



ORIGINAL RESEARCH PAPER

Pathology

HISTOPATHOLOGICAL STUDY OF THE TUMOURS OF INTESTINE IN TERTIARY CARE CENTER.

KEY WORDS: Tumours

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ABSTRACT

BACKGROUND: Tumors of the stomach and small intestines are some of the common neoplasms encountered. Considering the numerous variables involved, it would be justified in undertaking an in-depth study into tumors of stomach and intestine.

AIMS AND OBJECTIVES: To study the tumours of stomach with respect to etiology, site and histological types .

Material and methods: This Histopathological study of tumors of intestine was carried out over a period of 23 months from January 2011 to November 2012 in a tertiary care center All surgically resected specimens of intestine received for histopathological examination and diagnosed as neoplasm were included.

CONCLUSION: The result of a careful and systematic examination of surgical specimens from patients with tumors of the gastrointestinal tract play an important role in patient care and the assessment of prognosis

INTRODUCTION

Gastrointestinal tumors account for a large proportion of all neoplasm. According to the world cancer⁽²⁾ report, colorectal carcinoma ranks second and stomach carcinoma ranks fourth among the most common tumor of the world. Curiously, the small intestine in an uncommon site for tumor despite its great length and vast pool of dividing cells. There is world wide variation in the distribution of these neoplasms, which appears largely due to exogenous factors rather than genetics.⁽²⁾

The various histological type of tumor at different gastrointestinal sites also differ in their incidence and prognosis.⁽²⁾ Tumors arising from the mucosa of stomach and intestine predominate over mesenchymal and stromal tumors. Adenocarcinomas constitute 70% of all malignancies arising in the gastrointestinal tract. Without exception, all tumors are incurable when metastasis exists. However effective treatment in case of lymphoma and stromal tumors is likely to result in cure.⁽¹⁾

This study is undertaken to determine the relative frequency of various histological types of gastrointestinal tract tumors and its correlation with IHC markers when required.

MATERIAL AND METHODS

This Histopathological study of tumors of intestines was carried out over a period of 23 months from January 2011 to November 2012.

All surgically resected specimens of intestines received at Department of Pathology, Govt. medical college surat for histopathological examination and diagnosed as neoplasm.

Brief clinical history along with clinical findings were noted when the specimen is received. The specimen was then dissected, gross features of the tumor was described and kept for fixation in 10% formalin for 12-36 hours. Standardized tissue bits were sampled from the tumor, surgical margins and lymphnodes, if identified and processed in automated histokinette and embedded in paraffin wax. Sections of 4-6µ

thickness were cut using semi-automated microtome and stained with Haematoxylin and Eosin stain. Special stains were used, wherever necessary. Immunohistochemistry was done as per when required.

Descriptive statistics and Yates corrected Chi-Square test were applied.

RESULTS

Out of the total surgical specimens received 487 cases were of gastrointestinal tract and out of these 100 cases were resected specimens of tumors of stomach and intestines, which constitutes 20.53% of all gastrointestinal tract biopsies /specimens. On histological examination, all these tumors were found to be malignant. We have included 33 biopsies and 67 specimens of stomach and intestines. Total numbers of cases of intestine were 46 including few cases of lymphomas.

Tumors of stomach and intestines showed wide variation in age distribution, with peak occurrence in 6th decade. Mean age of incidence of tumors of stomach and intestines is 55.46 years. The study showed there was male predominance with male to female ratio of 1.56:1

All the cases had rice as the staple diet. Majority of the patients (86%) had a mixed dietary habit, who ate non-vegetarian dishes occasionally. The rest of the patients were vegetarians. Majority of the cases were of epithelial origin while remaining were lymphomas.

Adenocarcinoma was CK and CEA positive thus helped in confirming poorly differentiated tumors. IHC was kept on some of the total biopsies/specimen received and in all cases the histopathological diagnosis was confirmed correctly by immunohistochemistry.

Only 6 cases of small intestine tumors were seen of which 3 cases were adenocarcinoma .One cases each of GIST, leiomyosarcoma and lymphoma were also seen. Anatomical wise most (3 cases) of the cases were seen in ileum, followed by jejunum (2 cases) and one case was seen in duodenum.

Mean age of incidence of small intestine is 45.33 years (if all values were added together). 1 case of GIST was diagnosed from jejunum. The diagnosis was confirmed on IHC.

Colon and rectal tumors showed a male predominance with male to female ratio of 2.28:1. Rectum was the commonest site constituting 60.86% of colorectal malignancies.

Site	Number	Percentage
Caecum	2	4.3
Ascending colon	7	15.2
Transverse colon	8	17.39
Descending colon	2	4.3
Sigmoid colon	2	4.3
Rectum	28	60.86
Total	46	100

Out of 46 cases, 30 cases were adenocarcinoma constituting 65.21% of colorectal carcinomas. The others were 11 cases of mucinous adenocarcinoma and 1 case each of signet ring adenocarcinoma, squamous cell carcinoma, undifferentiated carcinoma, metastatic adenocarcinoma and melanoma.

Type	Number	Percentage
Adenocarcinoma	30	65.21
Mucinous adenoca	11	23.91
Signet ring adenocarcinoma	1	2.17
Squamous cell carcinoma	1	2.17
Adenosquamous carcinoma	0	
Undifferentiated carcinoma	1	2.17
Metastatic adenocarcinoma	1	2.17
Melanoma	1	2.17
Total	46	100

Grossly lymphnodes were identified in 26 cases while metastasis was seen in 18 cases (69.23%) on microscopic examination. Extranodal metastasis (peritoneal, perirectal, pericolic, perinodal) were seen in 9 cases (26.47%).

Only 6 cases of anal canal were diagnosed of which 3 were small biopsies. Most of the cases were present between 5th to 6th decades.

Among 6 cases studied out of which 3 were squamous cell carcinoma 2 were adenocarcinoma and 1 case was diagnosed as verrucous carcinoma.

Type	Number	Percentage
Squamous cell	3	50
Verrucous carcinoma	1	16.67
Adenocarcinoma	2	33.34
Total	6	100

DISCUSSION

Tumors of the stomach and intestines are some of the common neoplasms encountered. Considering the numerous variables involved, it would be justified in undertaking an in-depth study into tumors of stomach and intestines.

From the total of 7441 specimens received, 100 were resected specimens and biopsies of tumors of stomach and intestines accounting for 1.34% of all specimens received. This is comparable with the figures quoted by Leena Devi and Suvarna of 1.3% in North Kerala. (3) Tumors of stomach and intestines were seen over a wide range of age (18 years to 80 years). The highest distribution was found in the 6th decade, which was consistent with the study by Prabhakar et al. (4) However the peak distribution was 7th and 6th decade in study done by Leena Devi et al. (3) and Mohammad et al (6) respectively.

A male predominance was observed in this study with a male to female ratio of 1.56:1. This ratio is less when compared to studies from Punjab, (4) and Pakistan (6) while the ratio is more when compared to SEER data from USA (7) where the ratio is

1.07:1. The ratio was comparable to the study from Nepal

The dietary habits are known to play a major role in the causation of gastrointestinal tumors and is one of the reasons attributed to the geographical variation. Rice diet had been associated with increased risk of stomach cancer and rice being the staple diet in this region is consumed by 97% of the population and 100% of the cases under study.

Only 6 cases of small intestine tumors were seen of which 3 cases were adenocarcinoma. One case each of GIST, leiomyosarcoma and lymphoma

were also seen. Anatomical wise most (3 cases) of the cases were seen in ileum, followed by jejunum (2 cases) and one case was seen in duodenum.

Mean age of incidence of small intestine is 45.33 years (if all values were added together). 1 case of GIST was diagnosed from jejunum. The diagnosis was confirmed on IHC.

In the study by Mohammad et al, (6) only 2 cases being reported in small intestine (13.3% of tumors of stomach and intestines) with no adenocarcinomas and both were male patients. However, the age of occurrence was both more than 60 years.

However in the study by Leena Devi et al. (3) there was male predominance and mean age of occurrence of lymphomas (76 years).

However In study by Shahid Jamal et al (6) there was a male predominance (M: F-2.6:1) and the common site of occurrence of lymphoma was ileum. In this study adenocarcinomas were the common tumors encountered and commonest site of involvement was ileum (2 cases).

Colon and rectal tumors showed a male predominance with male to female ratio of 2.28:1. Rectum was the commonest site constituting 60.86% of colorectal malignancies.

Out of 46 cases, 30 cases were adenocarcinoma constituting 65.21% of colorectal carcinomas. The others were 11 cases of mucinous adenocarcinoma and 1 case each of signet ring adenocarcinoma, squamous cell carcinoma, undifferentiated carcinoma, metastatic adenocarcinoma and melanoma.

The study done in China by Zhi-Wei et al showed a male predominance with average age of occurrence being 47 years. Leiomyosarcoma has the highest occurrence followed closely by adenocarcinomas, and the commonest site of occurrence being the ileum.

Tumors of the colon and rectum

Tumors of the colon and rectum are the commonest tumors in the gastrointestinal tract in the Western World. However, in India these tumors are relatively rare, but its incidence is increasing and varies from place to place.

In the present study, 46 cases were from the colorectal region constituting the majority 46% of all cases of gastrointestinal tract which was in conformity with studies by Prabhakar et al, (4) Shahid Jamal et al, (6) and Thomas et al (7)

by in 7th decade (21.73%) which was in conformity with studies by Leena Devi et al, (3) and Prabhakar et al (4) where the peak occurrence was in 5th decade. However, the peak incidence was found to be 7th decade in a study by Abdulkareem et al, 2008 at Nigeria (8) A male predominance was observed in this study with male to female ratio of 2.28:1 among colo-rectal carcinoma patients which was in conformity with studies by Leena Devi et al (3) (M:F-1.9:1), Prabhakar et al (4) (M:F-2.2:1), showed male predominance.

However female predominance was seen in the study from Nepal by Mohammad et al⁽³⁾ (M:F-1:2). However, the statistical analysis showed no significant gender distribution.

Diet is known to play a role in the causation of colorectal tumor and of the 46 cases studied, 38 cases had mixed diet and 8 cases had vegetarian diet. There appears to be an increased occurrence of colorectal cancer in patients having mixed diet. Clinically patients presented with signs and symptoms depending on the type of lesion and the anatomical location. The commonest presentation was with a history suggestive of intestinal obstruction and constipation.

The anatomical site commonly involved was rectum, constituting 60.86% of all colorectal cancers which was in conformity with studies by Leena Devi et al⁽³⁾

Study by Eisenberg in 1982 showed predominant site of origin being left colon

The commonest growth pattern encountered were the ulcerative forms which forms 54.8% of the colorectal cancers and these were distributed all over colon and rectum. The other forms presented were polypoid (12.9%), fungating (29.3%) and indurated (3.22%) masses of the tumor.

The histological study showed 42 cases of colorectal cancers to be adenocarcinomas. Among the variants, adenocarcinomas were 30 cases constituting 65.21% of all colorectal cancers, followed by 11 cases of mucinous adenocarcinoma constituting (23.9%) of all colorectal tumors.

In this study 1 case each of metastatic carcinoma, signet ring adenocarcinoma, undifferentiated carcinoma and melanoma were also diagnosed.

Colorectal carcinomas were seen over an age range from 20 to 77 years (mean age 57.7 years) with the peak (30.43%) occurrence in the 5th decade followed

Grossly lymphnodes were identified in 26 cases while metastasis was seen in 18 cases(69.23%) on microscopic examination. Extranodal metastasis(peritoneal, perirectal, pericolic, perinodal) were seen in 9 cases(26.47%).

Only 6 cases of anal canal were diagnosed of which 3 were small biopsies. Most of the cases were present between 5th to 6th decades.

Among 6 cases studied out of which 3 were squamous cell carcinoma 2 were adenocarcinoma and 1 case was diagnosed as verrucous carcinoma.

CONCLUSION

Tumors of the gastrointestinal tract show a wide variation in the histological type making the histopathological examination a must in the diagnosis of these tumors. Early diagnosis and treatment is beneficial for better management and is imperative in providing better quality of life to the patient. The result of a careful and systematic examination of surgical specimens from patients with tumors of the gastrointestinal tract play an important role in patient care and the assessment of prognosis. Despite promising findings with molecular and immunohistochemical analysis, tumor stage is still regarded as the most important prognostic factor in colorectal cancer. The other stage independent prognostic factors include histologic grade, vascular invasion, perineural invasion and tumor border configuration.

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