CHANGING PATTERN OF ESOPHAGEAL CARCIONOMA IN NORTH WEST REGION OF PAKISTAN

Hamid Ullah[1], Muhammad Imranullah[2], Mujahid Aslam[1], Muhammad Iltaf, Adnan-ur-Rehman, Muhammad Waqas[3]

ABSTRACT

Introduction: Squamous cell cancer is the commonest type of esophageal carcinoma worldwide. However, itsincidence has decreased over the past two decades by approximately 35% in most Western countries and in some parts of Asia, and there has been a dramatic increase by four fold in the incidence of esophageal adenocarcinoma in the Western countries. This study is aimed for looking this changing pattern of subtypes of esophageal carcinomas in North West region of Pakistan.

Material and Methods: It was a cross sectional descriptive study conducted in the Gastroenterologydepartment of Lady Reading Hospital Peshawar. Study duration was 1 year (January to December 2014). Histopathologically confirmed cases of esophageal carcinoma were included in the study. Data was then analyzed using SPSS software version 17.

Results: During the study period 104 patients presented with esophageal carcinoma. 67.3% (n=70) had squamous cell carcinoma and 32.7% (n=34) adenocarcinoma. Squamous cell carcinoma was predominant in females (62.9%;n=44) as compared to males (37.1%, n=26). Median age of the patients with squamous carcinoma was 59.17±10.33 years. Adenocarcinoma predominantly occurred in male patients (70.6%; n=24) as compared to female patients (29.6%; n=10). It occurred at a much younger age as compared to squamous cell carcinoma (55.76±9.72 years).

Conclusion: Squamous cell carcinoma is still the predominant histological subtype of the esophageal carcinoma, however, changing pattern has been observed. Our study showed two fold increases in the prevalence of adenocarcinoma in North West region of Pakistan.

Key Words: Esophageal carcinoma (EC), squamous cell carcinoma (SCC), adenocarcinoma, dysphagia

INTRODUCTION

Esophageal cancer is one of the most virulent tumors with a poor prognosis. It has a 5-year survival rate of approximately 15-25%, despite the recent advances in early diagnosis and treatment[1]. Worldwide the incidence of esophageal cancer is sixth and ninth among cancers in men and women, respectively, and is the fifth and ninth leading cause of cancer deaths.

The highest incidence of esophageal cancers, with incidence rates greater than 100 per 100,000, is in the "Asian esophageal cancer belt". This belt extends from northern Iran through the central Asian republics to north-central China.[2, 3] The incidence rate in United States is 7-10 per 100,000 populations with the age-adjusted incidence rate of 4:1 for males and females respectively.[3]Esophageal malignancy is relatively more common in Pakistan with marked geographic variation. For example, in Karachi it is the seventh most common cancer in men and the sixth most common in females with incidence rate of 6.5-8.5/100,000 population.[4] However, in Quetta it is found to be the third most common cancer in men with incidence rate of 23-25/100,000. This place has close proximity to Afghanistan and Iran where this disease is endemic.[5] The region extending from Quetta to Dera Ismail Khan and some northern areas of Khyber Pakhtunkhwa province also share the same etiological factors. Therefore, they also have high incidence as compared to other areas of Pakistan.[6]

Squamous cell cancer is the commonest type of esophageal carcinoma worldwide. There are marked geographic variations in the incidence of squamous cell esophageal cancer, which might be explained mostly by smoking, alcohol drinking, and nutritional imbalances.[3] More than 80% of esophageal malignancies are squamous cell cancers in most developing and Asian countries.

The incidence of squamous cell esophageal cancer has decreased over the past two decades by approximately 35% in most Western countries and in some parts of Asia, and there has been a dramatic increase by four fold in the incidence of esophageal adenocarcinoma in the United States and in some Northern European countries such as Denmark and Scotland.[7, 8] In one study 73% adenocarcinoma were noted versus 37% squamous cell carcinomas.[9]In Pakistan squamous cell carcinoma is found in 80-90% of the cases and adenocarcinoma in 10-15% cases with male to female ratio of 3:1.[10]

The aim of the study was to find out frequency

[1] Department of Gastroenterology LRH Peshawar
[2] Department of Gastroenterology HMC Peshawar
[3] Department of Pathology KCD Peshawar

Address for correspondence:
Muhammad Imranullah
Assistant Professor DHQ Teaching Hospital KOHAT
Cell No. 0333-9247682

and change in the pattern of esophageal carcinoma as seen in the western countries, so that the incidence of esophageal carcinoma is decreased in target population through pro-active approach for early diagnosis and life style modification programs.

MATERIAL AND METHODS

It was a cross sectional descriptive study conducted in the Gastroenterologydepartment of LadyReading Hospital Peshawar. Study duration was 1 year (January to December 2014). Histopathologically confirmed cases of esophageal carcinoma of all ages and either sex during this study interval were included in the study.

DATA COLLECTION AND ANALYSIS PROCEDURE

Histopathological reports along with other relevant data like age, gender and address were collected from the patients through a predesigned proforma and included in the study after taking consent.Data was then analyzed using SPSS software version 17. Frequency and percentages were calculated for categorical variables like gender, adenocarcinoma, and squamous cell carcinoma.Adenocarcinoma and squamous cell carcinoma were stratified among age and gender to see the effect modifiers. Results are presented in figures and tables.

RESULTS

During the study period 104 patients presented with esophageal carcinoma.67.3% (n=70)had squamous cell carcinoma and 32.7% (n=34) adenocarcinoma (Figure 1).

Mean age of patients with esophageal carcinoma was 58.06±10.12. Age distribution of the patients with esophageal carcinoma is shown in figure 1. It was predominant in females (51.9%, n=54) as compared to males(48.1%, n=50). Endoscopic findings and predominant clinical features of the patients with esophageal carcinoma are shown in table 2 and 3 respectively.

Squamous cell carcinoma was predominant in females (62.9%, n=44) as compared to males (37.1%, n=26) and occurred at a younger age in females(mean age 56.31±9.73) as compared to males (mean age 64.75±9.89).

Adenocarcinoma predominantly occurred in male patients (70.6%, n=24) as compared to female patients (29.6%, n=10). It occurred at a much younger age as compared to squamous cell carcinoma (mean age 55.76±9.72 years). Mean age of the male patientswas 57.75±9.03 years and 51.00±10.5 yearsfor female patients.

DISCUSSION

104 patients in this study presented with esopha-

Table 1: Characteristics of patients with esophageal carcinoma

Esophageal carcinoma	N=104
Gender distribution	
Male	48.1% (n=50)
Female	51.9% (n=54)
Age distribution	
Mean age for both genders	58.06±10.12
Range (32-81yrs)	
Mean age for male patients	61.0±9.8
Mean age for female patients	55.40±9.91
Squamous cell carcinoma	67.3% (n=70)
Gender distribution	
Male	37.1% (n=26)
Female	62.9% (n=44)
Age distribution	
Mean age for both genders	59.17±10.33
Mean age for male patients	64.75±9.89
Mean age for female patients	56.31±9.73
Adenocarcinoma	32.7% (n=34)
Gender distribution	
Male	70.6% (n=24)
Female	29.4% (n=10)
Age distribution	
Mean age for both genders	55.76±9.72
Mean age for male patients	57.75±9.03
Mean age for female patients	51.00±10.5

Table 2

Endoscopic findings	No(%)
Mass/growth	86(82.7%)
Stricture	11(10.6%)
Ulceration	7(6.7%)

Table 3

Predominant clinical presentation	No (%)
Dysphagia	56 (53.8%)
Odynophagia	17 (16.3%)
Dysphagia and odynophagia	22 (21.2%)
Upper GI bleed	6 (5.8%)
Upper abdominal pain & discomfort	3(2.9%)

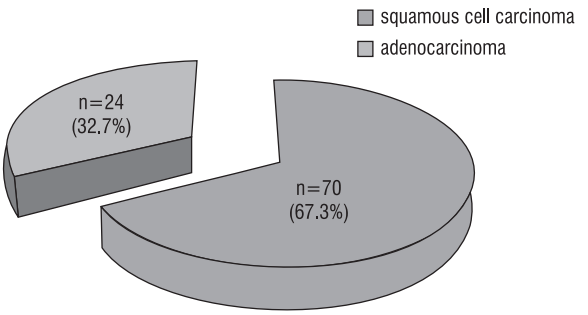

Figure 1: Pattern of esophageal carcinoma

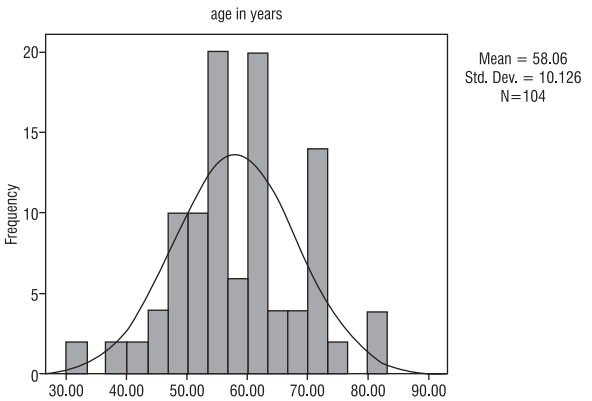

Figure 2: Histogram showing age distribution of the patients with Ca. esophagus

geal carcinoma. Gender distribution was almost equal in these patients. 50 (48.1%) patients were male and 54 (51.9%) female with a slight female predominance. Finding in our study is contradictory to findings in other studies. Ghannaei FM et al., in Iran and Roohullah et al., in Balochistan showed male to female ratio of 1.5:1 with male predominance.[11, 12]. Similarly in United States it is more common in males and studies conducted in DI Khan and Peshawar have shown two to three fold predominance of male patients as compared to female patients.[13-16]

Mean age of the patients with esophageal carcinoma in our study for either gender was 58.06±10.12 which is similar to Ghannaei FM et al (64.9±12.4) and other studies from Pakistan.[11] In United States the median age of diagnosis is71 years with the highest proportion (28%) diagnosed between the ages of 75 and 84.[3]

Gender distribution and changing pattern of the esophageal carcinoma in our study is similar to western countries. However, SCC like other Asian and developing countries of the world is still the most prevalent histological subtype of esophageal carcinoma (Kamangar et al and Takubo K et al.,).[17, 18]Squamous carcinoma was found in 70 (67.3%) patients and adenocarcinoma in 34 (32.7%) patients of esophageal carcinoma. This finding is similar to another study by Jan S et al where the squamous cell carcinoma is 71.91% and adenocarcinoma is 28.1%.[16] Our finding is also supported by other studies (Semnani et al., Haghdoost et al.,) which show increase in the prevalence of the adenocarcinoma by 18.6%.[19, 20]As compared to our study this change is more predominant insome western countries where adenocarcinoma is the major subtype and represents 60% of the esophageal carcinoma (Brown et al.,).[21]Other studies from northern areas of Khyber Pakhtunkhwa, DI khan, Baluchistan and Punjab do not support this finding where major change in the pattern hasn't been observed. Study conducted by Roohullah et al., in Balochistan included sample of 832 patients with esophageal carcinoma and showed frequency of SW90% for squamous cell carcinoma and 7% for adenocarcinoma.[12]

Squamous carcinoma was more common in females (62.9%) as compared to males (37.1%), however, other studies such Ali et al.,Roohullah et al., and Nadeem et al have shown male predominance with male to female ratio of 3:1.[10, 12, 22] Mean age of the patients with squamous cell carcinoma was 59.17 whereas the mean age of male patients was 64.0 and 56.3 for females. It was 42 years for male and 53 years for females in Ali et al.[10]

As compared to squamous cell carcinoma adenocarcinoma is more common in males (70.5%) as compared to females (29.5%). The mean age of the male patients with adenocarcinoma was 72.0 years and 51.0 for female patients, with mean age of 55.76 for both genders. These findings are similar to findings by Brown et al.[21]

CONCLUSION

North West region of Pakistan lies close to the esophageal cancer belt of South-Central Asia. Therefore, esophageal carcinoma is not uncommon in this part of the world. Squamous cell carcinoma is still the predominant histological subtype of the esophageal carcinoma, however, changing pattern has been observed. Our study showed two foldincreases in the prevalence of adenocarcinoma. Change in the gender distribution has also been observed. Both genders are now almost equally affected by esophageal carcinoma. The major drawback of the study is the smaller sample size. Further large community based studies are needed to confirm the changing pattern of esophageal carcinoma.

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