

Original Research Article

Clinico-pathological study of oesophageal cancer: a 3 years retrospective and 1½ year's prospective analysis

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ABSTRACT

Background: In India, oesophageal cancer is second most common cancer among males and fourth most common among females and is associated with certain diets and lifestyle. In India, the age-adjusted incidence rates for oesophageal cancer are the highest in men (25.5) and women (5.5) in Mizoram. Aim of the study was to find the clinical and histopathological findings of oesophageal cancer patients at Civil Hospital, Aizawl.

Methods: A descriptive study (3 years retrospective and 1½ years prospective) was conducted at Civil Hospital, Aizawl, Mizoram from July 2013 to December 2014 (1½ years) amongst 104 patients reporting to Civil Hospital, Aizawl for oesophageal cancer.

Results: History of progressive dysphagia to solids was most common symptom and observed in 91.3% patients. Histopathological examination of resected esophageal specimen showed 95.7% patients were detected with squamous cell carcinoma, 4.3% patients were detected with no proper malignancy/residual tumor.

Conclusion: Squamous-cell carcinoma was the most common type of esophageal cancer occurring in the middle third of the oesophagus with as observed on upper gastrointestinal (GI) endoscopy. More men were affected than female.

Keywords: Dysphagia, Squamous cell carcinoma, Oesophagus

INTRODUCTION

Cancer incidence data generated from six hospital-based cancer registries under national cancer control programme (NCCP) has revealed that in India, Assam and Mizoram have the highest incidence of esophageal cancer in both the sexes.¹

Oesophageal cancer is eighth most common cancer worldwide and sixth most common cause of death from cancer.² In India, oesophageal cancer is second most common cancer among males and fourth most common among females and is associated with certain diets and lifestyle.³ In India, the age-adjusted incidence rates for oesophageal cancer are the highest in men (25.5) and women (5.5) in Mizoram.⁴

Progressive dysphagia (i.e. difficulty swallowing) or odynophagia (i.e. pain with swallowing) are the most common presenting complaints of patients with esophageal cancer. These symptoms usually have been present for several months before seeking medical treatment and initially present as difficulty or pain when swallowing dry foods or breads. An unintentional loss of 10% of normal body weight occurs over a short time (i.e. less than six months). Early diagnosis offers the only chance of cure. Unfortunately 50% of patients with this disease are already stage IV at their presentation and so prognosis continues to be very poor. So there is a need for early detection, aggressive evaluation and timely referral to an appropriate subspecialist.⁵

Squamous cell cancer and adenocarcinoma are the most common types of oesophageal carcinomas.⁶

Oesophageal cancer is diagnosed by upper gastrointestinal endoscopy with multiple biopsies. The introduction of endoscopic ultrasound has helped to a very large extent in determining T and N stages of disease. However computed tomography (CT) scan is needed to identify lung and abdominal metastasis. It also helps in assessing the local resectibility of growth by delineating the invasion into mediastinal structures.⁷

The present study was attempted to study the clinical and histopathological findings of oesophageal cancer patients at Civil Hospital, Aizawl.

Aim

To study the clinical and histopathological findings of oesophageal cancer patients at Civil Hospital, Aizawl.

METHODS

A descriptive study (3 years retrospective and 1½ years prospective) was conducted at Civil Hospital, Aizawl, Mizoram from July 2013 to December 2014 (1½ years) amongst the patients reporting to Civil Hospital, Aizawl for oesophageal cancer.

Inclusion criteria

All patients histo-pathologically diagnosed with oesophageal cancer of all ages, sex, and occupation.

Exclusion criteria

Patients who were not willing to participate and bound to loss to follow-up and missing data.

Sample size for study was calculated by considering the report of population based cancer registry, Civil Hospital, Aizawl, five year report (2007-2011). According to this report the proportion of oesophageal cancer in general population was 8.6% and sample size calculated by considering this proportion was 104. Universal sampling method was used for collection of data of 4½ years (all the histo-pathologically diagnosed cases of oesophageal cancer from July 2010 to December 2014) using pre-validated questionnaire.

Statistical analysis

Data entered in Microsoft excel and analysed in statistical package for the social sciences (SPSS) version 16.

RESULTS

Table 1 shows that socio-demographic distribution of patients. Mean (SD) age of patient was 54.19±8.89 years. 49.06 % patients were belonged to age group 50-59 years, followed by 21.15% in 40-49 years. This distribution of age is shown in Figure 1.

Table 1: Socio-demographic profile of patients (N=104).

Parameters	Percentage (%)
Age groups (years)	
35-39	4.80
40-49	21.15
50-59	49.06
60-69	20.19
>70	4.80
Gender	
Male	19.23
Female	80.77
Religion	
Christian	99.03
Hindu	0.97

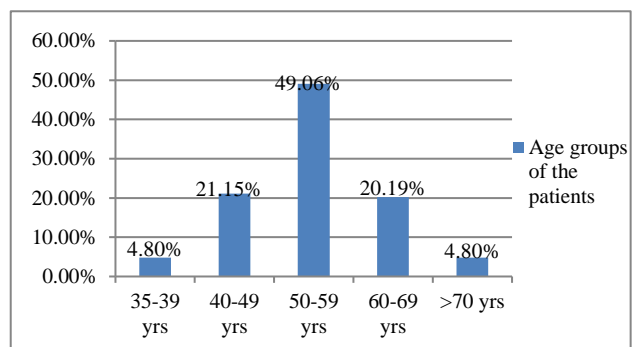


Figure 1: Distribution of patients according to age group.

In this study 80.77% were males and 19.23% were females. 99.03% patients were found to be Christians and only 0.97% patients were found to be Hindu.

Table 2 describes the clinical symptoms and signs of patients. History of progressive dysphagia to solids was most common symptom and observed in 91.34% patients and liquid was noted in 42.31% patients. Anorexia was seen in 62.5% patients, followed by chest pain in 52.88%, followed by vomiting (45.19%). Odynophagia was noted in 35.58% of patients. Hoarseness of voice was found in 26.92% of patients.

Table 2: Distribution of patients according to clinical presentation (N=104).

Clinical presentation	Percentage (%)
Progressive dysphagia for solids	91.35
Anorexia	62.5
Chest pain	52.88
Vomiting episodes	45.16
Progressive dysphagia for liquids	42.31
Odynophagia	35.58
Cough	34.61
Hoarseness of voice	26.92

Pallor was most common sign observed in 57.69% of patients. Pedal oedema was observed in 14.42% of patients. Signs of dehydration and ascitis were observed in 30.77%, and 4.81% respectively. Abdominal lymphadenopathy was observed in 1.92% of patients. Jaundice was observed in only 0.96% of patients. Organomegaly was seen in 2.88% patients.

Blood investigations were done and noted. 33.65% patient's hemoglobin was found below 10 gm%. Most common blood group was A+ (39.42%). In more than 90% patients total leucocyte count (TLC), differential leucocyte count (DLC) and blood sugar level (BSL) was found normal. In almost 90% patients renal function test (RFT) and liver function test (LFT) was found normal.

Table 3 shows upper gastrointestinal (GI) endoscopic findings of site, nature and biopsy of endoscopic specimen for oesophageal cancer. Most common site of growth found was middle third of the oesophagus (48.08%), followed by distal third of oesophagus (45.19%).

Table 3: Distribution of patients according to upper GI endoscopic findings (N=104).

Endoscopic findings	Percentage (%)
Site of growth	
Distal third of oesophagus	45.19
Middle third of oesophagus	48.08
Upper third of oesophagus	6.73
Nature of growth	
Proliferative	20.19
Ulcerative	54.81
Ulceroproliferative	25.00
Biopsy findings of endoscopic specimen	
Squamous cell carcinoma (SCC)	99.03
Adenocarcinoma	0.97

54.81% of patients were detected with ulcerative nature of the oesophageal growth and 25% of patients were detected with ulceroproliferative nature. Squamous cell carcinoma was found in 99.03% of patients and adenocarcinoma was found in 0.97% of patients on biopsy of endoscopic specimen.

Table 4 describes bronchoscopic findings in oesophageal cancer. Bronchoscopy was done in 54 patients among total 104 patients. Out of 54 patients, in 83.34% patients were bronchoscopy found normal. 9.26% patients were observed with tracheal indentation with narrowing and 3.7% patients were observed with trachea-oesophageal fistula. Chest X-ray of 85.58% patients was found to be normal. Pleural effusion and pneumonitis (2.85%) was common findings over chest X-ray.

Ultrasonography (USG) abdomen of 84.62% patients was found to be normal. Hepatomegaly with ascitis was common finding over USG (4.28%).

Table 4: Distribution of patients according to bronchoscope findings (N=54).

Bronchoscope findings	Percentage (%)
Normal	83.34
Growth in trachea	3.70
Tracheal indentation with narrowing	9.26
Tracheo-oesophageal fistula	3.70

Contrast enhanced computed tomography (CECT) thorax showed thickened distal oesophageal wall in 84.62% of the patients and peri oesophageal fat infiltration in 37.5% patients. Involvement of adjacent structures and thoracic lymphadenopathy on CECT thorax was observed in 22.12% and 55.77% of the patients respectively. CECT thorax and abdomen showed distant metastasis to either liver or lungs predominately in 8.65% of the patients.

CECT abdomen showed abdominal lymphadenopathy in 28.84% of the patients. Among patients with abdominal lymphadenopathy on CECT abdomen, 90% (27) patients had peri-gastric lymphadenopathy, 6.66% (2) of the patients had periaortic lymphadenopathy and 3.33% (1) of the patients had celiac lymphadenopathy. Total 47 patients who underwent barium swallow, mucosal irregularity was present in 68.09% of the patients. Dye holding was present in 44.68% of the patients. Dilatation of proximal part was present in 14.9% of the patients.

In our study 70 patients underwent oesophageal resection and specimen examined histopathologically, 67 (95.71%) patients were detected with squamous cell carcinoma, 4.29% patients were detected with no proper malignancy/residual tumour. No one was detected with adenocarcinoma. One patient diagnosed as adenocarcinoma on endoscopic biopsy could not undergo curative oesophageal resection and hence it was not reflected in final histopathological diagnosis analysis for which only patients undergoing curative oesophageal resection could be evaluated. This distribution of histopathological diagnosis is shown in Figure 2.

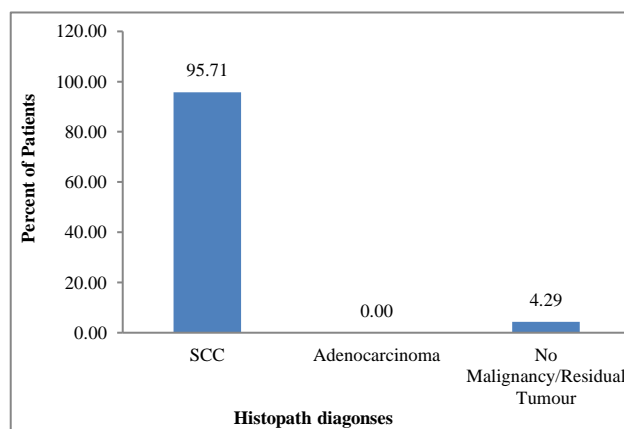


Figure 2: The final histopathological diagnosis of oesophageal resection.

Out of the 67 patients who were diagnosed with malignancy on histopathological examination among the total patients of oesophagectomy examined histopathologically, 34.33% patients were detected with well differentiated grade of tumour, 59.70% patients were detected with moderately differentiated grade of tumour and 5.97% patients were detected with poorly differentiated grade of tumour. This distribution of histopathological grades is shown in Figure 3.

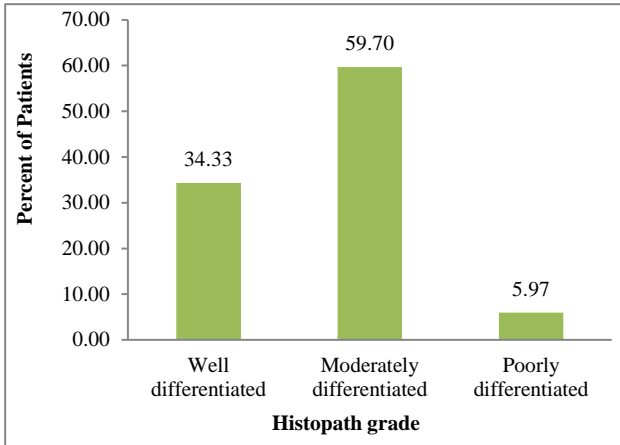


Figure 3: The histopathological grades of oesophageal resection.

Out of the 67 patients who were diagnosed with malignancy on histopathological examination among the total patients of oesophagectomy examined histopathologically, based on the American joint committee on cancer (AJCC) staging, instituted in year 1988 on TNM system, 20.90% patients were detected with stage IIIA, 20.90% patients were detected with stage IIB.

14.93% patients were detected with stage IA and IIA each. 11.94% patients were detected with stage IIIB and 11.94% patients were detected with stage IB. 4.48% patients were detected with stage IIIC. This distribution of histopathological diagnosis is shown in Figure 4.

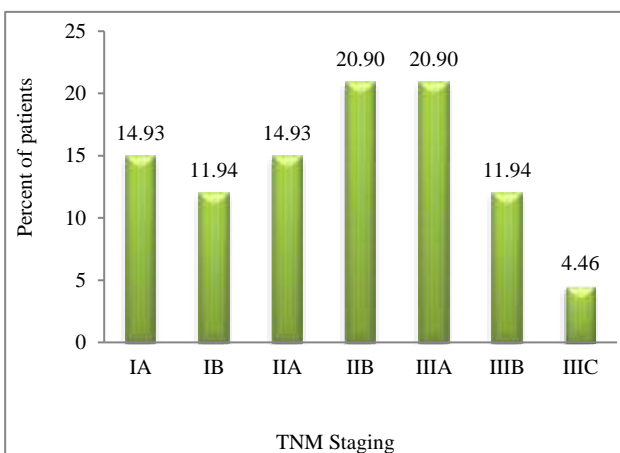


Figure 4: The TNM staging of patients.

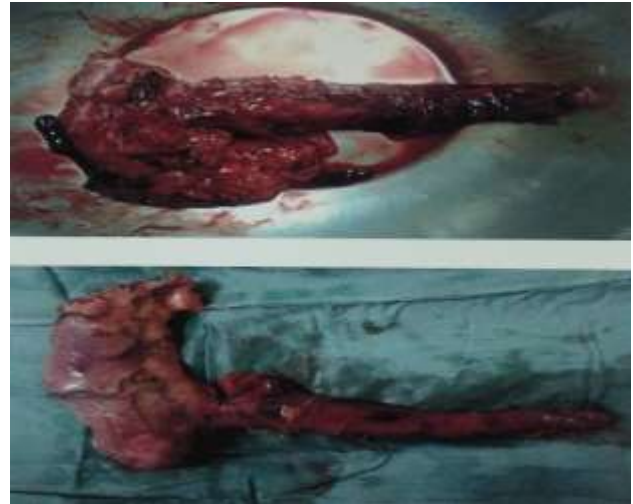


Figure 5: Pathological specimen (photo) - oesophagus.

DISCUSSION

In our study mean (SD) age of patient was 54.19 ± 8.89 years whereas a study conducted by Hu et al - the mean age was 55.98 years with SD of 9.16 and Ma et al - the mean age was found to be 55.8 years with SD of 5.2.^{8,9} In both studies the mean age nearly equal to our study.

In our study, out of 104 (100%) patients, 84 (80.77%) were males and 20 (19.23%) were females which are nearly equal to a study conducted by Nozoe et al in which 200 (86.2%) were males and 32 (13.8%) were females.¹⁰ In a study conducted by Patel et al, the number of males who had oesophageal cancer was 92 (57.9%) and females were 67 (42.1%) and Hu et al, males were found to be 57 (67.9%) and female were found to be 27 (32.1%).^{8,11} These findings are lesser than our present study.

99.03% patients were found to be Christians and only 0.97% patients were found to be Hindu. This finding can be attributed to the fact that the state of Mizoram is a Christian state with majority of the population being Christians.

In our study, symptoms like history of progressive dysphagia to solids was found in 91.35% patients and history of progressive dysphagia to liquids was found in 42.3% of patients. In a study done by Hu et al, progressive dysphagia to solids was found in 82 (97.6%) patients and no one with dysphagia to liquids.⁸ Khan et al found that most common presentation was dysphagia to solids (90%).¹²

In our study, 45.19% patients were affected with lower third of oesophagus, 48.08% patients were affected with middle third and 6.73% patients were affected with upper third of oesophagus on upper gastro intestinal endoscopy. Johnston et al found that squamous-cell carcinoma (SCC) in the middle third of the oesophagus in 57.86% (92 cases), 31.44% (50 cases) in the lower third, and 10.8% (17 cases)

in the upper third of the esophagus.¹¹ Also in another study conducted by Zhang et al, tumour was located at upper third in 8 (9.5%) patients, middle third in 62 (73.8%) and lower third in 14 (16.7%) patients.⁸ In a study by Zhu et al, tumour was located in upper third in 186 (10.4%) patients, in middle third in 901 (50.6%) patients and in lower third of oesophagus in 591 (33.2%) of patients.⁹

In our study squamous cell carcinoma was found in 99.03% (103) of patients and adenocarcinoma was found in only 0.97% patients on upper GI endoscopy. Patel et al found that SCC accounted for 92.45% (147 cases), while adenocarcinomas (ADC) accounted for 7.54% (12 cases) from the total of 159 cases.¹¹ In Ma et al study, SCC was detected in 1610 (90.3%) of patients, adenocarcinoma was detected in 97 (5.4%) of patients and other carcinoma was detected in 75 (4.2%) of patients.⁹ In a study by Khan et al, 629 patients had SSC (92.5%) while 50 (7.35%) patients had adenocarcinoma.¹² These results were comparable to previous results.

In our study, 37.14% patients had ulcerative growth, 45.72% patients had proliferative growth and 17.14% patients had ulceroproliferative growth on gross macroscopic examination of resected specimen. Kuwano et al found superficial and protruding growth in 9.4% patients, superficial and flat growth in 26.8% patients, superficial and distinct growth in 3.9% patients, protruding growth in 10.2% patients, ulcerative and localized growth in 12.6% patients, ulcerative and infiltrating growth in 34.6% patients, diffuse and infiltrating growth in 1.6% patients and miscellaneous nature of growth in 0.8% patients.¹³ Khan et al found that morphologically the lesion was ulcerative, infiltrative and polypoid in 24.5%, 20.14% and 16.17% respectively.¹²

In our study, 14.93% patients were detected with IA stage, 11.94% patients were detected with stage IB, 14.93% patients were detected with stage IIA, 20.90% patients were detected with stage IIB and 20.90% patients were detected with stage IIIA. Only 11.94% patients were detected with stage IIIB and 4.46% were detected with stage IIIC. In a study done by Su et al, 20.6% patients were detected with IIIA stage, 23.1% patients were detected with IIB stage, 3.8% patients were detected with IA and 15.6% were detected with IIA stages. 11.3% patients were detected with IIIB stage and 13.1% patients were detected with IB stage.¹⁴

CONCLUSION

SCC was the most common type of esophageal cancer occurring in the middle third of the oesophagus with as observed on upper GI endoscopy. More men were affected than female. History of progressive dysphagia to solids was more than to liquids with anorexia and pallor both found to be higher in patients. Tumour was found to be moderately differentiated with IIB and IIIA stage. Most of the follow up patients received adjuvant chemotherapy and

majority didn't showed weight gain after removal of feeding jejunostomy.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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