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Occurrence of esophageal carcinoma in different age group in Karachi

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ABSTRACT

Objectives: To determine frequency and histological variant of esophageal cancer in different age groups, in Karachi where the tobacco, smoking, Gutka and hot tea are mostly taken even in younger age group.

Methods: This was a retrospective study over a period of 2 years which was designed to assess age incidence for esophageal carcinoma in Karachi of Pakistan. A total of 180 already diagnosed carcinomas of the esophagus were included in the study, all these cases were from Civil Hospital, Sindh Government Lyari General Hospital and Government Services Hospital, Karachi with necessary clinical data. All specimens were stained with Haemotoxylin and eosin (H&E) and examined microscopically. The demography of the disease and types of carcinoma were evaluated.

Result: Out of 180 diagnosed cases of esophageal carcinomas, squamous cell carcinoma was the found in 90 (50 %) cases from 61 to 70 years of age and minimum 02 (1%) cases from 31 to 40 years of age, 82 (45%) cases were found in 51 to 60 years of age and 6 (3%) cases from 41 to 50 years of age. The highest occurrence of esophageal squamous cell carcinoma (80%) is found in eldest age group.it is more common in male gender 60%.

Conclusion: There is a moderately high incidence of esophagus cancer in Karachi & most common in old age with a male predominance. It is common in Pakistan and can occur in people who are heavy smoker, chewing tobacco & gutka used hot tea, spicy food and alcohol. The Squamous cell carcinoma of esophagus is more common than other types of esophageal carcinoma.

Key Words: Esophageal carcinoma, esophageal adenocarcinoma, esophageal squamous cell carcinoma.

INTRODUCTION

Esophageal cancer is globally considered as the sixth most common cancer with annual new cases of about 412,000 [1]. Esophageal cancer is a fatal malignancy, where the overall cure rate is <10%. Carcinoma esophagus is common in developing countries; there are two geographical esophageal belts on the globe the region around the Caspian Sea, China, Iceland, Japan United Kingdom and India [2,3].

There are two main histological types; squamous cell carcinoma (ESCC) and adenocarcinoma (ADC). Worldwide, SCC is the predominant histological type. Adenocarcinoma is mainly a disease of developed countries [4]. The rate of esophageal adenocarcinoma have increased in most Western industrialized countries in recent years and ESCC still predominates in other areas of the world; in developing countries. Other rare carcinomas of esophagus are melanomas, leiomyosarcoma, carcinoids, and lymphomas. The three quarters of all adenocarcinomas occur in the distal esophagus, whereas squamous-cell carcinomas are evenly distributed between the middle and lower third.[5] The 'Asian cancer esophageal belt' comprises Mongolia, China, and Kashmir. Iran, Turkmenistan, Pakistan & India [6,7].

Barrett's esophagus, gastro esophageal reflux disease, obesity, alcohol consumption, spicy foods and hot drinks, and low intake of fresh fruit and vegetables as well as Celiac disease are causative factor for both ESCC & EAC [8].

In Japan, where consumption of coffee is relatively high and the incidence of esophageal cancer in men is also high. Excessive smoking as well as increase age has main risk factors. Squamous-cell carcinoma

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(but not adenocarcinoma) is clearly linked to a low socioeconomic status gene mutation, role of various environmental factors and polymorphisms worldwide observed [9,10,11].

The SCC are associated with head and neck cancer, smoking, alcohol, liver dysfunction, , porphyria, Plummer Vinson Syndrome, tylosis palmaris and lye ingestion, male sex & obesity are risk, chewing paan, eating Niswar and inhaling snuff are risk factors [12,13,14].

The ESCC varies considerably from place to place environmental factors, HPV hot alcoholic liqueurs are risk factors [15,16,17].

The aim of present study was to assess the age and histological variants of esophageal cancer in Karachi Pakistan so that further work may be done on the etiopathogenesis and management of this common malignancy.

MATERIAL & METHODS

This was a retrospective study. Total 180 blocks of esophageal specimens/slides were reviewed. The proposed study was carried out from 1st Jan 2010 to 31st December 2012 in Civil Hospital Karachi. Specimens were collected from Civil Hospital, Sindh Government Lyari General Hospital and Government Services Hospital, Karachi. A clinical protocol including the particular about patient's name, age, genders, diagnosis, were obtained from the surgical pathology registers. H & E stained slides of all cases were reviewed used with special staining help in reaching the specific diagnosis.[18.] Data was analyzed using SPSS version.16

RESULTS:

Histopathological slides of the 180 patients with esophageal carcinoma were reviewed.

Total male were 120(60%) and female 60(40%) the male to female ratio is 2:1.As shown in fig-1

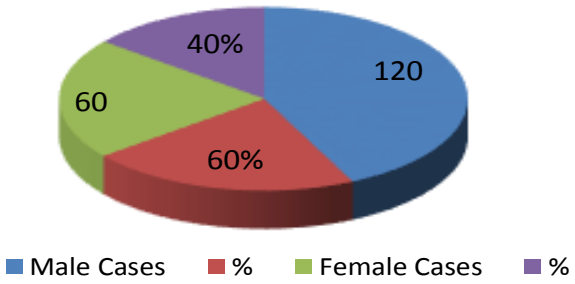


Fig 1: Male and female cases of esophageal carcinoma.

Out of 180 cases ESCC has highest percentage of cases150 cases about 80% whereas EAS is only 20%. (Fig- 2)

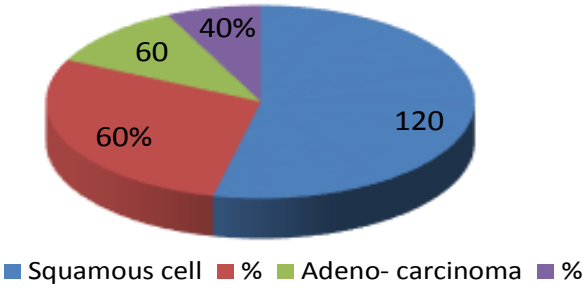


Fig 2: Showing Histology of esophageal carcinoma.

These 180 cases were divided according to age group as mentioned in table-1.Mean age is 46.5 year. Maximum no of cases 90 (50%) in age group between 61-70 years.

Table 1: Showing age distribution of patients (n=180)

S No.	Age group	Number of cases	Percentage
1	31-40	2	1%
2	41-50	6	3%
3	51-60	82	46%
4	61-70	90	50%
	Total	180	100%

DISCUSSION

Present study examined 180 cases of esophageal carcinoma in which 150 (80%) cases of squamous cell carcinoma and 30 (20%) cases of

adenocarcinoma were found in different age group. Most of the cases (50%) were found in 61 to 70 years age group and the minimum number of cases (1%) in 31 to 40 years age group. The male to female ratio was 2:1. Our studies detected large numbers of EC in advance age majority of studies have similar finding. But in contrast Sonja P *et al* detected EC in younger age group [19].

In current study, out of 180 patients. Squamous cell carcinoma was found to be commonest cancer (80%) followed by 20% cases of adenocarcinoma. Our results were in agreement

Our results are in agreement with other national & multiple international studies done by various authors [1,4,6 & 8] the SCC carcinoma is predominant histological type.

Present study revealed the risk of esophageal cancer increase with age and rare before age 30 years. These finding are consistent with studies done at national and international level [1,3,20,21 &22].

The male and female ratio for the adenocarcinoma of esophagus was around 5:1.2 In the United States, 13,900 cases of esophageal carcinoma were diagnosed [1]. The risk increases with age, with a mean age of 67 years at diagnosis of the cancer [3] and adenocarcinoma is the most common histological type of esophageal cancer for last twenty-five years. Present study detected increase incidence of ESCC though several studies have similar results but in contrast Erick *et al* reported increase incidence of adenocarcinoma particular at western hemisphere where the incidence of esophageal adenocarcinomas increased almost three fold while the incidence rate of squamous cell carcinomas decreased just over two fold [20]. It is more common in Caucasian men (above 60 years) Our result shows

that beside age histological type and male predominant same results are observed in studies done by various authors [1,3,7,21] stratifying for gender results showed that the magnitude of the effects among women was much smaller than the corresponding ones among men. Similarly study done in Baluchistan they observed that cancer of esophagus is third common tumor in male and 4th common in female, with male to female ratio of 1.37:1 [22]. For the vast majority of cancers, age-adjusted mortality rates were higher among males than females with the highest male-to-female esophagus 4.08, 95% [23]. But in contrast the study done in Punjab on 375 patients, 72 females and 61 males have carcinoma of esophagus [24].

In our study we also observed that eating gutka, betel nut & smoking are strongly associated with EC these findings inconsistence with other studies cancer of esophagus has a high incidence in Kashmir which is comparable to the high incidence belt of Iran probably related to characteristic food habits [14,25].

CONCLUSION

The incidence of esophageal cancer is very low in those under 30 year of age but it increase in succeeding years of life with male predominance. The Squamous cell carcinoma continues to be the most common malignancy. It is common in Pakistan also because the esophageal cancer can occur in people who are used to smoking, tobacco chewing, gutka, hot tea, spicy food and alcohol. It is most common in old age, common in middle age and rare in younger age group. Control of esophageal cancer has long been a top priority in Pakistan. Future research should focus on identifying the risk factors which can be targeted on a regional basis. There is sufficient evidence to take effective steps to prevent the majority of SCC via earlier detection through screening by standard diagnostic tools, e.g. endoscopy with biopsy, may improve the survival rates.

REFERENCES

1. Ziaian B, Montazeri V, Khazaiee R, Amini S, Karimi M, Mehrabani D. Esophageal

cancer occurrence in Southeastern Iran. J Res Med Sci 2010 15(5): 290–291

2. Alidina A, Gaffar A, Hussain F, Islam M, Vaziri I, Burney I, *et al*. Survival data and prognostic factors seen in Pakistani patients with esophageal cancer. Ann Oncol 2004; 15, (1):18- 22
3. Ganesh B Talole SD, Dikshit R. Tobacco, alcohol and tea drinking as risk factors for esophageal cancer: A case-control study from Mumbai, India. Cancer Epidemiol 2009 ;33(6):431-4
4. Melhado R E, Alderson D and Tucker O, The changing face of esophageal cancer. Cancers 2010, 2 (3), 1379-1404
5. Parkin DM, Bray F, Ferlay J, *et al*. Estimating the world cancer burden: Globocan. 2000. Int J Cancer 2001, 94:153-6
6. Bukhari U, Siyal R, Memon FA, Pisani P. Oesophageal carcinoma: a review of endoscopic biopsies. Pak J Med Sci. 2009; 25(5): 845-48
7. Ali A, Naseem M, Khan TM. Esophageal cancer in northern areas of Pakistan J Ayub Med Coll Abbottabad 2009; 21(2): 148- 150
8. Green PH, Fleischauer AT, Bhagat G, Goyal R, Jabri B, Neugut AI. Risk of malignancy in patients with celiac disease. Am J Med 2003,115 (3): 191–5
9. Toru N, Naganuma T, Kuriyama S, Kakizaki M, Sone T, Nakaya N, Ohmori-Matsuda K, *et al*. Coffee Consumption and the Risk of Oral, Pharyngeal, and Esophageal Cancers in Japan, Am J Epidemiol 2008;168:1425–32
10. Enzinger PC, Mayer RJ. Esophageal cancer. N Engl J Med 2003; 349 (23): 2241–52
11. Rasool S, Ganai BA, Sameer AS, Masood A. Esophageal cancer: associated factors with special reference to the Kashmir Valley. Tumori 2012 ;98(2):191-203
12. Shahid Jamal. Esophageal Cancer In –Is it really extension of Asian cancer belt? Editorial Pak Armed Force J 2010; 2: 158-60
13. Cook MB, Kamangar F, Whiteman DC, Freedman ND, Gammon MD, Bernstein L, *et al*. Cigarette smoking and adenocarcinomas of the esophagus and esophagogastric junction: A pooled analysis from the international BEACON consortium. J, Nat Cancer Inst 2010; 102: 1344–53.
14. Badar F, Anwar N, Mahmood S. Geographical Variation in the Epidemiology of Esophageal Cancer in Pakistan, J of Cancer Prev, 2005 ;6: 139-142
15. Guo F, Liu Y, Wang X, He Z, Weiss NS, Madeleine MM *et al*. Human papillomavirus infection and esophageal squamous cell carcinoma: A case−control study. Cancer Epidemiol Biomarkers Prev 2012; 21: 780-85
16. Whiteman DC "Hot tea and increased risk of esophageal cancer. "BMJ 2009 ,338: b610
17. Bosetti, C, Levi F, Ferlay J, Garavello W, Lucchini F, Bertuccio P *et al* Trends in esophageal cancer incidence and mortality in Europe. Int. J. Cancer, 2008, 122: 1118–29
18. Akbari MR, Malek RZ, Nasrollah DZ, Amanian D, Sun P, Islami F, *et al*. Familial risks of esophageal cancer among the Turkmen population of the Caspian littoral of Iran. Int, J Cancer, 2006, 119: 1047–51
19. Parker RK, Dawsey SM, Abnet CC, Russell E. White *et al*. Frequent occurrence of esophageal cancer in young people in western Kenya. Dis Esophagus 2010, 23: 128–35.
20. Kort EJ, Sevensma E, Fitzgerald TL. Trends in esophageal cancer and body mass index by race and gender in the state of Michigan, BMC Gastroenterology 2009; 9: 47.

21. Ming Wu, Jin-Kou Zhao, Zuo-Feng Zhang, *et al*. Smoking and alcohol drinking increased the risk of esophageal cancer among Chinese men but not women in a high-risk population Cancer Causes Control. 2011 22:649–57.
22. Roohullah, Khursheed MA, Shah MA, Khan Z, Haider SW, Burdy GM, *et al*. An alarming occurrence of esophageal cancer in Balochistan. Paki J Med Res 2005; 44, 2: 101-104.
23. Cook MB, McGlynn KA, Devesa SS, Freedman ND, Anderson WF *et al.* Sex Disparities in Cancer mortality and survival. Cancer, Epidemiol Biomarkers Prev 2011; 20 (8): 1629- 37.
24. Durrani AA, Yaqoob N, Abbasi S, Siddiq M, Moin S. Pattern of upper gastro intestinal malignancies in Northern Punjab. Pak J Med Sci 2009; 25 (20): 302-7.
25. Rumana M, Khan AR, Besina S. Cancer profile in Kashmir valley an institutional experience, JK-Practitioner 2011; 16(1-2): 50-4.