

PRIMARY SMALL INTESTINAL MALIGNANCY-A CLINICO-PATHOLOGICAL STUDY, ITS COMPARISON WITH PRIMARY GASTROINTESTINAL MALIGNANCY AND EARLIER STUDIESN. Rajesh Kumar¹**HOW TO CITE THIS ARTICLE:**

N. Rajesh Kumar. "Primary Small Intestinal Malignancy–A Clinico-Pathological study, its comparison with primary Gastrointestinal Malignancy and Earlier Studies". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 53, July 02; Page: 9151-9157, DOI: 10.14260/jemds/2015/1330

ABSTRACT: OBJECTIVES: The aim of the study is to determine the clinico-pathological features of primary small intestinal malignant tumors and to compare with primary gastrointestinal malignancies and previous studies. **MATERIALS AND METHODS:** 11 patients with primary small intestine malignant tumors diagnosed over a 5 year period were studied clinically and histopathologically, they were classified using the WHO classification and compared with 300 primary gastrointestinal tumors and the previous studies. **RESULTS:** 11 patients (3.6%) were small intestine malignancies arising out of 300 primary gastrointestinal malignancies, with a male to female ratio of 1:1.2. Majority were females, majority were non vegetarians and most of the males were alcoholics and smokers. The youngest patient affected is 34 years old and the oldest patient is 67 years old with mean age of 52.17 and median age of 53 years. Tumor more common in the fifth to seventh decade of life. Altered bowel habits, abdominal discomfort was the most common clinical presentations followed by abdominal pain and vomiting in few cases. Duodenum was commonest site (72.2%) and few cases with equal proportion occurred in jejunum and ileum (9.09%). The commonest gross presentation was polypoidal growth (63.6%) and the rest of the tumors were ulcerative type. Adenocarcinoma was the most common histological type (81.8%) and 9% were Carcinoid and Gastrointestinal stromal tumor. **CONCLUSION:** Primary small intestinal malignancy constitute about 3.6% of allgastrointestinal malignancies, females commonly affected (1:1.2) and more common in alcoholics and non-vegetarians. Altered bowel habits, abdominal discomfort was the most common clinical presentations, Duodenum was commonest site (72.2%), The commonest gross presentation was polypoidal growth (63.6%), Adenocarcinoma was the most common histological type (81.8%)

KEYWORDS: Primary small intestinal malignancy, Gastrointestinal tumors.

INTRODUCTION: The digestive organs ranked the second commonest site for malignancies (10.2%) and esophagus was the commonest site (41%) followed by stomach (24%), intestine and rectum (34%).¹ Although the small intestine constitutes 75% of the length and over 90% of the mucosal surface area of the gastrointestinal tract, only 1% to 2% of the gastrointestinal malignancies occur in this segment. One of the enigmas of medicine is the rarity of malignant tumors of the small intestine, annual U.S death rate is under 1000, representing only about 1% of the gastrointestinal malignancies.²

The malignant tumors of small intestine present with nonspecific clinical symptoms and inconclusive or incorrectly interpreted diagnostic tests. The consequences are a significant delay in diagnosis and the finding of advanced, incurable disease at operation.³

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Malignant tumors of the small intestine are associated with Crohn's disease, villous adenoma and adult celiac disease.⁴ Small bowel lymphoma and adenocarcinoma are the other recognized complications of celiac disease.^{5,6}

Grossly, the cancers may be flat, stenosing, ulcerative, infiltrative, or polypoid. They are morphologically similar to adenocarcinomas elsewhere in the GI tract, but, more often, they are papillary. These cancers are often associated with adenomas.^{7,8,9} Inactivation of SMAD4/DPC4 gene seems to be involved in small intestinal adenocarcinoma tumorigenesis.

MATERIAL AND METHODS: A total of 300 patients with gastrointestinal tumors, out of which 11 small intestinal malignant tumors diagnosed at Tertiary Care Hospital in Tamil Nadu, India, over a period of 5 years (2010-2015) were studied and medical records of all the patients were reviewed and the data on intestinal tumors was analyzed with respect to age, sex and site incidence, clinical presentations, gross and histological information was recorded in a structured questionnaire form. The laboratory and radiological work - up done. The demographics, clinical presentation and associated syndromes, the lab investigations and computed tomography (CT), magnetic resonance imaging (MRI) and endoscopy findings were collected. The immune-histochemical profile and special stains was performed were ever indicated.

RESULTS: A total of 19955 surgical specimens were received at the Department of Pathology in the tertiary care hospital, over a period of five years. Out of these, gastrointestinal specimens were 2724, constituting 13.6% of all the specimens received and 300(11%) specimens were malignant.

Site and Sex Incidence of Gastrointestinal Malignancies: In the present study, stomach (50.6%) was the commonest site followed by, large intestine (30.6), esophagus (15%) and small intestine (3.6%). There was male preponderance except in small intestine where there was female preponderance.

Age Incidence of Gastrointestinal Malignancies: In the present study of the gastrointestinal malignant tumors, the age incidence varied from 19 years to 83 years, with peak age incidence in 6th decade followed by 5th and 7th decade. The mean age and median age of gastrointestinal malignant tumors are 52.17 and 53 respectively.

Except in small intestine which showed slight female preponderance, the other sites which are included in the study showed male preponderance irrespective of age group.

Presenting Complaints of Gastrointestinal Malignancies: There is great variation in the presenting symptoms depending upon the site involved. In esophagus, the presenting symptoms in the decreasing order of frequency are dysphagia, anorexia, weight loss, hematemesis and abdominal pain. In stomach, weight loss, anorexia, vomiting, abdominal pain is the commonest presenting symptoms and dysphagia, hematemesis, altered bowel habits are present in few cases. Altered bowel habits, abdominal discomfort is the commonly presenting symptom in small intestine followed by vomiting, abdominal pain and general weakness. In large intestine, the presenting symptoms in the decreasing order of frequency are abdominal pain, bleeding per rectum, altered bowel habits, painful defecation, malena, general weakness, abdominal discomfort, constipation, perianal pain, anorexia and diarrhea.

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SMALL INTESTINE MALIGNANCIES:

Site of Origin of Malignancies in Small Intestine: The duodenum was the commonest site for malignant tumors of the small intestine with 8 cases (72.72%) with female preponderance. Ileum, jejunum and both ileum with jejunum gave origin to one case each.

Site	No. of cases	Males	Females	M:F
Duodenum	8(72.72%)	3	5	1:1.6
Jejunum	1(9.09%)	0	1	0:1
Ileum	1(9.09%)	1	0	1:0
Jejunum & Ileum	1(9.09%)	1	0	1:0

Table 1: Site of origin of malignancies in small intestine

Gross Appearance of Small Intestine Malignancies: 7 cases (63.63%) showed grossly polypoid growth pattern with male preponderance and the rest of the malignant tumors showed ulcerative pattern with female preponderance.

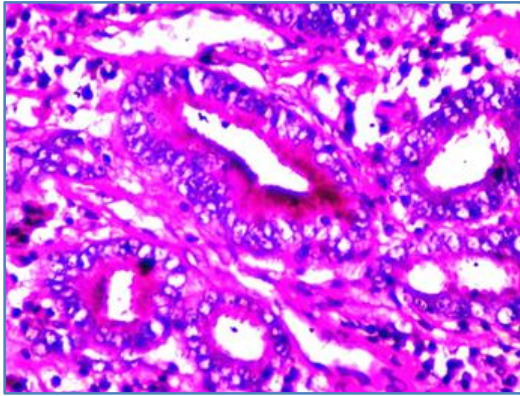
Gross Appearance	No. of Cases	Males	Females	M: F
Ulcerative	4(36.36%)	1	3	1:3
Polypoid	7(63.63%)	4	3	1.3:1

Table 2: Gross appearance of small intestine malignancies

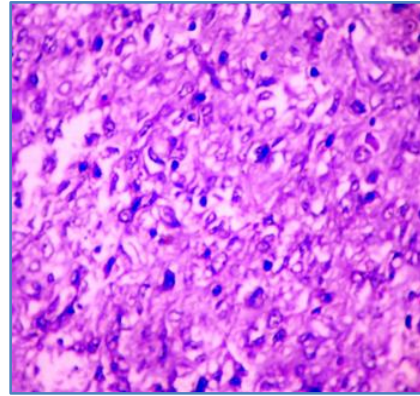
Incidence, Age and Sex wise Distribution of Various Histological types of Small Intestine Malignancies: The incidences of adenocarcinoma in small intestine are more in females and there was maximum occurrence of tumor in 5th and 6th decades. The GIST patient was a 34 years old male and the carcinoid patient was a 67 year old male.

Histological Type	Age in yrs													
	11-20		21-30		31-40		41-50		51-60		61-70		71-80	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Adeno carcinoma	-	-	-	-	-	1	-	3	3	1	-	1	-	-
GIST	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Carcinoid	-	-	-	-	-	-	-	-	-	-	1	-	-	-

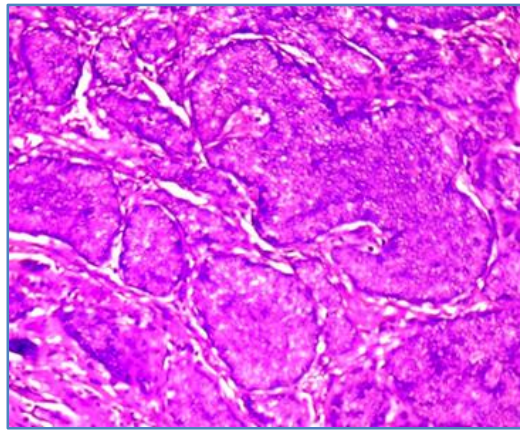
Table 3: Incidence, Age and Sex Wise Distribution of Various Histological types of Small Intestine Malignancies



Adenocarcinoma H and E 40 X



Gastrointestinal stromal tumor 40X H and E



Carcinoid H and E 40X

DISCUSSION:

Gastrointestinal Malignancies: In the present study of gastrointestinal malignancies, maximum incidence was observed in stomach (50.6%) followed by large intestine (30.6%), esophagus (15%) and small intestine (3.6%) while esophagus (42%) followed by stomach (24%) and intestine (34%) was most commonly involved in the earlier study¹. An overall male preponderance among malignancies of GI tract, and female preponderance among small intestine malignancies observed in the present series is similar to available reports.² The peak incidence in 6th decade and the mean age of 52.7 years observed in the present study also correlates with the earlier studies.¹

SMALL BOWEL MALIGNANCIES:

Age and Sex Incidence: Small intestinal malignancies occur over a wide range of age. In the present study the age ranges between 34 to 67 years, with peak incidence in 5th to 7th decade while in earlier studies the range was 10 to 96 years with peak incidence in the 5th to 8th decade of life.^{4,3,10} The higher incidence among women observed in the present study correlates with findings reported by others⁴. While male preponderance was reported by another group^{3,10} [Table:4]

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Series	Age Range	Peak Age Group	Sex Ratio
Vijay K. Mittal et ⁹ al(1980)	12-87 years	5 th -7 th decade	M:F -1:1.6
Robart M. Zollinger et al ⁸ (1986)	10-90 years	7 th decade	M:F -1.4:1
Alan E. Awrich et al ¹⁰ (1980)	31-96 years	6 th – 8 th decade	M:F -1.8:1
Present study(2007)	34-67 years	5 th - 7 th decade	M:F -1:1.2

Table 4: Comparative analysis of age and sex incidence of small intestinal malignancies

Presenting Symptoms: Altered bowel habit (63.6%) and abdominal discomfort (63.6%) were the most common presenting symptoms in malignancies of small intestine which was in variance with earlier reports.^{3,4,5} [Table:5].

Symptoms	Vijay K. Mittal et al ⁴ (1980)	Robart M. Zollinger et al ³ (1986)	P. D. Howdle et al ⁵ (2003)	Present Study (2007)
Abdominal pain	89.7%	42%	30%	18.18%
Weight loss	76.9%	29%	22.3%	-
Vomiting	-	26%	-	36.36%
GI bleed	-	18%	-	-
Altered bowel habit	-	-	-	63.6%
Abdominal discomfort	-	-	-	63.6%

Table 5: Comparative analysis of presenting symptoms of small intestinal malignancies

Location: In the present study, the duodenum was the most common site for malignant tumors of the small intestine [8 cases (72.72%)] while involvement of ileum and jejunum was more commonly reported by other workers.^{3,4} [Table: 6]

Site	Vijay K. Mittal et al ⁴ (1980)	Robart M. Zollinger et al ³ (1986)	Present study (2007)
Duodenum	17.9%	31.5%	72.72%
Jejunum	28.2%	39.4%	9.09%
Ileum	51.8%	28.9%	9.09%
Jejunum &Ileum	-	-	9.09%
Meckel's diverticulum	2.5%	-	-

Table 6: Comparative analysis of locations of malignancies in small intestine

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Histological Type of Small Intestinal Malignancies: Adenocarcinoma of the small intestine was the most common malignant tumor (81.8%) in the present study similar to the reports of earlier workers.^{3,4,5,6} [Table:7]

Histological Type	Vijay K. Mittal et al ⁴ (1980)	Robert M. Zollinger et al ³ (1986)	Alan E. Awrich et al ¹⁰ (1980)	P.D.Howdle et al ⁵ (2003)	Present study (2007)
Adenocarcinoma	53.8%	47.36%	31.7%	44%	81.8%
Carcinoid	23.1%	26.3%	34.14%	20%	9.09%
Lymphoma	12.8%	-	21.9%	27%	-
Leiomyosarcoma	7.7%	10.52%	16.9%	9%	-
Lymphosarcoma	-	7.8%	-	-	-
Melanoma	2.6%	-	-	-	-
Reticulum cell sarcoma	-	7.8%	-	-	-
Fibrosarcoma	-	-	1.2%	-	-
GIST	-	-	-	-	9.09%

Table 7: Comparative analysis of histological types of malignancies in small intestine

CONCLUSION: The current study showed 3.6% were small intestinal malignancies of the gastrointestinal malignancies and the least common site of gastrointestinal malignancies, stomach is the commonest site followed by large intestine, esophagus, and small intestine in decreasing order of frequency. Women (54.6%) are more commonly affected than men with a mean age of 52.17 and median age of 53 years, the youngest patient affected is 34 years old and the oldest patient is 67 years old. Tumor is more common in the fifth to seventh decade of life. Altered bowel habits, abdominal discomfort was the most common clinical presentations followed by abdominal pain and vomiting in few cases. Duodenum was commonest site (72.2 %) and few cases with equal proportion occurred in jejunum and ileum (9.09%). The commonest gross presentation was polypoidal growth (63.6%) and the rest of the tumors were ulcerative type. Adenocarcinoma was the most common histological type (81.8%) and 9% were Carcinoid and Gastrointestinal stromal tumor.

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