



Study on prevalence of neoplastic lesions of the esophagus in patients referred to health centers of Ahvaz in the years 2001-2004

Ahmad Ebrahimi^{1*}, Meysam Ebrahimi² and Sima Moradi Nejad³

¹Dr. at Medicine, Tabriz University of Medical Science

²Master of Sport Physiology, Shahid Chamran University of Ahvaz

³Master of Public Health, Bielefeld University

*Corresponding Email: ahmadebi2010@gmail.com

ABSTRACT

Introduction: Esophageal cancer is a common malignancy that is fatal to a large extent. The incidence of esophageal cancer is significantly variable worldwide and squamous cell carcinoma is the most common type. About 15% of cancer cases raise in the region of the upper 1/3, 35% in the middle and 50% are in the area. Materials and methods: This is a retrospective study on 102 pathology reports for 4 years between the years 2001-2004 from the Department of Pathology University of Medical Sciences carried out and the following results were obtained. This is a retrospective study conducted on 102 pathology reports for 4 years between the years 2001-2004 from the Department of Pathology in Ahvaz University of Medical Sciences and the following results were obtained. Findings: 102 cases develop 49% cancer cases and 18.5% pre-cancerous cases and normal cases developed only 12%. The most common age group has been the eighth decade of life (40%) and 92% of their age has been above 50 years old. The most common type is squamous cell carcinoma with 68% and adenocarcinoma developed 22% of cases. Among 35 cases that their area had been specified, cases develop from 11.5% upper 1/3 area, 34% middle area, 40% lower area and 14.5% of gastroesophageal junction. The average age of individuals with esophageal cancer, squamous cell carcinoma, adenocarcinoma, Barrett's esophagus and Esophagitis has been 68.12, 67.4, 68.3, 50.8 and 46.3 years old, respectively. Male-to-female sex ratio was obtained for Esophageal cancer, squamous cell carcinoma and adenocarcinoma equal to 1.27/1, 1/1, 1.75/1, respectively. Conclusion: with regard to the results from this study, rate of incidence of esophageal cancer has reduced in men than other population and/or the rate of incidence of esophageal cancer has increased in women. The most area involved with 11 cases has been in the middle area of esophagus and by squamous cell carcinoma.

Key words: Carcinoma, Esophagus, Squamous cell carcinoma, Adenocarcinoma

INTRODUCTION

Anatomic and esophageal motor disorders included the cases below that some are briefly described: atresia, stenosis of fistula, rings, diverticulum, Hiatus hernia, Achalasia, Varicose, Esophagitis, Mallory-Weiss tears, Barrett's esophagus, Carcinoma [1]. Esophagitis is considered the common status worldwide. In northern Iran, the prevalence of esophagitis has been more than 80%, but in America and other Western countries, esophagitis has existed in 10%-20% of the adult population. Mild esophagitis in macroscopic scale is stabilized in blood congestion, but there is interconnected epithelial corrosion or soreness in severe esophagitis[1]. Barrett's esophagus has been replacement of squamous metaplasia of the normal distal with metaplastic change of the columnar epithelium containing goblet cells that 11% of patients with gastroesophageal reflux with symptoms and some patients suffered from reflux without symptoms suffer from it. Barrett's esophagus increases the risk of adenocarcinoma to 40-30. Barrett's esophagus increases the risk of adenocarcinoma to 30-40 times [1]. Esophageal carcinoma, benign tumors might arise from squamous mucosa and the underlying mesenchyme in the esophagus. However, these fall under the control of esophageal cancer that most of them are squamous cell carcinoma and adenocarcinoma. What the release pattern is, about 20% of cases raise in cervical esophagus and upper thoracic, 50% in the one third of middle area, and 30% in the one third of the lower area. It seems that adenocarcinoma has risen on Barrett's dysplasia mucosa,

indicating 25% of esophageal carcinoma in the United States and developing more than half of the cancers in distal 1-3 cm of esophagus. Environmental factors and diet associated with squamous cell carcinoma have been represented in Table 1[1].

Table 1. Risk factors for squamous cell carcinoma

Prolonged esophagitis Achalasia Plummer-Vinson syndrome(hypochromic microcytic anemia, Atrophic glossitis)	Esophageal Disorders
Tobacco use	life style
Shortage of rare metals (zinc-molybdenum) Fungal contamination of food Lack of vitamins (A, C, riboflavin, thiamine, pyridoxine)	diet
hyperkeratosis of the palms and soles	Genetic predisposition

Esophageal cancer is an uncommon malignancy but it is associated with a high mortality rate [2]. The average age of individuals was 67 years old and scc is the most common type in the world. In general, the rate of scc has reduced since 1970, but on the contrary adenocarcinoma is rising [3]. The majority of cases of cancer has been after age 50 years old and about 15%, 35% and 50% in the upper area, in middle area and the lower area [2]. Esophagus tumors are divided to epithelial and non-epithelial groups and each of them is also divided into two categories: benign and malignant (table 2).

Table 2. Classification of Esophageal cancer

Epithelial Tumors	Nonepithelial Tumors
Malignant	Malignant
Squamous cell carcinoma	Lymphoma
Adenocarcinoma	Sarcomas
Adenocarcinoma of the	Metastatic carcinoma
Esophagogastric junction	Benign
Verrucous carcinoma	Leiomyoma
Carcinosarcoma	Granular cell tumor
Small cell carcinoma	Fibrovascular tumor
Malignant melanoma	Hemangioma
Benign	Hamartoma
Squamous papilloma	Lipoma
Adenoma	
Inflammatory fibroid polyps	

Scc has existed predominantly in the 1/3 upper and middle of esophagus, while adenocarcinoma is more common in the distal 1/3 Gastroesophageal junction area. About 70% of patients have experienced anorexia and weight loss before referring to doctor. Odynophagia is normally associated with an ulcerated tumor. The underlying adenocarcinoma is Barrett's esophagus. Although adenocarcinoma has been among 15 malignant patients and is more common compared to the scc in America; amount of scc is more common in the world. Adenocarcinoma afflicts more the white people. Incidence of scc typically increases after age 40 and show an increase per decade increase in life. It is a disease in men with $M / F = 3.55 / 1$. Barrett's esophagus is the most important risk factor for it, which is a premalignant state. Conversion of Barrett's esophagus to adenocarcinoma includes Low-grade dysplasia progression to High grade carcinoma and in situ carcinoma [1]. In a study conducted in the Kingdom of Bahrain, in the review of 148 cases of esophageal cancer from 1952 to 1999, this cancer has included 2.6% of neoplasms. The ratio of female to male has been 1.8/1 and the majority of patients have been between the ages of 51 to 70 years old. The most affected area was 1/3 lower area and its rarest area has been 1/3 upper area, and squamous cell carcinoma in men and adenocarcinoma in women has been the main histologic type [4]. In a retrospective study in three major hospitals in Atlanta in Georgia, patients with esophageal cancer during 1990-1996 were examined. Of 234 patients, 129 and 105 persons were black and white. Among the black, 92 cases develop from Squamous cell carcinoma, and among the white Adenocarcinoma has been the more common. In patients with adenocarcinoma, there was evidence of Barrett's esophagus only in 43% of cases, but all of them were in the lower area of the esophageal 1/3 [5]. In Gilan province, esophageal cancer has been the fifth most common cancer, and squamous cell carcinoma and adenocarcinoma included 81.6% and 13.6% of cases[6]. With regard to what mentioned above, the high rate of gastrointestinal complaints referred to various doctors, most cases of esophageal diseases in our society, the purpose for determination of the highest rate of cancer cases in different age and gender groups, the purpose for specifying the groups with Precancerous lesions such as dysplasia and Barrett's esophagus, the present research aims to determine neoplastic disease of the esophagus in terms of area and Histopathology in groups of patients referred to hospitals.

MATERIALS AND METHODS

The required data in a retrospective study were obtained on information related to Esophagus samples during 4 years (since the beginning of 2003 to the end of 2004) in pathology offices Shafa, Razi and Imam Khomeini (related to this hospital, Abuzar hospitals and Ahvaz private hospitals which lack pathology department). Firstly by referring to the registry offices and special clinics, samples of the esophagus were identified and then the pathology report sheets of the binders were examined. In this study, histological response and anatomical location of the sample were specified based on placement in the third of upper, middle and lower area. Further, biopsy year, hospital, age and gender of patients and differentiation and invasion were considered. In study on reports, the cases which had been repeated several times were excluded from study and just the final response had been considered. In the histopathology, precancerous lesions including Barrett's esophagus and dysplasia were studied in terms age and gender. Ultimately the obtained information was analyzed using software SPSS-19 and gender and age status of samples, General Report of histopathology, type of cancer, average age and also area of invasion and differentiation of each of common tumors under supervision of Dr Rashidi were obtained.

RESULTS

In this retrospective study, a total of 102 samples were collected over a period of 4 years; in general men and women included of 60 and 42 cases (Figure 1).

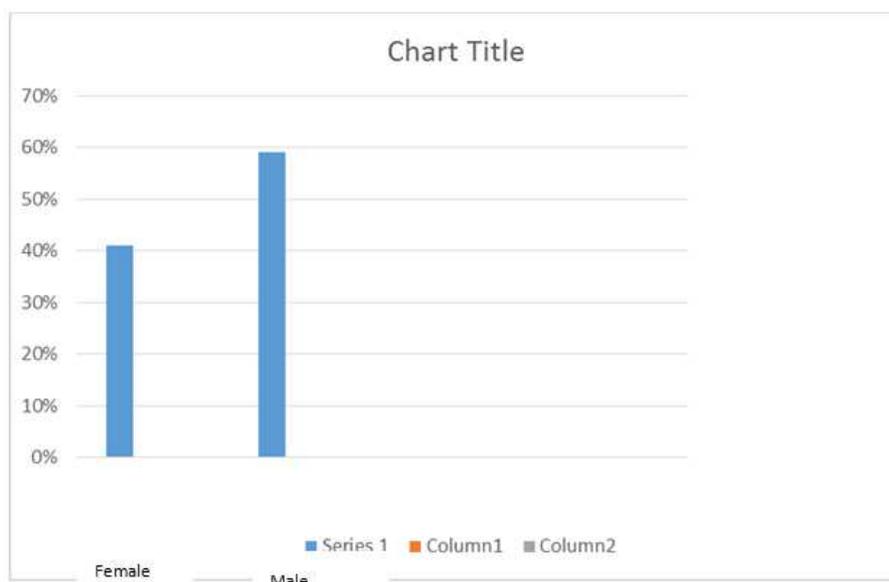


Figure 1: The statistical sample

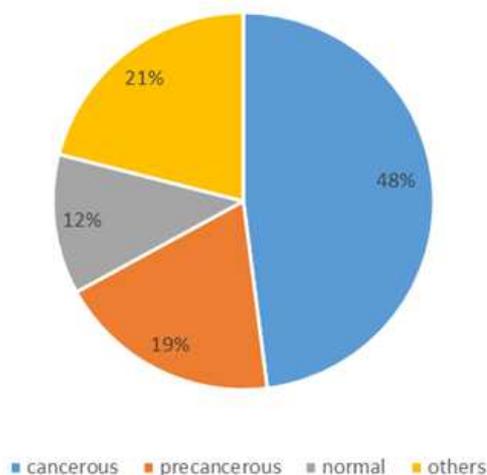


Figure 2: Sales

Average age of patients has been 56.55 years old with a minimum age of 1 year and a maximum age of 88 years, included who were aged 78 years old. In term of age be decade, the highest frequency relates to the seventh decade with 27.45% and the least decade relates to the ninth decade with 3.92% that yet the individuals under 30 years old have been considered in one group due to few reasons. In terms of histopathology, among the 102 investigated cases, there have been 50 cases of cancer, 19 precancerous cases, 12 normal cases and 21 other cases, which these cases include candidiasis, chemical burns, achalasia, and 18 cases of esophagitis (Figure 2).

The average age has been 68.12 years old with minimum age of 40 years old and maximum age of 88 years old, spanned a range of 48 years old. Among 50 obtained cases, 28(56%) and 22(44%) cases include men and women, respectively. With regard to the age by decade, the highest cases relate to the eighth decade with 40% and the least cases relate to the fourth and fifth decades with 4%. 92% cases have been at the age above 50 years old and just 8% of them have been at the age under 50 years old. The cancer cases were divided into four groups including Squamous cell carcinoma with 34 cases and ratio of man to woman consisted of the highest number of cases, Adenocarcinoma with 11 cases and ratio of man to woman consisted of 1.75/1, metastatic carcinoma with one case and the cancers which their type had not been specified. The average age for squamous cell carcinoma has been 67.47 years old with a minimum age of 40 and maximum of 85 years old and it has been 68.36 years old for adenocarcinoma with a minimum of 40 and maximum of 80 years. Of esophageal cancers, their area had not been determined in 15 cases. Among remaining 35 cases, as witnessed in Figure 7, the highest involved relates to the lower area with 40% cases and the upper area with 11.42% included the lowest area. According to table 3, 11 cases of adenocarcinoma, 8 cases in the lower area and gastroesophageal junction and 3 cases with unspecified location. The area involved with 11 cases has been at the middle area of Esophagus and Squamous cell carcinoma. After the unspecified cases with 30%, the lower area with 28% has been given the highest rate.

Table 3: Research data

Area type	Upper third	Middle third	Lower third	Junction	Undetermined	Total
scc	3	11	8	1	11	34
adenocarcinoma	0	0	5	3	3	11
metastatic	0	0	0	0	1	1
undetermined	1	1	1	1	0	4
Total	4	12	14	5	15	50

Esophageal cancer cases were evaluated based on invasion as well as the distinction that 30% and 70% of cases have been invasive and non-invasive, respectively. According to the amount of differentiation, cases with 18%, 42%, 22% and 18% were the known with poor, average, good and unspecified differentiation. In general, the most cases related to squamous cell carcinoma has been with average and non-invasive (20%) differentiation and invasive (16%) differentiation. Precancerous cases (19 cases) include 3 cases of dysplasia and 16 cases of Barrett's esophagus with an average age of 46.76 and a minimum age of 3.5 and a maximum of 84 years. In cases of esophagitis including 11 males and 7 females, average age of 46.88 for the all and 48.85 for women and 45.83 for men was obtained with a minimum age of 1 year and a maximum of 80 years, respectively.

DISCUSSION AND CONCLUSION

In the present research, 92% of cases have been above 50 years old; Predominance of male sex has existed with ratio of M/F = 1.27; in cases with specified area, the 1/3 upper, middle, lower and junction area to the esophagus included 11.5%, 34%, 40% and 14.5%, respectively. Based on Harrison's Principles of Internal Medicine, the majority of these malignancies have been at age above 50 years with predominance of male gender, included of the upper, middle and lower area with 15%, 35% and 50% [2]. Two last areas as the lower area, 54.5% of the results of cases are consistent with the mentioned cases. Yet the results are not consistent with the mentioned percent in Robbins Basic Pathology which are in turn 20, 50 and 30[1]. In this study on Bahrain, the most common area has been the upper area and the rarest area has been the lower area, but the predominance has been with the female gender which is inconsistent with other sources and articles [4]. In a study conducted in Hungary, M/F= 3.94 and it has been much more than our study [7]. In this study, men at the eighth decade and women in the seventh decade had the highest rate, but it has not existed any case till the end of eighth decade. In study on Atlanta, Scc developed the most cases among the black people and Adenocarcinoma developed the most cases among the white people, which our study is closer to the model for the U.S' black people [8]. With regard to Sleisenger's book, Scc at the sixth and seventh decade of life had the highest rate, found with predominance of male and existed in upper and middle area [3]. In our study, the average age for Scc has been 67.4 years old, but M/F=1 with no predominance of gender, found with the most common type at all areas except junction area. With regard to the mentioned book, Adenocarcinoma has been more common at distal and junction area with the ratio of gender M/F=3.5/1[3]. In the present study, Adenocarcinoma has been the most common type at JUNCTION area, but it has been more at the

distal area of esophageal squamous-cell carcinoma. In Robbins Basic Pathology, Adenocarcinoma has been mentioned at age above 50 years old with M/F=3.1 in most cases [4]. In this study, average age has been 68.3 years old, with predominance of M/F=1.75/1 with the lower rate. In Hungary, the average age has been 66.9 years [7]. In study on Atlanta, all cases of Adenocarcinoma have been at the lower area and it has been in this way in the current study[10]. The average age for Barrett's esophagus based on Sleisenger's book has been 55 years old and this has been 50.87 years old in the present study[3]. Results from this study are consistent with other studies. Yet there is a significant difference in the gender ratio, but with regard to the ratio of M/F which is greater than 1, it can say that incidence of it has reduced in males than other communities and/or increased in females. The most interesting finding of this research is on the average age on Esophagitis (46.8), Barrett's esophagus (50.8) and esophageal carcinoma (68.12).

REFERENCES

- [1] M.carwford, J. In robbins basic pathology (L.Robbins,S). 7th ed. Saunders, U.S.A, 2003; pp.549-55.
- [2] Mayer, R.J. In Harrison's principles of internal medicine (Kasper DL). 16th ed. Mc Graw-Hill, USA, 2005; pp. 523-4.
- [3] Ginsberg, G.C. In Gastrointestinal and liver disease (Sleisenger, M.H). 7th ed.Saunders, U.S.A, 2002; pp.647-75.
- [4] Al-Hill, F. and Malik, A.K. Oesophageal cancer in Bahrain. East Mediterr Health J. 2003; 9(3): 372-6.
- [5] Chalasani, N. Racial differences in the histology, location and risk factors of esophageal cancer. Journal of clinical gastroenterology, 1998; 26(1): 11-3.
- [6] Khorami, A. Prevalence of organs affected by cancer in Gilan. University Journal of Medical Sciences, University of Gilan. 2004; p. 21.
- [7] Lakatos, P.L. Incidence and pathologic distribution of esophageal cancers at the gastroesophageal junction between 1993-2003.Orv Hetil. 2003; 146(9): 372-6.
- [8] Van Blankenstein, M. The incidence of adenocarcinoma and squamous cell carcinoma of the esophagus. Am J Gastroenteral. 2005; 100(4): 766-74.