.8%) with positive treatment results.

Keywords: Small bowel tumor, histopathology, surgical treatment.

Introduction

Small bowel tumor (SBT) is rare and mostly clinical cases were reported[1][2]. SBT has complex pathological classification but there is no specific symptom for each tumor type[3] [5]. Multi-site researches with big sample sizes categorized pathological classification more clearly, thereby gaining better treatment. However, there

are controversies about the classification as well as the treatment among authors due to different experiences. In Vietnam, there are few studies on SBT, mainly focusing the type of tumors. This study was conducted to describe the clinical morphology, pathology and treatment result of patients with small bowel tumors undergoing surgery at Viet Duc University Hospital.

Patients and methods

Samples:

64 patients with SBT were diagnosed and underwent surgery at Viet Duc University Hospital from January 2015 to December 2020.

Exclude other organs tumors with metastasis to the small intestine, tuberculosis lesions.

Methods: Descriptive retrospective study.

Procedures:

Designated medical record was used to collect data from patients diagnosed with SBT who underwent surgery at Viet Duc University Hospital from January 2015 to December 2020. Postoperative patient's condition was interviewed and recorded following the template. We collected data about total number of patients, age, gender, clinical symptoms, diagnostic imaging, preoperative diseases, pathology, tumor size and position, surgical method, number of survived patients at the time of study and patients with post-operative adjuvant chemotherapy.

The data was managed and analyzed by statistical software SPSS 16.0.

Results

General characteristics

64 patients: 30 males (46.9%), 34 females (53.1%). Mean age was 54.1 ± 15.5 (Youngest: 17 yo, Oldest: 86 yo).

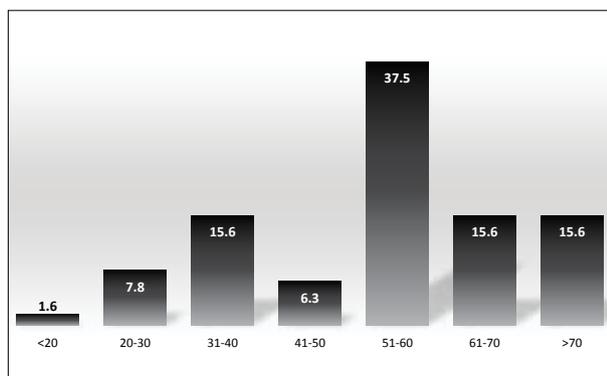


Chart 1. Age distribution

The age group 51- 60 years old was highest with 37.5% of patients (n = 24) (chart 1).

Clinical features

The most common clinical symptom among the patients was abdominal pain(82.81%). The other common symptoms were vomiting (25%), weigh loss (26.56%), anemia (21.88%). The gastrointestinal bleeding rate was 9.38% (n = 6). The palpable abdominal tumor percentage was 14.06%. There were 3 patients(4.49%) without clinical symptom, accidentally discovered through periodic examination.

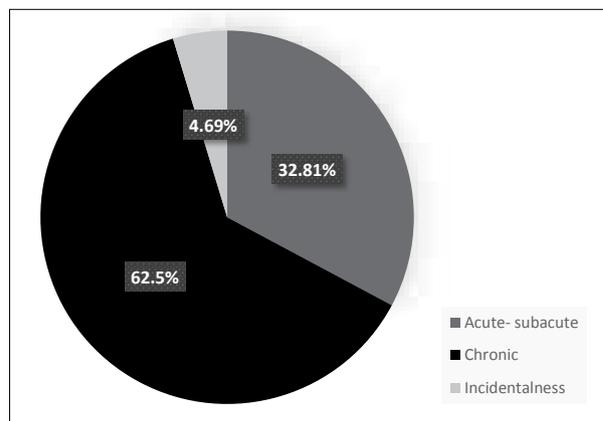


Chart 2. Distribution of clinical features

14/64 patients were not found tumors by abdominal ultrasound, 31 patients were not confirmed having a tumor. Only 3 patients were not found by computer tomography (CT) and 9 patients were not confirmed having a tumor.

Table 1: Preoperative diagnostic

Preoperative diagnostic	Frequency	Percent
Small bowel tumor	36	56,3
Gastrointestinal bleeding	3	4,7
Bowel obstruction	7	10,9
Intussusception	8	12,5
Mesenteric torsion	1	1,6
Volvulus	1	1,6
Pelvic tumor	4	6,3
Peritonitis	2	3,1
Pancreatic tumor	1	1,6
Mesenteric tumor	1	1,6

Pathological features

Among the total sample, there were 52 malignant tumor cases (81.2%) and 12 cases of benign tumors (18.8%).

Table 2: Classification of small bowel cancer group

Pathological results	Frequency	Percent
Malignant tumors		
Adenocarcinomas	4	7.7
Leiomyosarcomas	2	3.8
GISTs intermediate risk- high risk	32	61.5
Malignant melanoma	1	1.9
Malignant lymphomas	12	23.1
Neuroendocrine tumors	1	1.9
Total	52	100
Benign tumors		
Lipoma	3	25
Inflammatory Myofibroblastic tumors	2	16.7
Lymphangioma	1	8.3
Leiomyomas	1	8.3
GISTs low risk	5	41.7
Total	12	100

Table 3: Surgical methods of malignant tumor group

	Adeno- carcinomas	GISTs intermediate risk- high risk	Malignant melanoma	Malignant lymphoma	Leiomyo- sarcomas	Neuro- endocrine tumors	Total
Radical resection	3	27	0	9	2	1	42
Wedge resection	0	4	0	0	0	0	4
Small bowel resection- Colectomy	0	1	0	2	0	0	3
Bypass	1	0	0	1	0	0	2
Biopsy	0	0	1	0	0	0	1
Total	4	32	1	12	2	1	52

The overall average surgery time was 113.44 ± 28.46 minutes; the average surgical time of benign tumor group was 103.75 ± 18.23 minutes, whereas malignant tumor group was 115.67 ± 30.03 minutes.

After surgery, there was no case that have early complications such as bleeding or infection. There was only 1 case suffered from septic shock due to

The mean tumor size of tumor was 8.19 ± 5.64 cm, the tumor size 5 - 10 cm group was around 40.6% that was the highest percentage, the percentages of the < 5 cm tumor size group, and >10 cm tumor size group was 34.4%, and 25% respectively.

The mean size of benign tumors was 6.5 ± 6.16 cm and the mean size of malignant tumors was 8.58 ± 5.55 cm (the difference was not statistically significant $p = 0.3 > 0.05$).

The rate of small bowel resection was 84.4%; of wedge resection 6.2%, and of small bowel resection and colectomy was 4.7%; Palliative bypass surgery percentage was 3.1%. There was 1 case of biopsy, reducing by 1.6%.

Fourty patients (62.5%) presented with tumors in the jejunum, 34,4% in ileum (22 cases) and 3.1% in both jejunum and ileum (2 cases).

GISTs mainly located in the jejunum with 30/37 cases (81.1%). Malignant lymphomas mostly located in ileum with 10/12 cases accounting for 83.3%.

peritonitis, tumor necrosis and died at home after 3 days released.

Fifty-three cases (82.8%) were inpatients from 7 to 14 days after surgery. The mean of postoperative time was 9.98 ± 4.16 days (minimum = 4 days and maximum = 28 days).

Long-term outcome: There were 5 patients

(7.8%) who could not be able to follow up during the study.

There were 11 patients (18.6%) who died. One benign tumor patient who died at the end of the study. Among malignant tumor cases, there were 10 cases (20.8%) deceased at the end of the study.

At the end of the study: All 3 adenocarcinomas patients deceased, 3/29 GISTs intermediate risk-high risk patients deceased, the mortality rate was 10.34%; 4/12 malignant lymphomas cases deceased, the rate was 33.3%. The other patients were survived at the end of the study. At the end of the study, the mean survival time after surgery of research group was 58.82 ± 3.04 months (confidence interval 95%: 48.85-60.79). The mean survival time after surgery of patients with adenocarcinomas was 5.33 months. At the time of the study, all of the adenocarcinomas patients deceased. The average survival time after surgery of patients with leiomyosarcomas, malignant lymphomas and of GISTs was 27 ± 8.48 months, 38.5 ± 7.16 months, 60.98 ± 2.78 months, respectively.

Adjuvant treatment

In 52 malignant small bowel tumor cases, there were 24 cases that received adjuvant treatment after surgery, mainly were GISTs and malignant lymphomas patients (22/24 cases). Fifteen out of twenty-nine cases of GISTs had adjuvant treatment after surgery, accounting for 51.72%, all were treated by Glivec. Seven out of twelve malignant lymphomas patients were treated by chemotherapy, accounted 58.33%.

One out of six case of intermediate risk GISTs was treated post surgery. Fourteen out of twenty-three high-risk GISTs cases (60.9%) received treatment after surgery.

Discussion

The males/females ratio approximately 1:1, the mean age was 54.12 ± 15.49 years old and the highest count/frequency in the sample was in the 51 to 60 year old group (24 patients-37.5%). The findings were similar with the another study about

small bowel tumor conducted in 2010 by Chang Hyun Kim [1]. The cause was probably due to the eating habits of Vietnamese people and it is similar to South Korean people.

The tumor size was quite big, average size was about 8.19cm, in which benign tumor mean size was 6.5 ± 6.16 cm and malignant tumor was 8.58 ± 5.55 cm. According to the study conducted by Shuisheng Zhang [3], the mean tumor size was 5.6cm. The reason might be the patients in our study were detected later than the the patients in the author mention above. In macroscopic, protruded accounted for the highest proportion with 48.1%. In microscopic, 81.2% of the patients had malignant tumors, the rest were benign tumors (18.8%); among malignancy, GIST accounted for 61.5%, malignant lymphoma was 23.1%. Meanwhile, according to Chang Hyun Kim et al [1], 74.1% were malignant tumors and 25.9% were benign tumors, in malignant cases, GISTs and malignant lymphomas accounted for 40% and 43.3% respectively. In our study, the rate of low-risk GISTs, intermediate-risk GISTs and high-risk GISTs was 13.5% - 18.9% - 67.7% respectively. The result in the study of Gu-sheng Xing in 2015 was 19.3%, 28.7% and 52% respectively [4]. The high-risk GISTs rate in our study was higher, perhaps due to late detection or due to the larger tumor mean size in our study than that in other studies.

We divided SBT into 3 clinical forms: acute-subacute, chronic, and incidentally discovered. The acute and subacute clinical form accounted for 32.81% (21 cases) including following symptoms: peritonitis, gastrointestinal bleeding, intestinal obstruction, intussusception.

In our study, there were 2 peritonitis cases of (3.1%), 8 cases of intestinal obstruction due to lymphoma, GISTs and adenocarcinomas. All 6 gastrointestinal cases were bleed and caused anemia but not shock. There were 3 cases of intussusception.

Chronic clinical form accounted for 62.5% (40 patients) with syndromes such as abdominal pain (82.8%), weight loss (29.7%), anorexia (18.75%).

According to Chang Hyun Kim [1], the most common clinical syndrome was abdominal pain (59.3%), in the study of Shao-Liang Han [2], the most common clinical syndrome was abdominal pain (67.4%).

Clinical form detected incidentally accounted for 4.69% (3 patients) in which 1 case discovered by ultrasound, 2 cases discovered by CT.

In diagnostic imaging methods, CT scan played an important role in preoperative diagnostic when the diagnostic sensitivity was 82.54%.

Thirty-seven patients were preoperatively diagnosed as small bowel tumor (57.8%), 8 intussusception cases (12.5%), 8 intestinal obstruction cases (12.5%). Our preoperative diagnostic rate of small bowel tumor was approximately the same as the rate in Nguyen Van Giaos study (60%) [10]. The reason might be SBT was a rare and hard to diagnose disease, the symptoms were not specific, so the accuracy of preoperative was not high.

There were 84.4% of patients underwent radical resection; the rate was nearly equivalent to these in Chang Hyun Kims study [1] (85.1%), probably because the characteristics in two studies were comparable. The cases not operated were malignant with large tumors spread the surrounding.

There was 1 post-operative death (1.56%), no complications such as infection and bleeding after surgery. There were 4 large tumor invasion cases required blood transfusion due to blood loss during the surgery [8,9].

At the end of the study, the average survival time after surgery of research group was 54.82 ± 3.05 months, the survival rate was 81.4%. All patients with adenocarcinomas deceased, 89.66% of GISTs intermediate risk- high risk survived, 66.67% of malignant lymphomas, 100% leiomyosarcomas, malignant melanoma, neuroendocrine tumors survived. The most severe was adenocarcinomas with the mean survival time of 6 months. The least severe was GISTs with the average survival time of 61 months. According to Chang Hyun Kim et al (2010) [1], the proportion of patients who survived by the end of the study was 64.8%, in which percent of

GISTs patients alive more than 5 years after surgery was 82.5%, neuroendocrine tumors was 40%, and malignant lymphomas was 46.4%. The outcomes were similar to ours. The survival rate of patients with benign tumors was 90.9%, the survival rate of malignant cases was 79.17%. There difference was not statistically significant ($p=0.367$).

In 52 malignant small bowel tumor cases, there were 24 cases received adjuvant treatment after surgery. Fifteen GISTs cases (51.72%) received the treatment after operation using Glivec in 36 months. Seven cases (58.3%) of malignant lymphomas underwent chemotherapy after surgery. Most high risk GISTs cases received adjuvant Glivec (14/15). This finding was consistent with the other studies finding around the world [6][7]. The rate of high-risk GISTs received Glivec after operation in our study was 60.9%, lower than other studies in the world. Perhaps other authors agreed that Glivec should be treated for 36 months after the surgery with 400mg/day in order to decrease the risk of recurrence [6].

According to Seok Jin Kin et al in a study conducted in 2011 [11], there were 88% malignant lymphomas patients treated with chemotherapy after surgery. According to above studies as well as Tefvik Avcı et al [12], the postoperative chemotherapy in lymphoma patients had better prognosis than surgery alone. Therefore, our rate of postoperative chemotherapy was relatively low compared to other studies.

Conclusion

SBT is a rare disease with complicated pathology and mainly malignant form. The disease develops asymptomatic, causing patients usually hospitalized with large tumor plus specific symptoms or complications. The rate of radical surgery is high, the prognosis is relatively good in benign tumors and GISTs with adjuvant treatment with Glivec after operation. Otherwise, malignant cancers have poor prognosis. Our rate of postoperative adjuvant treatment is lower compared to other international colleagues.

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