



## NEOPLASTIC LESIONS OF SMALL INTESTINE: A HISTOPATHOLOGICAL STUDY

## Pathology

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## ABSTRACT

**Introduction:** Although major portion of intestinal length is contributed by small intestine, neoplastic processes involve it less commonly as compared with large intestine. Yet a variety of tumors can occur and the study was done to study their histomorphology.

**Methods:** This study is carried out in the department of pathology, Sardar Patel Medical College and associated group of hospitals, Bikaner for a period of 28 months.

**Results:** Only one case (8.33%) of benign tumor (hamartomatous polyp) is recorded out of total 12 cases. Among malignancies adenocarcinoma comprised highest percentage (66.67%). Gastrointestinal stromal tumor (GIST), carcinoid and secondary malignancy recorded as single cases (8.33%) for each. 8 cases were male and 4 were female (M:F = 2:1). Numbers of cases were same (3 for each) in 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> decade of life in this study.

**Conclusion:** In small intestine majority were adenocarcinomas and duodenum was the commonest site.

## KEYWORDS

adenocarcinoma, carcinoid, GIST, hamartomatous polyp, small intestine.

## INTRODUCTION

The small intestine, which accounts for 75% of the overall length of the GI tract, is an uncommon site for benign and malignant tumors. Among malignant small intestinal tumors, adenocarcinoma and carcinoid tumors have roughly equal incidence, followed by lymphomas and sarcomas.<sup>1</sup>

The small intestine extends from the pylorus to the ileocecal junction. It is about 6 meters long in adults. The length is greater in males than in females, and greater in cadavers, due to loss of tone than in the living. It is divided into the duodenum, jejunum, and ileum.<sup>2</sup>

## AIMS AND OBJECTIVES

1. To study the histopathological patterns of neoplasms of small intestine.
2. To study these neoplasms with regard to site, frequency, age and sex distribution.

## MATERIAL AND METHODS

This study was carried out in the department of pathology Sardar Patel Medical College and associated group of hospitals, Bikaner. The study included endoscopic and surgically resected biopsies received in the department during July 2014 to October 2016 and diagnosed as benign or malignant tumor. Clinical and gross details and histopathological findings were analysed. Slides were stained with H & E staining initially then other special staining was done where required.

## OBSERVATION AND RESULT

**Table 1. Age and sex wise distribution of tumors of small intestine**

Age in years	Male	Female	Total	Percentage (%)
11-20	1	-	1	8.33
21-30	1	-	1	8.33
31-40	-	-	-	-
41-50	1	2	3	25
51-60	2	1	3	25
61-70	2	1	3	25
71-80	1	-	1	8.33
Total	8	4	12	100

Among 12 tumors of small intestine, 8 were male and 4 were female (M:F = 2:1). Number of cases are same (3 for each) in 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> decade of life in this study.

**Table 2. Site wise histopathological diagnosis of tumors of small intestine**

Site	Hamartomatous polyp	Adenocarcinoma	GIST	Carcinoid	Secondary malignancy	Total
Duodenum	-	4	-	-	-	4
Jejunum	1	1	1	-	1	4
Ileum	-	3	-	1	-	4
Total	1	8	1	1	1	12

Duodenum was the commonest site for adenocarcinoma constituting 57.14% of small intestinal adenocarcinoma. The single case of carcinoid is reported in ileum. Jejunum showed variety of tumors, the only cases of hamartomatous polyp, GIST, secondary tumor and one case of adenocarcinoma too.

## DISCUSSION

Tumors of small intestine are relatively rare and constitute only 3-6% of all gastrointestinal tumors in spite of constituting 75% of the length and 90% of the mucosal surface of the alimentary tract.

A large study of adenocarcinoma of the small intestine was performed by Dabaja et al<sup>3</sup>. They examined 217 case of small intestine adenocarcinoma, and found that the location is duodenum in 52%, jejunum in 25%, ileum in 13%, and not clear in 10%.<sup>3</sup> The locations of all the 22 cases of primary adenocarcinoma and all the 3 cases of squamous cell carcinoma was mostly duodenum in study conducted by Tadashi Terada<sup>4</sup>.

In our study out of 8 adenocarcinomas, 4 (50%) were located in duodenum (finding quite close to the study done by Dabaja et al<sup>3</sup>), 3 (37.5%) in ileum and 1 (12.5%) in jejunum. This finding was in concordance with duodenum being the most common site for adenocarcinoma. The preferential location may be because the periampullary sites are areas irritated by pancreatic juice and bile, putative carcinogens.

In study done by Tadashi Terada<sup>4</sup>, the age of patient with primary small intestinal carcinoma ranged from 45 years to 85 years with a mean of 63 years. The male to female ratio was 1.5:1.

In our study peak distribution of small intestine tumors was found in 5<sup>th</sup> to 7<sup>th</sup> decade with male to female ratio of 2:1. Thus, the primary small intestinal carcinoma is frequent in middle or old aged persons. This is in accordance with previous epidemiologic studies<sup>5,6,7,8</sup>.

The male preponderance is also compatible with previous epidemiologic study.<sup>5,6,7,8</sup>

In the present study, single cases of hamartomatous polyp, carcinoid tumor, GIST and secondary tumor recorded.

Hamartomatous polyp was the single benign tumor reported in small intestine in this study. It was situated in jejunum and was diagnosed in a 12 year male.

Carcinoid tumor was of typical type. It was diagnosed in ileum of 72 year male.

Carcinoid tumors are potentially malignant tumors, but the malignant potential depends on tumor size and morphologies<sup>6</sup>. In general,

carcinoid tumors less than 20mm have low grade malignant potential, and carcinoids more than 20 mm have high malignant potential<sup>9</sup>. In the present study, the case of carcinoid was less than 20 mm, suggesting a low malignant potential.

GIST was reported in jejunum of 45 year female. It was of epithelial

variant.

Secondary tumor recorded in jejunum of 30 year male, had primary in testis (undescended). Morphology was similar to that of primary tumor (germ cell tumor).

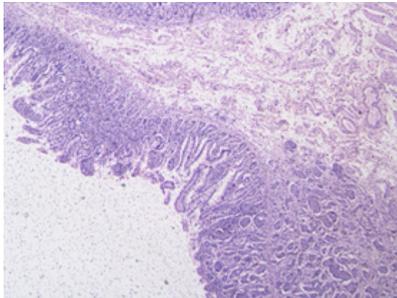
**Table3. Comparison of histopathological type of primary malignant tumors of small intestine**

	Zhi-wei et al <sup>10</sup> , 1999	Mohammed et al <sup>11</sup> ,2006	Bir hospital study <sup>12</sup> , 2009	M. lavanya et al <sup>13</sup> , 2010	Tadashi et al <sup>4</sup> , 2012	Meeta et al <sup>14</sup> , 2014	Present study
Adenocarcinoma	25 (33.3%)	-	2 (22.2%)	-	22 (62.8%)	2 (50%)	8 (80%)
Carcinoid tumor	-	-	-	-	3 (8.7%)	-	1 (10%)
LMS/GIST	26 (34.7%)	1 (50%)	4 (44.4%)	1 ( 50%)	1 (2.8%)	1 (25%)	1 (10%)
Lymphoma	20 (26.7%)	1 (50%)	3 (33.3%)	1 (50%)	6 (17.1%)	1 (25%)	-
Malignant soft tissue tumor	4 (5.3%)	-	-	-	-	-	-
SCC	-	-	-	-	3 (8.6%)	-	-
Total	75	2	9	2	35	4	10

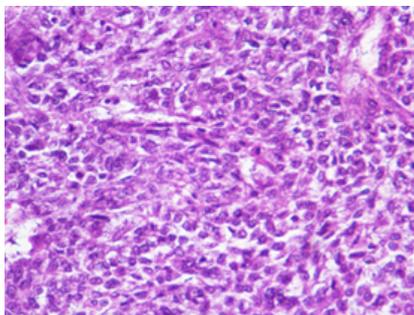
There is variations in incidence of primary tumors of small intestine. In some studies occurrence of adenocarcinoma is highest (Tadashi et al<sup>4</sup>, Meeta et al<sup>14</sup>) as in our study. In other studies GIST/LMS has much frequent occurrence than adenocarcinoma (Zhi-wei et al<sup>10</sup>, BIR hospital study<sup>12</sup>).

**CONCLUSION**

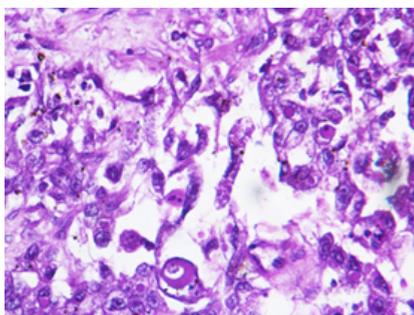
Incidence of malignant lesions was quite higher than that of benign lesions in small intestine. Tumors of small intestine show a wide variation in the histological types making the histopathological examination a must in the diagnosis of these tumors.



**Figure 1: carcinoid tumor, tumor cell nests in lower half of diagram, 4x.**



**Figure 2: GIST, H&E, 40x**



**Figure 3: secondary tumor. H&E, 40x**

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