INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact factor: 4.295
(Volume 4, Issue 4)
Available online at: www.ijariit.com

Clinicopathological Profile of Gastrointestinal Stromal Tumors

Rayees A Khanday
rkhanday1@gmail.com
Shere Kashmir Institute of Medical Sciences, Srinagar, Jammu

Ajaz Malik
ajazamalik@rediffmail.com
Shere Kashmir Institute of Medical Sciences, Srinagar, Jammu

Munir Wani
munirwani1971@gmail.com
Shere Kashmir Institute of Medical Sciences, Srinagar, Jammu

Zubaida Rasool
drzubaida@rediffmail.com
Shere Kashmir Institute of Medical Sciences, Srinagar, Jammu

ABSTRACT

Gastrointestinal stromal tumors (GISTs) are rare tumors of gastrointestinal tract arising from interstitial cells of Cajal. They present with varied clinical features most of which are non- specific. This study was done to identify the clinical features of GISTS and immunohistochemistry. It was a retrospective and prospective study. The total number of studied patients was 50. Out of 50 patients- 26 were females (52%). Mean Age of involvement was 59 years. Gastrointestinal bleeding and Pain abdomen were the most common symptoms. Stomach was involved in 64%, small gut in28% and colon in 4% of the patients. The average size of the tumor was 5.2cm. 96% were CD117 positive. GISTS are rare tumors arising in late middle age. They affect males and females equally. They present non- specific signs and symptoms. Most of them are CD117 positive.

Keywords— *CKIT/CD117, Gastrointestinal Stromal Tumor, GIST, Interstitial Cells of Cajal, Immunohistochemistry, IHC*

1. INTRODUCTION

Gastrointestinal stromal tumors (GISTs) are uncommon mesenchymal tumors of gastrointestinal tract arising from interstitial cells of Cajal. The term stromal tumor was coined by Mazur et al[1]. GISTs predominantly occur in adults over 50 years of age. The most common locations of GISTs are the stomach, small gut, and colon. Patients usually present with non- specific symptoms such as abdominal pain, anemia, gastrointestinal (GI) bleeding, dyspepsia or obstruction. Small GISTs are asymptomatic and are diagnosed incidentally. GISTs vary in size from a few millimeters to about 30cm. More than 90% of the tumors are CD117 positive. Surgical excision is the treatment of choice. Imatinib is given in recurrent, metastatic and unresectable GISTs. The aim of the study was to analyze the clinicopathologic characteristics of GISTs.

2. MATERIALS AND METHOD

It was a retrospective and prospective type of study and was conducted in the Department of General Surgery of our hospital. A total of 50 patients were analyzed over a period of 5 years from 2012 to 2017.

3. RESULTS

In our study 54% of patients were between 50-59 years of age, 34% were between 60-69 years of age, 2% of the patients were <50 years and 10% or more than 70 years of age. The mean age was 59 years. 48% were males and 52% were females. Gastrointestinal bleeding was the most common symptom present in 38% of the patients. GI bleeding varied from obscure bleeding manifesting as anemia to frank Malena. Pain abdomen which was disturbing the lifestyle of the patient was present in 34% of the patient. The abdominal lining was palpable in 8%, dyspepsia in 8%, dysphagia Gia in 10%, vomiting in 6%, intestinal obstruction in 4% and jaundice, constipation and dia torrhea was present in 2% of the patients each. Hemoglobin level varied from 5gm/dl to 15.7gm/dl with an average of 11.5gm/dl. Stomach was the most commonly involved organ- Table 10.

Table 10: Location of tumor in the study group

Location of Tumour	No. of patients (n)	Percentage (%)
Stomach	32	64
Ileum	6	12
Duodenum	4	8
Jejunum	4	8
Colon	2	4
Esophagus	2	4

The gross size of the tumor varied from 2 cm to 30 cm with a mean size of 5.2 cm. Postoperatively the treatment was confirmed by histopathological examination and was followed by immunohistochemistry with special reference to CD117. On microscopic examination, 68% tumors were having a spindle or fusiform pattern, 20% epitheloid and 12% were of the mixed pattern. CD117 was positive in 96% of the patients.

4. DISCUSSION

Gastrointestinal stromal tumors are the most common mesenchymal tumors of the gastrointestinal tract. Previously they were classified as leiomyoma or leiomyosarcomas[1,2]. But with the development of immunohistochemistry (IHC), they were found to be different from those tumors and were classified as stromal tumors. These tumors express antigens similar to neural crest cells and arise from progenitor cells of interstitial cells of Cajal. These tumors are characterized by CKIT- proto-oncogene mutation with more than 90% tumors possessing this mutation. GISTs are found in middle-aged to elderly people with a mean age of 58-59 years[3,4]. GISTs are also found in young adults and children. Such tumors are usually more aggressive and have lymph node involvement more frequently. As such, those tumors are usually considered a distinct clinicopathological entity. Males and females are almost equally affected. Some studies though indicate more male predominance[3]. GISTs can occur anywhere in the gastrointestinal tract. Extragastrointestinal GISTs have also been found as in retroperitoneum. The stomach is the most commonly involved organ in about 60% of the patients followed by small gut-30%, colo-rectum and esophagus [5, 6]. The signs and symptoms of GISTs are usually nonspecific and depend upon the location and size of the tumor. Small tumors less than 2 cm in size are usually asymptomatic and are diagnosed incidentally on cross-sectional imaging for some unrelated condition. The most common presentation of symptomatic GISTs is gastrointestinal bleeding, abdominal pain, and abdominal mass[7,8,9,10]. GI bleed varies from chronic insidious bleeding presenting as anemia or as melena. A few patients with GISTs may present to the emergency department with features of intestinal obstruction or hemodynamic instability due to tumor rupture into the peritoneum resulting in spontaneous hemoperitoneum. Malignant GISTs may present with liver metastasis or dissemination within the abdominal cavity. Lymph node metastases are rare so are metastasis to extra-hepatic organs. Tumor size varies from a few millimeters to 40 centimeters[3,11] with an average size of 5 to 6 centimeters[12,13,14]. Histopathologically, GISTs are usually rounded in shape sharply demarcated mass lesions arising in the submucosal layer of the gut wall. GISTs have three main histopathological patterns-fusiform (70%), epithelioid(20%) and mixed(10%). Typical GISTs are characterized by positive immunohistochemical (IHC) staining of CD117/CKIT- a transmembrane receptor tyrosine kinase. More than 90% of the GISTs are CD117 positive. Other IHC markers for GISTs include CD34, DOG1, PDGFRA.

5. CONCLUSION

GISTs are the most common mesenchymal tumors of the gut. Gastrointestinal bleeding, abdominal pain, and abdominal lump are the predominant signs and symptoms. The stomach is the most commonly involved organ followed by a small gut and colon. The final diagnosis is made on the basis of characteristic histological patterns and immunohistochemistry.

6. REFERENCES

[1] Mazur MT, Clark HB. Gastric stromal tumors. Reappraisal of histogenesis. Am J Surg Pathol 1983; 7: 507-519
[2] Walker P, Dvorak AM. Gastrointestinal autonomic nerve (GAN) tumor. Ultrastructural evidence for a newly recognized entity. Arch Pathol Lab Med 1986; 110: 309-316.
[3] Miettinen, Markku, Felisiak-Golabek, Anna et al. GIST Manifesting as a Retroperitoneal Tumor: Clinicopathologic Immunohistochemical, and Molecular Genetic Study of 112 Cases. American Journal of Surgical Pathology May 2017; Volume 41, Issue 5: p 577–585.
[4] DeMatteo RP, Lewis JJ, Leung D et al. Two hundred gastrointestinal stromal tumors: recurrence patterns and prognostic factors for survival. Ann Surg 2000; 231(1): 51–58
[5] Kim KM, Kang DW, Moon WS, Park JB, Park CK, Sohn JH et al. Gastrointestinal stromal tumors in Koreans: its incidence and the clinical, pathologic and immunohistochemical findings. J Korean Med Sci 2005; 20: 977-984.
[6] Ming Wang, Jia Xu, Yun Zhang et al. Gastrointestinal Stromal Tumor. BMC Surg 2014; 14(93).
[7] Gurpreet Lamba, Ridhi Gupta, Byung Lee, Samir Ambrale and Delong Liu. Current management and prognostic features for gastrointestinal stromal tumor (GIST). Experimental Hematology and Oncology 2012; 1: 14.
[8] Magdy A. Sorour, Mohamed I Kassem, Abd El-Hamid A. Gastrointestinal stromal tumor-related emergencies. International Journal of Surgery Int J Surg. 2014; 12(4): 269-80.
[9] Brady-West D, Blake G: Clinicopathological features and outcome of gastrointestinal stromal tumors in an Afro-Caribbean population. J Natl Med Assoc 2012; 104: 72-77.
[10] Ibrahim Abdelkader Salama, Waleed Hammam Mosa, Mohamed Elsherbini. Gastrointestinal Stromal Tumors: Diagnostic and Therapeutic Challenges. Journal of Surgery 2014; 10(2):146-152.
[11] Vasantha A, Lakshmi RT, Chacko SK. Gastrointestinal stromal tumors: a 7-year experience from a tertiary care hospital. Indian Journal of Pathology and Microbiology 2010; 53: 628–633.
[12] Casali PG, Blay JY; On behalf of the ESMO Guidelines Working Group. Gastrointestinal stromal tumors: ESMO Clinical Recommendations for diagnosis, treatment, and follow-up. *Ann Oncol 2010;* 21(Suppl 5): v98-v102.
[13] Pasini B, McWhinney SR, Bei T, Matyakhina L, Stergiopoulos S, Muchow M, Boikos SA, Ferrando B, Pacak K, Assie G, Baudin E, Chompret A, Ellison JW, Briere JJ, Rustin P, Gimenez-Roqueplo AP, Eng C, Carney JA, Stratakis CA. Clinical and molecular genetics of patients with the Carney-Stratakis syndrome and germline mutations of the genes coding for the succinate dehydrogenase subunits SDHB, SDHC, and SDHD. *Eur J Hum Genet* 2008; 16(9): 79-88.
[14] Shinomura Y, Kinoshita K, Tsutsui S, Hirota S. Pathophysiology, diagnosis, and treatment of gastrointestinal stromal tumors. *J Gastroenterol* 2005; 40(8): 775-780.

