

Esophageal Carcinoma and Predisposing Factors Among Patients Presented at Isra University Hospital Hyderabad

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ABSTRACT

Objective: To determine the frequency of predisposing factors in patients having esophageal carcinoma and presented at gastroenterology department of Isra University Hospital Hyderabad.

Material and Methods: This cross-sectional study was conducted at department of Gastroenterology of Isra university hospital Hyderabad. The study duration was 6 months from July 2017 to December 2017. All patients with esophageal carcinoma assessed by endoscopy and biopsy, age 18 to 60 years either gender was included. During endoscopy specimens were taken with the help of biopsy forceps. Multiple specimens were taken from multiple sites of growth, and referred to the Aga Khan Diagnostic Laboratory for biopsy. In conformed esophageal carcinoma cases after biopsy, history of predisposing factors was taken from patients and their attendants. All the data were entered in the proforma. Data was analyzed by using SPSS version 20.

Results: In this study total 157 cases were studied and their mean age was 51.64+15.61 years. The mean duration of disease was 4.89+2.61 months. Males were found in majority 59.9%. According to the type of esophagus carcinoma 90.4% were diagnosed with squamous cell carcinoma (SCC), and adenocarcinoma was found 9.6%. Smoking was found most common in 45.2% cases, low intake fruit and vegetables history was in 14.0% cases, history of alcohol consumption was in 8.9% patients while Barrett's esophagus was found only in 4.5% cases. Old age was found to be significantly more common in both types of carcinomas ($p < 0.017$). There was significant difference was found in the association of predisposing factors with type of carcinoma as smoking, alcohol, low intake fruit and vegetables and smoking + alcohol ($p < 0.05$). Barrett's esophagus and smoking + low intake fruit and vegetable were significantly associated with adenocarcinoma ($p < 0.001$).

Conclusion: Squamous cell carcinoma was observed to be highly prevalent in patients of esophageal carcinoma. Smoking, alcohol, low intake fruit and vegetables and smoking + alcohol were found significantly associated with squamous cell carcinoma. Barrett's esophagus and smoking + low intake fruit and vegetables were found significantly associated with adenocarcinoma.

Keywords: Esophageal carcinoma, predisposing factors

INTRODUCTION

Esophageal carcinoma is one of the eighth most widespread cancers and the most frequent cause of mortality in the globe. Esophageal cancer is more frequent in males in most areas. Cancer of the esophagus has a poor survival and Geographic variation in incidence is very striking.¹ Two major histological types of carcinomas esophagus has been observed, squamous cell carcinoma and adenocarcinoma.

Squamous cell carcinoma overlooks globally.^{1,2} Esophageal cancer is common in Pakistan.³ It is highly lethal because most patients present with advanced disease. Carcinoma esophagus account for 7% of gastrointestinal malignancies.⁴ In accordance with one study at Shaukat Khanum Memorial Cancer Hospital and Research Centre, (SKMCH and RC), Pakistan, carcinoma esophagus is the fifteenth commonest invasive malignancy with a high occurrence among male (55%) versus female (45%) patients.⁵ The nitrosamines seen in preserved fish and some salted vegetables have likewise been involved in esophagus SCC. The pathogenesis seems, by all accounts, to be connected to the squamous epithelium inflammation that leads to dysplasia and in malignant alteration in situ.⁶ Tobacco use, Niswar and betel nut are robustly related with esophageal cancer.

Smoking increases 5-10 times the risk of squamous cell carcinoma of the esophagus and 2 times for developing adenocarcinoma of esophagus. Molecular changes i.e., p53 mutation with smoking and alcohol; consumption are indications for developing this disease.³ Literature reveals that drinking hot or very hot tea is predisposing to esophageal carcinoma; there is no relation with the amount of tea consumed.^{7,8} Thermal irritation linked to salted hot beverages, malnutrition, exposure to nitrite and nitrosamines, achalasia cardia and Plummer-Vinson syndrome are the predisposing factors for the carcinoma esophagus.¹¹ Carcinoma of esophagus is also associated to obesity.⁹ The expanded event of GERD among people who are overweight might prompt event of Barrett's throat and in end the esophageal adenocarcinoma.^{9,10} 89% of esophageal malignant growth cases yearly and are linked to lifestyle and other risk factors in UK.¹² Consumption of pickled vegetables (traditional Asian style) is off the record by the International Agency for Research on Cancer (IARC) as a possible basis of esophageal cancer, based on partial evidence.¹³ Maintaining body weight and healthy diets high in vitamin C may significantly diminish the prevalence of upper GI carcinomas.¹⁴ It is mainly resulting by use of tobacco and alcohol consumption in Europe and America; however, the epidemiological patterns are different in Iran,

Linxian and China, the areas with a raised the incidence of squamous cell carcinoma of esophageal. Previous studies have been estimated that lower use vegetables and fresh fruits, opium consumption and poor socioeconomic status are linked to the elevated risk of the oesophageal carcinoma.⁸ Esophageal carcinoma is most frequently diagnosed nowadays in Gastroenterology Department of Isra university hospital Hyderabad; most of the cases are reported from Thar region and the rural areas of Sindh. No such study has been conducted on the population of Thar and rural areas of Sindh to estimate the predisposing factors for this lethal disease. This study aims to assess the predisposing factors of esophageal carcinoma

MATERIAL AND METHODS

This cross-sectional study was conducted at department of Gastroenterology Isra university hospital Hyderabad. The study duration was 6 months from July 2017 to December 2017. All patients with esophageal carcinoma assessed by endoscopy and biopsy, age 18 to 60 years either gender were included. All the less than age of 18 years, patients without esophageal carcinoma and those who were not agreeing to participate in the study were excluded. Complete medical history, duration of illness and clinical examination were performed. All the necessary laboratory investigations including radiology were done. After taking informed consent, all patients underwent endoscopy. During the endoscopy specimens were taken with the help of biopsy forceps. Multiple specimens were taken from multiple sites of growth, and referred to the Aga Khan Diagnostic Laboratory for biopsy. In those patients' carcinoma was not diagnosed were excluded from the study. In conformed esophageal carcinoma cases after biopsy, a history of predisposing factors as; alcohol intake, smoking, fruit and Vegetable daily intake, barrett's esophagus, HPV and BMI were taken from patients and their attendants. All the data regarding age, sex, duration of disease and predisposing factors was documented by self-made study proforma. Data was analyzed by using SPSS version 20.

RESULTS

In this study total 157 cases were studied and their mean age was 51.64+15.61 years. The mean duration of disease was 4.89+2.61 months. Males were found in majority 59.9%, while females were found 40.1%. According to the

type of esophageal carcinoma, 124(90.4%) were diagnosed with squamous cell carcinoma, and adenocarcinoma was found in 9.6% of the cases. 56.1% were presented with BMI <28 kg/m² and 43.9% were >28kg/m². Table.1

Patient's distribution according to the predisposing factors smoking was found most common in 45.2%. Low intake fruit and vegetables history was found in 14.0% of the cases, a history of alcohol consumption was found in 8.9% of the patients, while Barrett's esophagus was found only in 4.5% of the cases. Table.2:

Old age male gender was significantly associated with squamous cell carcinoma (p<0.05). No significant association was found of BMI with types of carcinomas. There was a significant association of predisposing factors like smoking, alcohol, low intake fruit and vegetables and smoking + alcohol with squamous cell carcinoma (P=0.001). Barrett's esophagus and smoking + low intake fruit and vegetables were found significantly linked to adenocarcinoma (p=0.001). Table.3

Table.no;1 Descriptive statistics of basic characteristics n=157

Variables	Mean+SD	Statistics
Age (years)		51.64+15.61 years
Gender	Males	63(40.1%)
	Females	94(59.9%)
BMI	< 28 kg/m ²	88(56.1%)
	> 28 kg/m ²	69(43.9%)
Type of carcinoma	SCC	142(90.4%)
	Adenosine	15(9.6%)

Table.2. Frequency of predisposing factors n=157

Predisposing factors	Frequency	Percent
Smoking	55	35.0
Alcohol	5	3.2
Low intake fruit and vegetables	14	8.9
Barrett's Esophagus	7	4.5
Smoking + alcohol	9	5.7
Smoking + low intake fruit and vegetables	7	4.5
No	60	38.2
Total	157	100.0

Table: 8 Types of carcinomas according to predisposing factors n=157

Variables	TYPES OF CARCINOMAS		p-value
	SCC n=142	Adenocarcinoma n=15	
Age groups	18-30	19	0.017
	31-45	31	
	46-60	92	
Gender	Female	48	0.001
	Male	94	
Predisposing factors	Smoking	54	0.001
	Alcohol	05	
	Low intake fruit and vegetables	14	
	Barrett's Esophagus	00	
	Smoking + alcohol	09	
	Smoking + low intake fruit and vegetables	00	
	No	60	

DISCUSSION

Developments toward expanding frequency rates were noticed for esophageal adenocarcinoma in Western nations and were related to patterns toward declining incidence of esophageal squamous cell carcinoma, proposing that these growths may be related with different risk factors.¹⁵ The average age of individuals suffering from carcinoma of the esophagus in Asia countries is 51–60 years.¹⁶ In this study, the mean age of patients was 51.64+15.61 years and males were in majority 59.9%. Similarly, Asghar MS et al¹⁶ reported that the mean age of the patients was 49.3 (14.2) years, while inconsistently they found females in majority as 56.1%.

In the agreement of our findings Sehgal S et al¹⁷ found average age of the patients 56.74±10.76 year, and they also found males in majority. Most males may because of smoking and other addictive habits are higher among males in our country.

In this study, SCC was most common 90.4% and adenocarcinoma was 9.6%. On other hand Asghar MS et al¹⁶ also found SCC 82.7% and Adenocarcinoma 17.3%. In this study, tobacco smoking, alcohol consumption, low intake fruit and vegetables and Barrett's esophagus were the commonest predisposing factors of esophageal carcinoma.

In support of our findings, Yang S et al¹⁸ reported that the uses of tobacco and were the commonest risk factors for esophageal carcinoma. In another previous study stated that around 46% rate of the mortality among EC cases caused by smoking, alcohol use and lower intake of fruits and vegetables. Consistently in a study stated that the SCC significantly linked to smoking, alcohol consumption and inadequate use of vegetables and fruits. Esophageal cancer is higher in developing nations and it is a complex illness with different reasons, through the tobacco are notable reasons.¹⁹ Higher vegetables and fruit usage and proper physical activities may reduce the risk of esophageal cancer. Alcohol and smoking and lower uses of fruits and vegetables are accounted for to represent 89% of the risk elements for carcinoma of esophagus in the USA.¹⁹

Higher danger of esophageal malignancy from 55 years old onwards is like that observed for most of solid tumour and tumour of the gastrointestinal tract, in which the occurrence increments with age because of the idleness time frame and the term of exposure to hazard factors.²¹

CONCLUSION

It was concluded that squamous cell carcinoma was most prevalent in patients with esophageal carcinoma. Smoking, alcohol, low intake fruit and vegetables and smoking + alcohol were found significantly associated with squamous cell carcinoma. Barrett's esophagus and smoking + low intake fruit and vegetables were found significantly associated with adenocarcinoma. By reduce the smoking and alcohol consumption, early treatment of Barrett's esophagus and frequent uses of intake fruit and vegetables may reduce the burden of esophageal carcinoma.

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