

# Clinical Symptoms and Treatment Options of Oesophageal Cancer: Study in a Tertiary Level Hospital, Dhaka, Bangladesh

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## To cite this article:

Muhammad Mehedi Hasan, Dipannita Biswas, Md. Iftakhar Alam, Md. Kamrul Hasan, Biplab Kumar Barman, Md. Abu Bakar Siddiq Faysal. Clinical Symptoms and Treatment Options of Oesophageal Cancer: Study in a Tertiary Level Hospital, Dhaka, Bangladesh. *Biomedical Sciences*. Vol. 7, No. 4, 2021, pp. 108-113. doi: 10.11648/j.bs.20210704.13

**Received:** October 19, 2021; **Accepted:** November 19, 2021; **Published:** December 24, 2021

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**Abstract:** Background: Oesophageal cancer is cancer that's found anywhere in the oesophagus, sometimes called the gullet or food pipe. The oesophagus connects your mouth to your stomach. How serious oesophageal cancer is, depends on where it is in the oesophagus, how big it is, if it has spread, and your general health. The present study was done to Clinical Symptoms and Treatment Options of Oesophageal Cancer in the tertiary hospital in Bangladesh. Methods: This Descriptive cross-sectional study was done at the Department of Thoracic Surgery, Dhaka Medical College Hospital, Dhaka, Bangladesh from August 2015 to February 2016. A total of 50 oesophageal cancer patients between 30-80 years of age attending the Thoracic Surgery Department of Dhaka Medical College Hospital during the last 6 months were included in this study. Exclusion criteria were patients/attendants unwilling to give informed consent to take part in the study and patients with economic constraints to do the necessary investigations. Proper informed consent were taken from the concerns before collecting data. Collected data were classified, edited, coded, and entered into the computer for statistical analysis by using SPSS version 22. Results: Among the 50 cases, the mean age was 52.92 ( $\pm 10.60$ ) years, the minimum age was 30 years and the maximum age was 80 years. Maximum 76% were male and 24% were female, male: female ratio was 19:6. Regarding treatment options of esophageal cancer, the majority 76% were selected for operative procedure, 10% for chemotherapy, 2% for radiotherapy, and the rest of 12% for palliation. Conclusion: Predominant personal history was smoking, white tobacco chewing, betel nut, betel leaf, and alcohol consumption. Most of the oesophageal cancers were middle and lower third. Majority of the oesophageal cancers were squamous cell carcinoma of different grades. Regarding TNM staging most of the oesophageal cancers were T2 disease.

**Keywords:** Clinicopathology, Patterns, Oesophageal Cancer

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## 1. Introduction

Oesophageal cancer is a largely prevalent cancer worldwide, having an incidence rate of 16.2 per 100,000 people per year. The incidence is considerably smaller in Belgium, where an age-standardized rate (using the World

Standard Population) of 9.3 per 100 000 person-years was observed in 2008 [1]. Although it is a relatively rare disease, esophageal cancer has a pronounced lethal potential. It is the 6th leading cause of cancer-related death in the world [2]. In 2005, around 498 000 new cases were diagnosed globally. Furthermore, a mortality to incidence ratio (MIR) of 83.6% was attained, as an estimated number of 416 SOD patients

died of esophageal carcinoma in that same year. Adenocarcinoma (AC) and squamous cell carcinoma (SCC) are the two most common histological types. Together they account for more than 90% of all esophageal cancers [3]. While the incidence of SCC remained relatively stable or even decreased, a remarkable increase in the incidence of AC was demonstrated. AC even became the fastest increasing cancer in the US in the 2000s, where it increased 6-fold between 1975 and 2000 [3, 4, 1]. In the Netherlands, the incidence of AC increased by a factor of 3.2 for males and by 2.4 for females in the period 1989- 2003 [4]. Oesophageal cancer is the 19th most common cancer in the European Union (EU), with ~45 900 new cases diagnosed in 2012 (1% of the total) [5]. Frequency rate of squamous cell carcinoma of the esophagus has been comparatively steady in most of the countries [6]. In industrialized countries alcohol and tobacco are the major risk factors [7]. The esophageal cancer belt is a geographic area of high incidence [8]. Prevention of esophageal cancer should be based on early detection and surveillance of precancerous lesions, specially of Barrett's esophagus, and attention should also focus on modification of changeable risk factors, including tobacco smoking, alcohol abuse, and ingestion of hot and spicy food [9]. Furthermore, similar epidemiological changes were observed in several European countries. The highest incidence of AC in the world is found in the UK, with an incidence rate of 7 per 100 000 people per year [20]. Throughout the past 10 years, numerous "minimally invasive" methods, which aim to limit the scope of resection, have been announced; these actions are presently being examined for use in both staging and treatment of esophageal malignant diseases. Contempt these actions however, overall 5 year survival remains unsatisfactory: less than 25% of patients live for 5 years after esophagectomy [12]. As a consequence of the evolutions described above, AC has become the predominant esophageal cancer type of the Western world. Regardless of the histological type, esophageal cancer is a deadly malignancy. Overall, 5-year survival ranges between 10%-25% [19]. In Belgium, 5-year survival of 22.8% was observed in the period 2004-2008 [11]. The marked lethality of esophageal carcinoma can be explained by the late onset of symptoms caused by cancer." At the time of diagnosis, more than 50% of patients have either unresectable tumors or metastasized disease. Furthermore, up to 65% of patients curatively treated have locoregional or distant recurrence within 5 years." Survival after recurrence is extremely poor, with a median survival of only 10.5 months." It is clear from the above considerations that esophageal cancer is becoming an increasing health problem in our regions, mainly due to the rising incidence of AC. Moreover, low survival and high recurrence rates persist. It is, therefore, of great importance to conduct further research in the domain of esophageal carcinoma, to investigate the reasons for treatment failure and to improve the survival of these patients. Tumor types of SCC and AC are the most common types of esophageal cancer. Other much less prevalent esophageal carcinomas are e.g. mucoepidermoid, adenosquamous, or small cell

carcinoma. Rarely, carcinoids, lymphomas or non-epithelial tumors such as leiomyosarcomas or melanomas can affect the esophagus." In the following section, we will only discuss the risk factors of the 2 most prevalent types of esophageal cancer: SCC and AC. The risk of both SCC and AC increases with age, with an average age at diagnosis of 67 years." For both types, esophageal cancer is much more prevalent in males than in females. Depending on the geographical region, male: female ratios of 2:1 to 4:1 are obtained for SCC. 4U This male predominance is even higher for AC, especially in Western countries. In the US, a male: female ratio of as high as 7:1 was observed in the period between 1993 to 2002. Besides age and gender, several other risk factors are known to be associated with esophageal carcinoma. An overview of these risk factors shows that tobacco use is associated with an increased risk in both SCC and AC. This increased risk is related to the direct exposure of the esophagus to carcinogenic substances in cigarette smoke, including nitrosamine." Alcohol is also associated with an increased risk in SCC, but not in AC. In the pathophysiology of SCC, the alcohol metabolite aldehyde, a known carcinogen, most likely plays a predominant role. This is supported by the fact that mutations in the alcohol metabolizing enzymes are associated with an increased risk of SCC. There is evidence that alcohol abuse and smoking can interact with the pathogenesis of SCC. In one study a multiplicative effect was found, with a 13-fold increase of the risk for heavy smokers (30 or more Cigarettes per day) and drinkers (4 or more glasses of alcohol per day) compared to the non-smoking/non-drinking category. Gastroesophageal reflux disease (GERD) is one of the strongest risk factors for AC. This risk is independent of the presence of Barrett's esophagus. One Swedish case-control study found that the risk of AC was almost 8 times as high among persons with weekly GERD symptoms compared to persons without symptoms. The exact mechanisms through which GERD plays a role in the pathogenesis of AC remain unclear, but it is assumed that chronic irritation and inflammation of the esophageal mucosa by frequent reflux of gastric acid and bile are possible carcinogenic processes. The most prevalent symptoms of esophageal cancer at the time of diagnosis were adopted from Daly et al where diagnostic investigations when the diagnosis of esophageal carcinoma is suspected based on the clinical symptoms of the patient, an esophagogastroduodenoscopy is performed. If a suspicious lesion is detected, multiple mucosal biopsies are obtained." The diagnosis is then confirmed after pathological examination of these biopsies.

## 2. Objectives

To describe the clinical symptoms and pathological pattern of esophageal cancer.

To increase awareness in communities about the importance of early reporting to the hospital for early diagnosis and treatment to improve patient survival and morbidity.

### 3. Methods

This cross-sectional study was done at the Department of Thoracic Surgery, Dhaka Medical College Hospital, Dhaka, Bangladesh from August 2015 to February 2016. A total of 50 oesophageal cancer patients between 30-70 years of age attending the Thoracic Surgery Department of Dhaka Medical College Hospital during the last 6 months were included in this study. Exclusion criteria were patients unwilling to give informed consent to take part in the study and patients with economic constraints to do the necessary investigations. The patients were interviewed face to face by the researcher of this study with the purpose of collecting data. Proper consent was taken from the concerns before data collection. The patients were examined by the researcher for certain signs and those were recorded in the checklist. The investigations used for collecting data were endoscopy with endoscopic biopsy, barium swallow x-ray of the oesophagus, CT scan of the chest and upper abdomen, chest x-ray, Ultrasonogram of the whole abdomen, etc. Collected data were classified, edited, coded, and entered into the computer for statistical analysis by using SPSS version 22.

#### Inclusion Criteria:

1. clinical symptoms and pathological pattern of esophageal cancer.
2. Patients aged between 30-70 years
3. Participants willing to share necessary information

#### Exclusion criteria:

Patients/attendants unwilling to give informed consent to take part in the study and patients with economic constraints to do the necessary investigations.

### 4. Results

Figure 1 shows the gender distribution, where 76% were

male and 24% were female. Figure 2 shows mean age was 52.92 ( $\pm 10.60$ ) years, the minimum age was 30 years and the maximum age was 80 years. Figure 3 shows common clinical presentations were dysphagia, regurgitation, significant weight loss, and nausea and vomiting with percentages of 100%, 96%, 80%, and 14% respectively. Figure 4 shows treatment options for oesophageal cancer, where a majority (76%) were selected for operative procedure, 10% for chemotherapy, 2% for radiotherapy, and the rest of 12% for palliation.

#### Gender Distribution

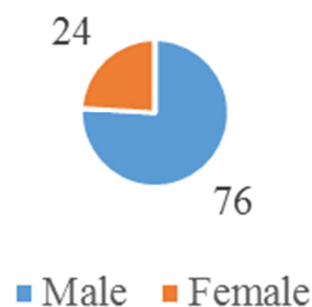


Figure 1. Gender distribution of study population (n=50).

The male to female ratio was 19:6.76% of the total participants were male, and only 24% were female.

The Mean $\pm$ SD age was 52.92 $\pm$ 10.60 in the patients. 50% of the patients were from the age group of 50-59 years. The lowest number of patients were from the oldest group, 8% from over 69 years of age. Very few were from the younger age groups, 10% from 30-39 years of age and 14% from 40-49 years of age.

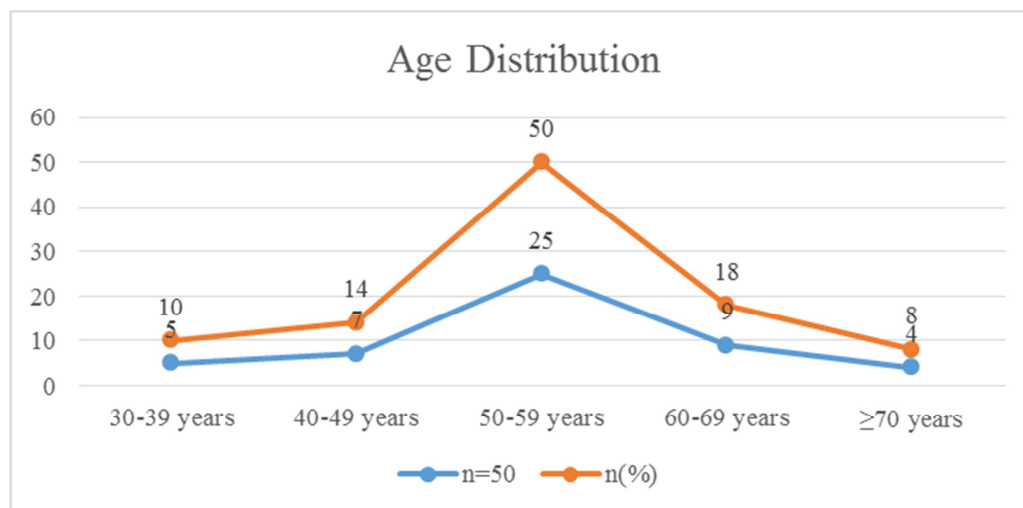


Figure 2. Age distribution of the study population (n=50).

Dysphagia was found in all 50 of the participants. Among other clinical symptoms, 96% had regurgitation, and 80% had gone through significant weight loss. Among some of the

less common clinical symptoms, nausea and vomiting were present in 80% of the participants, and 4% had coughing problems during swallowing.

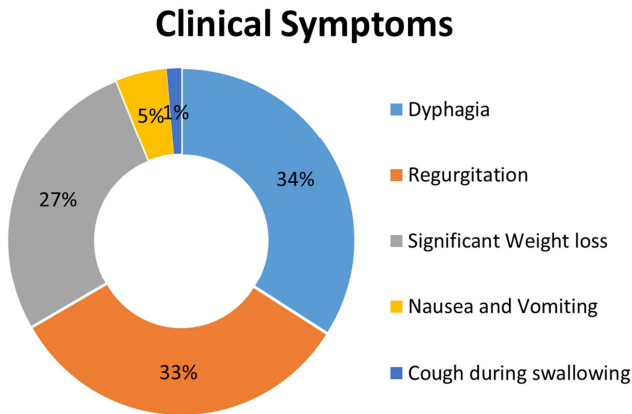


Figure 3. Clinical symptoms of the study population (n=50).

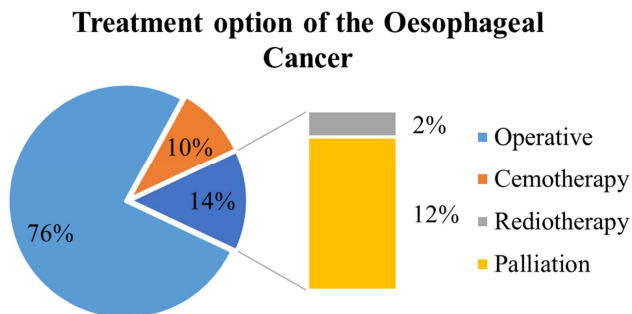


Figure 4. Treatment options of the oesophageal cancer of the study population (n=50).

For 76% of the participants of this study, the primary method of treatment was operative in nature. For 10% of the participants, chemotherapy was recommended. Of the remaining 14%, radiotherapy was recommended for only 2%, and the remaining 12% were recommended palliative care.

## 5. Discussion

This study was held in the Department of Thoracic surgery of Dhaka Medical College Hospital. Dhaka and after approval from the required authority. This is a descriptive longitudinal study of the patients attending with a history of carcinoma of the esophagus. The cases were referred to the thoracic surgery department from several departments of the same institute and also from other institutes. The departments from which the patients were referred are radiotherapy, gastroenterology, medicine, surgery, etc. In the present study, the mean age was 52.92 ( $\pm 10.60$ ) years, the minimum age was 30 years and the maximum age was 80 years. Maximum 76% were male and 24% were female, male: female ratio was 3.17: 1. Similar findings were found in several studies. A study showed the mean age for SCC was 60 years with a range from 23 to 100 years; while the mean age for ADC was 65 years; the age range being 27 - 90 years [13]. In another study, the age of patients at presentation ranged from 24 to 78 years with a median age of 47 years. The modal age group was 41 to 50 years, and 48.2% patients were aged 50 years or below [14]. There were 68.9% men and 31.1% women with a male to

female ratio of 2.2: 1. The male to female ratio of EC was slightly similar to that reported in several pieces of literature [15, 16]. Almost all reports documented high male prevalence with male to female ratio 3:1 and 4:1.7 [15]. This study shows that EC was exceedingly rare before the age of 30 and the mean age was around 62 in both males and females. From Pakistan reported an early mean age of 42 years in males and 53 years in females [16]. When observing the socio-economic status of the study population, majority (48%) were of the lower middle class and 40% were of the lower class. Some global study showed, esophageal cancer has been reported to be more prevalent in people with low socioeconomic status [15]. Socioeconomic class appears to be an independent risk factor in the development of esophageal cancer. This study showed common clinical presentations were dysphagia, regurgitation, significant weight loss, and nausea and vomiting which were 100%, 96%, 80%, and 14% respectively. Some studies supported our result where it was showed that all the patients presented with progressive dysphagia (graded) and weight loss (100%); 75.9% presented with regurgitation [16]. The present study shows common personal history of smoking, white tobacco chewing, betel nut, betel leaf, and alcohol consumption were found in 66%, 20%, 92%, 92%, and 10% respectively. Like tobacco consumption, alcohol use is a major cause of ESCC in western countries [15-17]. In the West, alcohol intake is associated with a dose-response increase in ESCC risk, and heavy consumption increases risk by 5 - 15 fold [18]. In Linxian, alcohol consumption is associated with a mild decrease in ESCC risk [19], possibly due to the fact that alcohol consumption in Linxian is very limited and it may be associated with higher socioeconomic status. In Golestan Province, alcohol consumption is rare, especially among rural residents, and it is unlikely to be a major cause of ESCC [10]. This study showed the anatomical site of oesophageal cancer, where 48% were middle and lower third oesophageal cancer each. The location of the tumor within the length of the esophagus varies with the histological type. Squamous cell carcinoma is commonly found in the middle and distal third of the esophagus while adenocarcinoma is more commonly located in the distal third. In this study, the middle third of the esophagus was the most frequent anatomical site for esophageal cancer in over 50% of cases, which is consistent with previous studies. Our finding is in variant with other studies, which reported the distal third of the esophagus as the most common site for esophageal cancer. The present study showed a histopathological type of oesophageal cancer, where majority (56%) were squamous cell carcinoma of different grades and 40% were adenocarcinoma of different grades. In current periods, prognosis has increasingly improved in many countries. Endoscopic procedures have gradually been used in the treatment of premalignant and early oesophageal tumours. Another findings were found in other studies where their findings showed that SCC accounted for 50.2% followed by ADC (48.6%). The

present study showed common clinical staging (TNM) of oesophageal cancer, T2 disease was 58% followed by T3, 26%, and T1, 6%. Considering nodal status most of the cases were NO, 60% with N1, 24%, and N2, 16%. Regarding metastasis, only 18% of cases had evidence of metastasis. Compared to the study showed TNM staging was documented in only 104 (31.7%) patients. Of these, 102 (98.1%) patients were diagnosed with advanced esophageal cancer (stages 3 and 4). In current periods, prognosis has gradually improved in several countries [21]. The two major subtypes of oesophageal cancer are oesophageal squamous cell carcinoma (OSCC) and oesophageal adenocarcinoma (OAC), which are epidemiologically and biologically distinct [22]. According to tumor grading, most of the tumors were moderately differentiated, accounting for 56.1% of cases. In this study regarding metastasis 18% of cases had evidence of metastasis. In the same study, distant metastasis was documented in 43.3% of cases. A similar distant metastatic pattern was reported in other studies. Late presentation in our area in the majority of patients may also be responsible for the high distant metastatic rate of esophageal cancer in most developing countries. In our study treatment options of oesophageal cancer, majority 76% were selected for operative procedure, 10% for chemotherapy, 2% for radiotherapy, and the rest of 12% for palliation.

#### Limitations

As the study was conducted upon a small size of population which is too small to conclude over this commonest and burning issue and the study was conducted in a very limited area to represent. More extensive investigations could not be done due to lack of resources that would produce a more informative study. The study time was very limited to represent as the overall result.

## 6. Conclusion

In conclusion, oesophageal cancer is one of the most serious gastrointestinal cancer worldwide, owing to its rapid development and fatal prognoses in most cases. The present study is done to highlight the increasing incidence of oesophageal cancer in the population.

## 7. Recommendations

Large scale, multicentre study should be undertaken with wider demographic. Sample size should also be increased to generate feasible results.

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