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Comparison of Clinico-Pathological Features of Primary Esophagus Malignant Neoplasms with Gastrointestinal Malignant Neoplasms

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Abstract

Objectives: The aim of the study is to determine the clinico-pathological features of primary esophageal l malignant tumors and to compare with primary gastrointestinal malignancies. *Materials and methods:* 45 patients with primary esophageal 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. *Result:* 45 patients (15%) were esophageal malignancies arising out of 300 primary gastrointestinal malignancies, with a male to female ratio of 3.5:1. Majority were males, majority were non vegetarians and most of the males were alcoholics and smokers. The youngest patient affected is 20 years old and the oldest patient is 78 years old with mean age of 52.17 and median age of 53 years. Tumor more common in the sixth and seventh decade of life.In esophagus, the presenting symptoms in the decreasing order of frequency were dysphagia, weight loss, hematemesis and abdominal pain. Malignant tumors were more common in lower one third with 25 cases (55.55%) followed by frequency in middle and upper one third of esophagus with a male preponderance. Ulcerative type of lesion was the most common gross presentation in 55.5% of the tumors followed by exophytic and infiltrative pattern. The commonest malignant tumor of esophagus was squamous cell carcinoma constituting 71.8%, and rest include adenocarcinomas, poorly differentiated carcinomas and a single case of adenosquamous carcinoma. *Conclusion:* Primary esophageal malignancy constitute about 15% of all gastrointestinal malignancies, males commonly affected (3.5 :1) and more common in alcoholics and non vegetarians. dysphagia, weight loss, hematemesis and abdominal pain was the most common clinical presentations, more common in lower one third with 25 cases (55.55%). Ulcerative type of lesion was the most common gross presentation in 55.5% of the tumors, Histologically 71.8% were sqamous cell carcinoma and few cased of adenocarcinomas, poorly differentiated carcinomas and a single case of adenosquamous carcinoma.

Keywords: Primary Esophageal Malignancy; Gastrointestinal Neoplasms.

Introduction

According to National Cancer Registry Programme report (Chennai 2004), the leading sites of cancer in males were stomach(10.2%), lung(10%), esophagus (7.6%) followed by others. In males, stomach and esophagus ranks the first and third commonest site of malignancies respectively where as in females, stomach (4.7%) ranks the third commonest site of malignancies [1]. In India, the oral cavity, pharynx and esophagus are affected more frequently than in other countries [2]. Common presenting symptoms included dysphagia, substernal or epigastric pain or burning, vomiting or regurgitation, hoarseness of voiceindesending order of frequency [3]. 5 macrotypes were recognized, normal flat (8 cases), coarse (21 cases), verrucous (25 cases), polypoid (17 cases), and ulcerative infiltrating (5 cases) [4]. In the United States, most esophageal cancers used to be of squamous cell origin, but the incidence of these tumors has declined with a steady increase of

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adenocarcinomas. World- wide, squamous cell cancers constitute 90% of esophageal cancers. Rare tumors are undifferentiated, carcinoid, malignant melanoma, lymphoma, sarcoma, and adenocarcinomas arising from the submucosal glands [5]. The outcome of patient with Superficial Squamous Cell Carcinoma is excellent with a 5- year survival rate exceeding 80%[6]. Verrucous Squamous Cell Carcinomatends to be slow-growing and only locally invasive, with infrequent lymph node involvement; distant metastases have not been reported [7]. Esophageal adenocarcinoma is an uncommon malignancy, but it accounts for approximately 30% to 40% of primary esophageal cancers. In the majority of cases the tumor originates from Barrett's esophagus [8], the tumors confined to the lower third of the esophagus [9]. Primary malignant melanoma, accounts for only about 0.1% of esophageal malignancies, is noted principally in men over the age of 50 years. The prognosis is very poor [10].

Material and Methods

A total of 300 patients with gastrointestinal tumors out of which 45 esophageal 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 clinical, the data on gastrointestinal 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- updone. The demographics, clinical presentation and associatedsyndromes, the lab investigations and computed tomography (CT), magnetic resonance imaging (MRI) and endoscopy findings were collected. The immunohistochemical profile and special stains was performed were ever indicated.

Observations

A total of 19955 surgical specimens were received at the Department of Pathology, over a period of five years. Out of these, gastrointestinal specimens were 2724; constituting 13.6% of all the specimens received and 300specimens constituting 11% were malignant.

Site and Sex Incidence of Gastrointestinal Malignancies

In the present study, stomach was the commonest site followed by , large intestine, esophagus and small intestine. There was male preponderance except in small intestine where there was a 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 was 52.17 years and 53 years 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 was great variation in the presenting symptoms depending upon the site involved.

In esophagus, the presenting symptoms in the decreasing order of frequency were dysphagia, anorexia, weight loss, hematemesis and abdominal pain.

Instomach, weight loss, anorexia, vomiting, abdominal pain was the commonest presenting symptoms and dysphagia, hematemesis; altered bowel habits are present in few cases.

Altered bowel habits,abdominal discomfortwas 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 were abdominal pain, bleeding per rectum, altered bowel habits, painful defecation, malena, general weakness, abdominal discomfort, constipation, perianal pain, anorexia and diarrhea.

Malignancies of Esophagus

Site of Origin of Malignancies in Esophagus

Malignant tumors were more common in lower one third with 25 cases (55.55%) followed by frequency in

Table 1: Site of origin of malignancies in esophagus

Site	No of cases	Male	Female	M:F
Upper one third	8(17.77%)	6	2	3:1
Middle one third	12(26.66%)	8	4	2:1
Lower one third	25(55.55%)	21	4	5.2:1

middle and upper one third of esophagus with a male preponderance.

Gross Appearance of Esophageal Malignancies

Ulcerative type of lesion was the most common gross presentation in 55.5% of the tumors followed by exophytic and infiltrative pattern.

Incidence and Sex Wise Distribution of Various Histological Types of Esophageal Malignancies

The commonest malignant tumor of esophagus was squamous cell carcinoma constituting 71.8%, which was more common in males with a male: female ratio of 2.5:1.

The rest of the cases were reported in males, these include adenocarcinomas, poorly differentiated carcinomas and a single case of adenosquamous carcinoma.

Incidence, Age an d Sex Wise Distribution of Various Histological Types of Esophageal Malignancies

Squamous cell carcinoma of esophagus was found to occur commonly in the 5th ,6th and 7th decades. The youngest patient was 20 years and the oldest patient was 78 years.

The maximum incidence of adenocarcinoma, adenosquamous carcinoma, poorly differentiated carcinoma occurred at 6th decade.

Table 2: Gross appearance of esophageal malignancies

Gross appearance	No of cases	Male	Female	M:F
Ulcerative	25 (55.55%)	17	8	2.1:1
Exophytic	16 (35.55%)	14	2	7:1
Infiltrative	4 (8.88%)	4	0	4:0

Table 3: Incidence and sex wise distribution of various histological types of esophageal malignancies

Histological type	Total cases	Males	Females	M:F
Squamous cell carcinoma	32(71.1%)	23(71.8%)	9(28.2)	2.5:1
Adeno carcinoma	8(17.7%)	8	0	8:0
Adeno squamous carcinoma	1(2.2%)	1	0	1:0
Poorly differentiated carcinoma	4(8.8%)	4	0	4:0

Table 4: Incidence, age and sex wise distribution of various histological types of esophageal malignancies

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
Squamous cell carcinoma	-	1	-	-	2	1	5	3	9	2	6	1	1	1
Adeno carcinoma	-	-	-	-	-	-	1	-	4	1	2	-	-	-
Adeno squamous carcinoma	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Poorly differentiated carcinoma	-	-	-	-	-	-	-	-	3	-	1	-	-	-

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 study [11] 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 report [11].

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 [11].

Esophageal Malignancies

Age and Sex Distribution

Cancer of esophagus is more common in males between 25 years to 95 years with the sex ratio ranging from 6.8:1 to 1.2:1 [11].

Table 5: Comparative analysis of age range and sex incidence

Series	Age range	Median age	Male: female
J.C.Paymaster[11]et al (1968)	35-54 years	52.9 years	2.6:1
Hans U Sons et[3] al(1984)	41-95 years	63.3 years	5.84:1

Susan Galandiuk et al[12](1985)	25-83 years	62.9years	3.25:1
Helen H Wang et al[9](1986)	33-95 years	68 years	3.3:1
Present study(2007)	20-78 years	50.94 years	3.5:1

In the present series the youngest patient is 20years old and oldest 78 years. Peak incidence was observed in the 6th and 7th decade with the median age of 50.94 years.

Incidence of esophageal malignancies was observed at younger age than reported by others. The male preponderance noted in the present study was comparable with findings reported by earlier workers [3,9,11,12]. [Table 5].

Clinical Presentation

The esophageal malignant tumors presented with variety of clinical manifestations The most common complaint was dysphagia and weight loss, similar to the earlier studies [12].

Location

In the present series lower third of esophagus was most commonly involved followed by middle and upper third similar to available reports [9,12]. [Susan Galandiuk et al and Helen H Wang et al study] However, higher incidence of lesions of middle third was also reported [20,3]. [Table:6]

Macroscopic Appearance

Ulcerative type of lesion [55.5%] was the most common gross presentation in the our study which was similar to the findings of Hans U sons et al [3]; highest incidence of exophytic lesions was reported by Mandard etal [13]. [Table: 7]

Table 6: Comparative analysis of location of malignancies of esophagus

Site	J.C.Paymaster et al[11] (1968)	Hans U Sons et al[3](1984)	Susan Galandiuk et al[12](1985)	Helen H Wang et al[9](1986)	Present study (2007)
Proximal third of esophagus	20%	9.4%	16%	8.57%	17.77%
Middle third of esophagus	55%	50.9%	24%	34.2%	26.66%
Lower third of esophagus	25%	39.7%	58%	57.14%	55.55%

Table 7: Comparative analysis of macroscopic appearanceof malignancies of esophagus

Gross	A. M. Mandard et al[13](1983)	Hans U Sons et al[3](1984)	Present study(2007)
Exophytic	50%	12.9%	35.55%
Ulcerative	23%	61.4%	55.5%
Infiltrating	14%	25.7%	8.8%

Table 8: Comparative analysis of histology of malignancies of esophagus

Histological type	M. Mandard et al[13] (1983))	Hans U Sons et al[3] (1984)	Susan Galandiuk etal[12] (1985)	Helen H Wang et al[9] (1986)	Present study(2007)
Squamous cell carcinoma	62%	91.8%	48.9%	66%	71.1%
Adeno carcinoma	11%	6.4%	39.8%	34%	17.7%
Adenosquamous	3%	-	11.3%	-	2.2%
Undifferentiated	17%	-		-	-
Poorly differentiated	2%	-	-	-	8.8%
Malignant melanoma	1%	-	-	-	-
Carcinosarcoma	-	1.2%	-	-	-
Rhabdomyosarcoma	-	0.6%	-	-	-

Histological Type of Esophageal Malignancies

The commonest malignant tumors of esophagus were squamous cell carcinoma [71.1%] similar to earlier reports [3,9,12,13]. [Table 8].

Conclusion

The current study showed 15% esophageal of the gastrointestinal malignancies, stomach is the commonest site followed by large intestine, esophagus, and small intestine in decreasing order of frequency.With a male to female ratio of 3.5:1. Majority were males, majority were non vegetarians and most of the males were alcoholics and smokers. The youngest patient affected is 20 years old and the oldest patient is 78 years old with mean age of 52.17 and median age of 53 years,. Tumor more common in the sixth and seventh decade of life. In esophagus, the

presenting symptoms in the decreasing order of frequency were dysphagia, weight loss, hematemesis and abdominal pain. Malignant tumors were more common in lower one third with 25 cases (55.55%) followed by frequency in middle and upper one third of esophagus with a male preponderance. Ulcerative type of lesion was the most common gross presentation in 55.5% of the tumors followed by exophytic and infiltrative pattern. The commonest malignant tumor of esophagus was squamous cell carcinoma constituting 71.8%, and rest include adenocarcinomas, poorly differentiated carcinomas and a single case of adenosquamous carcinoma.

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