



Original Article

Histopathological study of the tumours of stomach in tertiary care center

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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 stomach and intestines' 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 stomach received for histopathological examination and diagnosed as neoplasm were included.

Results: Majority of cases of gastric tumors occurred in pylorus (57%) followed by cardia of the stomach (26.19%). Majority (95%) are epithelial tumors and the rest lymphoma. Majority are adenocarcinoma of which tubular adenocarcinoma (64%) occurs in most of patients followed by mucinous adenocarcinoma (21%). Two cases of non Hodgkin lymphoma were confirmed by immunohistochemistry. Among 28 cases, grossly omental lymphnodes were identified in 19 cases and histologically metastasis was present in 11 cases (57.89%). Extra nodal metastasis (perinodal, lesser sac fat) were seen in 6 cases (21%).

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

Keywords: Tumours, Stomach, Gastric.

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 is 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 stomach and intestines' was carried out over a period of 23 months from January 2011 to November 2012.

All surgically resected specimens of stomach and 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 4-6 μ 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 specimen of stomach and intestines. Total number of cases of stomach were 42 including two 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 16 cases (16%) of the total biopsies/specimen received and in all cases the histopathological diagnosis was confirmed correctly by immunohistochemistry.

Grossly lymphnodes were identified in 19 cases (out of total 42 cases) out of which metastatic deposits were seen in 11 cases on histological examination.

In Gastric tumors, the peak occurrence was in 7th decade. Mean age of incidence of tumors of stomach is 54.97 years. (if all values are taken together)Gastric tumors showed approximately equal incidence in male and female with ratio of 1.1: 1.

Majority of cases of gastric tumors occurred in pylorus (57%) followed by cardia of the stomach (26.19%) .

Site	Number	Percentage
Cardia	11	26.19
Fundus	1	2.3
Body	6	14.28
Antrum	14	33.34
Pyloric canal	10	23.8
Total	42	100

Majority (95%) are epithelial tumors and the rest being lymphoma. Out of 42 gastric tumors, majority are adenocarcinoma of which tubular adenocarcinoma (64%) occurs in most of patients followed by mucinous adenocarcinoma (21%). Papillary adenocarcinoma and signet ring adenocarcinoma each constituting 5% of all gastric tumors along with squamous cell carcinoma and undifferentiated carcinoma constituting of 2% each.

Two cases of lymphoma were diagnosed, both of which were non Hodgkin lymphoma. We received biopsies so gross description was not possible. The diagnosis was confirmed by immunohistochemisrty

Type	Number	Percentage
Papillary adenocarcinoma	2	4.76
Tubular adenocarcinoma	27	64.28
Mucinous adenocarcinoma	9	21.42
Signet ring adenocarcinoma	2	4.76
Adeno-squamous	-	-
Squamous cell carcinoma	1	2.38
Undifferentiated	1	2.38
Total	42	100

Among 28 cases, grossly omental lymphnodes were identified in 19 cases and histologically metastasis was present in 11 cases (57.89%). Extra nodal metastasis(perinodal, lesser sac fat) were seen in 6 cases(21%).

Discussion

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 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⁽⁵⁾ respectively. (Table 23).

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 (Table 24). 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.

The site distribution of various tumors varies with the geographic location. Stomach carcinoma is the fourth most common cancer .There has been a dramatic decline in the incidence of stomach cancer, which can be due to early diagnosis and treatment of H.pylori infections.

Tumors of stomach constitutes 42% of all the cases. The studies from Punjab,⁽⁴⁾ Pakistan⁽⁶⁾ and United States⁽⁷⁾ has similar findings while in studies from Kerala⁽³⁾ and Nepal,⁽⁵⁾ stomach cancer was more common.

In the present study there was only slight difference (4%) in the incidence of tumors of colorectum(46%) and stomach(42%). This can emphasizes the fact that apart from diet, other habits like smoking, alcoholism, betal nut chewing and a host of other addictions have known to play a role in increasing the susceptibility to cancer.

Tumors of the stomach are relatively common and show great variation in the incidence between countries and also in different regions in the same country. Japan is known to have the highest incidence of cancers of the stomach, though its incidence is declining. In our country, Bengalis are known to have high incidence of gastric tumors.⁽³⁾

In the present study, 42 cases of stomach cancers were studied, which formed 42% of all tumors studied, which are lower than those found by Leena Devi et al⁽³⁾ (49.34%), Mohammad et al⁽⁵⁾ (66.67%), while studies from United States by Thomas et al⁽⁷⁾ (12.1%) and Prabhakar et al⁽⁴⁾ (31%) showed a lower percentage.

Gastric tumors were found in older age group with peak distribution in the 7th decade (28.57%), which was lower than the study done by Koteswar Rao et al⁽⁸⁾ and Leena Devi et al.⁽³⁾ However, the study done in Nepal⁽⁵⁾ noted a similar age of incidence with most cases occurring above the age of 60 years, while study done in Jammu and Kashmir⁽¹⁰⁾ showed peak occurrence in 5th decade.

Males and females were affected approximately equally with 22 cases in male and 20 cases in female with the male to female ratio being 1.1:1.

But male predominance was observed in study by Leena Devi et al⁽³⁾ (M:F – 3.5:1), Koteswar et al⁽⁸⁾ (M:F-3:1) Nassima Chanda⁽¹⁰⁾ (M:F – 2.3:1).

Cancer of the stomach is notorious for being silent and asymptomatic and may not be discovered till a very late stage. Pain in the epigastric region was the commonest chief complaint.

Cancers of stomach are distributed in different parts of the stomach. The present study showed highest occurrence of 24 cases (57.1%) in the pylorus, followed by cardia (26.1%), and body(14.28%) which was in conformity with studies by Rao K.K. et al⁽⁸⁾ and Chanda N.⁽¹⁰⁾ However the study by Ming S.C.⁽¹¹⁾ showed higher incidence in the body (48%) followed by fundus (Table 26).

The gastric tumors demonstrate an array of gross appearance. The ulcerating type (13 cases) , was the commonest followed by fungating mass (7 cases). Among the gastric tumors studied, 40 cases were of epithelial origin and 2 cases were of lymphoma. This finding is in conformity with studies by Leena Devi et al,⁽³⁾ and Mohammed et al,⁽⁵⁾ where adenocarcinoma was the most common tumor . On histological examination, majority (27 cases) of the adenocarcinomas were

of tubular type (64.28%) followed by 9 cases of mucinous type of adenocarcinoma (21.42%)with 2 cases each of papillary and signet type of adenocarcinoma (4.76%).1 cases each of squamous cell carcinoma and undifferentiated carcinoma were also diagnosed.

11 cases (57.89%) presented with lymph node metastasis and 21% cases show extra nodal metastasis.

Majority (72.22%) of the cases were moderately differentiated. We received two biopsy from stomach which were diagnosed as lymphoma (NHL) histopathologically and confirmed by immunohistochemistry.

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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