

Profiling Esophageal Carcinoma (EC) among Patients Presenting to a Medical College in Rural Area of North-West India

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Abstract Background: Esophageal carcinoma (EC) is on increase across the world probably because of an increase in the factors associated with it. **Material and Methods:** A retrospective analysis of the patients of esophageal carcinoma presenting from November 2014 to October 2016. The analysis focused on location within the esophagus and histopathological typing. **Results:** Fifty patients of esophageal carcinoma were referred to the medical college. Their mean age, sex, location of the lesion in upper, middle or lower esophagus, and histopathological type was evaluated. Ratio of male to female in the study was 1.6:1. The mean age of the patients was arrived at 63.92 ± 12.86 years. Majority of the patients were in the age group of 51-70 years. Squamous cell carcinoma was found in 92% of cases and only 4% cases had adenocarcinoma. Most common location of the tumor was middle one third of the esophagus. **Conclusion:** Squamous cell carcinoma is the most common histological type seen among patients presenting with carcinoma esophagus.

Keywords Esophageal carcinoma, Histopathological type, Location within the esophagus

1. Introduction

Esophageal carcinoma (EC) is cancer arising from the esophagus. [1] Symptoms of EC include difficulty in swallowing weight loss. In addition symptoms may include pain when swallowing, a hoarse voice, enlarged lymph nodes around the collarbone, a dry cough, and possibly coughing up or vomiting blood. [2] The two main sub-types of esophageal carcinoma are squamous-cell carcinoma (ESCC), [1] which is more common in the developing world, and adeno-carcinoma (EAC), which is more common in the developed world. [1]

Esophageal carcinoma (EC) is on increase across the world probably because of an increase in the factors associated with it. [1] The factors generally associated with it include smoking, alcoholism, gastroesophageal reflux disease, hiatal hernia and Barrett's esophagus. Squamous cell carcinoma (SCC) is the most common histopathological type but the incidence of adenocarcinoma (ADC) has increased to the extent that in some western countries [3] it has become the most common histopathological type.

Diagnosis of EC is usually made with the help of endoscopic biopsy. Depending on the location of disease, the staging of the disease is carried out with the help of

computed tomogram (CT) of the neck and chest, along with ultrasonography/CT of the abdomen. Among the treatment options available for EC are surgery, chemotherapy and radiotherapy depending upon the stage of the disease and general condition of the patient. Prognosis of EC has not considerably improved even with advances in the medical field and the 5 year survival rates are low at 14-30% [4, 5]. The present study was carried out with the aim of profiling esophageal carcinoma (EC) in our setting, a rural area of north-west India.

2. Material and Methods

Background: The state of Himachal Pradesh situated in the northwestern Himalayas extends between $32^{\circ}22'-33^{\circ}12'N$, and $75^{\circ}45'-79^{\circ}04'E$ covering an area of 56,090 km. Topography of the state is dominantly mountainous with the altitude ranging between 350 and 6,975 m. The state has a total population of 6,856,509 and 90.2% people live in rural setup. [6]

Methodology: A prospective, descriptive hospital-based study was conducted at medical college in Kangra district of Himachal Pradesh from November 2014 to October 2016 in the department of radiotherapy and oncology. From November 2014 to October 2016, fifty patients of EC were referred to us. For the purpose of the study, a hospital-based register was established in the department of radiotherapy and oncology. Patients of all age groups presenting with EC were included in the register. Demographic variables such as

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age and sex relating to the patient were entered in the register after eliciting information on the same from the patient on a structured Performa. Each interview lasted about 15-20 min. Diagnosis was established with upper gastrointestinal endoscopic biopsy and staging was done with contrast enhanced computed tomogram of the chest and abdomen. Their mean age, sex, location of the lesion in upper, middle or lower esophagus, and histopathological type was evaluated. The data is shown in Tables 1 & 2.

Results: The ratio of male to female in the study was 1.6:1. Mean age of the patients was 63.92 ± 12.86 years and majority of the patients were in the age group of 51-70 years. Majority of patients had advanced disease at the time of presentation. Squamous cell carcinoma was the most predominant type and was the pathological type found in 92% of cases and only 4% cases had adenocarcinoma. Most common location of the tumor was middle one third of the esophagus followed by upper one third and least common site was the lower one third. Majority of patients were in stage 3 or 4 when they were referred to us.

Table 1. Prevalence of esophageal carcinoma according to age & sex

Age group (Years)	Esophageal carcinoma n (%)		
	Male	Female	Total
≤ 40	1 (2.0)	--	1 (2.0)
41 – 50	5 (10.0)	4 (8.0)	9 (18.0)
51 – 60	9 (18.0)	3 (6.0)	12 (24.0)
61 – 70	11 (22.0)	4 (8.0)	15 (30.0)
71 – 80	3 (6.)	5 (10.0)	8 (16.0)
≥ 81	2 (4.0)	3 (6.0)	5 (10.0)
Total	31 (62.0)	19 (38.0)	50 (100.0)

Table 2. Location and type of esophageal carcinoma

Location of lesion	Squamous cell carcinoma n (%)			Adenocarcinoma n (%)		
	Male	Female	Total	Male	Female	Total
Upper third	11 (22.0)	5 (10.0)	16 (32.0)	--	--	--
Middle third	14 (28.0)	10 (20.0)	24 (48.0)	--	--	--
Lower third	4 (8.0)	2 (4.0)	6 (12.0)	2 (4.0)	2 (4.0)	4 (8.0)
Total	29 (58.0)	17 (34.0)	46 (92.0)	2 (4.0)	2 (4.0)	4 (8.0)

3. Discussion

Smoking, alcoholism, consumption of red meat and hot beverages is widely prevalent in this area and were the predominant risk factors in majority of cases while tobacco chewing and hookah smoking is uncommon. A lot of risk factors for EC carcinoma have been evaluated in the studies available in literature [7, 8, 9]. The risk factors which have been shown to be associated with EC in majority of studies are smoking, alcoholism, tobacco chewing, intake of spicy

foods and hot beverages, Infection with *Helicobacter pylori*, consumption of red meat, low intake of fresh fruits and vegetables, large body size, sedentary lifestyle. Some of these factors like smoking, spicy foods, alcoholism are high risk factors; others are associated to a variable extent. Majority of the patients in this study belonged to poor socio-economic status which has also been evaluated in other studies as risk factor [10].

In this series prevalence of SCC was 92% and prevalence of ADC was 4%. This result is similar to other reports from India but in contrast to some series from western literature where the incidence of ADC has significantly increased more than that of SCC [11]. Females were less commonly affected than males probably because of the low level of smoking and alcoholism amongst females as compared to males in this area. There are some series in literature [12] which show predominance of SCC in females and predominance of ADC in males but in our study males are more commonly affected for both types. These findings suggest that local dietary habits and lifestyle play an important role in the incidence of esophageal carcinoma and gender differences. The most common location of the EC carcinoma in this study was middle one third and lower one third of esophagus was the least common site which is in contrast to some studies where lower one third is reported as the most common site [13].

This is a hilly area and there are reports from adjoining hilly area of Kashmir where the disease is widely prevalent [14]. Ingestion of hot beverages to counteract excessive cold in these areas apart from alcoholism and smoking may also play an important role for the high incidence of EC in these areas. Excessive consumption of hot beverages can lead to recurrent esophageal ulcers which further leads to metaplasia/dysplasia and further leads to esophageal carcinoma. There are some studies in literature¹⁴ where role of hot beverages in the etiology of esophageal carcinoma has been highlighted. The peak incidence of esophageal carcinoma in this study was in the fifth decade of life and is consistent with results from other studies in literature. The prognosis of ADC is reported poor that that of SCC in some studies and in other studies there was no difference in the overall prognosis. Majority of studies in literature are on histopathological type and risk factors of EC but there are few studies which have highlighted the location of the esophageal carcinoma and its histological type [15]. There is considerable lack of awareness in the community about the disease in this area and patients present late when there is either complete dysphagia or are in stage 3 and 4.

4. Conclusions

There is predominance of squamous cell carcinoma of the esophagus and middle one third of esophagus is most commonly site also males are more predominantly affected than females probably due to their smoking habits. There is considerable lack of awareness in the community about the

disease and patients present late when there is either complete dysphagia or are in stage 3 and 4. The future research will involve identifying risk factors for esophageal carcinoma in a predominantly rural setting like ours.

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