Clinicopathological Profile of Gastrointestinal Stromal Tumors

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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 in 28% 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. 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>
<thead>
<tr>
<th>Location of Tumour</th>
<th>No. of patients (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach</td>
<td>32</td>
<td>64</td>
</tr>
<tr>
<td>Ileum</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Duodenum</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Jejunum</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Colon</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Esophagus</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 10: Location of tumor in the study group
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% epithelioid 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. 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 C-KIT- 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. GISTs are also found in young adults and children. Such tumors are usually more aggressive and have lymph node involvement more frequently. As such, these tumors are usually considered a distinct clinicopathological entity. Males and females are almost equally affected. Some studies though indicate more male predominance. GISTs can occur anywhere in the gastrointestinal tract. Extragastrintestinal 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. 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. 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 extrahepatic organs. Tumor size varies from a few millimeters to 40 centimeters with an average size of 5 to 6 centimeters. Histopathologically, GISTs are usually rounded in shape or fusiform pattern, 20% epithelioid and 12% were of oval character. GISTs have also been found as in retroperitoneum. The stomach is the most commonly involved organ followed by small gut-30%, colo-rectum and esophagus. 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