



AN INSTITUTIONAL RETROSPECTIVE STUDY OF THE EPIDEMIOLOGY AND MANAGEMENT OF OESOPHAGEAL CARCINOMA

Oncology/Radiotherapy

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ABSTRACT

Background: The aim and objective of the study is to understanding the epidemiology and management of oesophageal cancer. **Methods:** A retrospective study was done to know the epidemiology and management of esophagus cancer in our institute where we took 214 patients admitted in our hospital Acharya Tulsi Regional Cancer Institute Bikaner, Rajasthan in 1 year duration from January 2022 to December 2022. Upper gastrointestinal (GI) endoscopy and CECT chest were done to assess site and extent of tumour. **Results:** Total patients in this study were 214, where mean age group was 55-65. Male female ratio was 3.7:1. Patients with squamous cell carcinoma were more 179 (84%) followed by adenocarcinoma with 35 patients (16%). The most common site of the esophagus involved was the middle third in 103 patients (56%) followed by lower esophagus in 54 patients (30%). Most of the patients were inoperable due to nearby structure invasion by the tumor and those patients undergone chemoradiation. Median survival for the patients treated with surgery alone or with RT was 11 months. For patients receiving curative radiotherapy median survival was 9 months, whereas the palliative radiotherapy arm had a median overall survival of 4 months. Patients with palliative chemotherapy had survived for a median period of 3 months only. **Conclusions:** Carcinoma esophagus is still a deadly disease and present in such stage where surgery is not possible and managed by chemoradiation. The survival rate is poor. Squamous cell carcinoma is more common with adenocarcinoma.

KEYWORDS

Esophageal cancer, Upper gastrointestinal (GI) endoscopy, squamous cell carcinoma, adenocarcinoma, chemoradiation,

INTRODUCTION-

Esophageal cancer (EC) is very aggressive cancer with a poor prognosis.[1] As per World Health Organization (WHO), GLOBOCON 2020, esophageal cancer is the 7th most common cancer (3.2%) in the world and 6th most common cause of cancer-related mortality (5.3%).[2] In India, as per National Cancer Registry 2020, esophageal cancer is the 5th most common cancer with an incidence of 3.7%.[3] The incidence of carcinoma esophagus increases with age with the highest incidence in the age group of 50–70 years. The disease is diagnosed more frequently in males than in females with an approximate ratio 3–5:1.[4] The most common site in esophageal carcinoma (50%) are located in the middle third, while the distal esophagus and gastroesophageal junction are next most common site (33%).[5] Squamous cell carcinoma (SCC) founds more common than adenocarcinoma worldwide but with an increasing trend of adenocarcinoma (AC) in western countries.[6] squamous cell carcinoma can be found anywhere in esophagus but AC mainly affects the lower esophagus and/or the gastroesophageal junction.[7] Even after advent of many advance techniques ,still 5 year survival for esophagus cancer is very less.[8] Therefore, this study has been undertaken for a better understanding of the clinical and pathologic profiles, treatment approaches, and survival patterns in patients with EC.

This study presents a review of 214 patients of esophageal cancer managed at acharya tulsi regional cancer institute Bikaner Rajasthan during a 1 year period from January 2022- December 2022 with the aim of understanding the epidemiology and management of the disease.

METHODS

This is an observational prospective study which was conducted at the Acharya Tulsi Regional Cancer Institute, Bikaner, Rajasthan, India. The duration of the study was a period of 1 years starting from January 2022 to December 2022. The final sample size of the study was 214 patients.

The inclusion criteria were all patients of esophageal cancer that were admitted in our Radiation oncology department for chemo-radiation during the period of study. Esophagoscopy was performed in all patients to assess the site, Luminal patency and to do biopsy to confirm histopathological diagnosis. Contrast enhanced computed tomography (CT) scan of the chest and abdomen was done in all cases to get the site and size of tumor with get to know the nodal status. Patients found to be operable were taken for curative surgery mostly by

Ivor Lewis esophagectomy and then referred for post- operative radiotherapy once stable. Patients with advanced non-operable disease underwent palliative procedures followed by palliative chemoradiation. Follow up was done 1 year after discharge. The collected data were transformed into variables, coded, and entered in Microsoft excel. Data were analysed and statistically evaluated using statistical package for the social sciences (SPSS)-PC-21 version. Statistical differences between the proportions were tested by chi square test or Fisher's exact test.

Table 1: Patients characteristics (n=214)

Particulars	Male	Female
Sex	157	57
Age (median in years)	58	62
Residence		
Rural	101	54
Urban	42	17
Tobacco consumption		
Smoking with	134	46
Chewing		
No consumption	23	12

RESULTS -

A total of 214 cases of EC were taken from the departmental register over a period of 1 years from January 2022 to December 2022 where 157 patients were male and 57 patients were female.

Table 2: Correlation of tumor status with location (n=214)

Tumour Profile	Upper 3rd.	Middle 3rd	Lower 3rd.	Lower 3rd. with GE Junction
Histopathology				
SCC	21	103	36	18
AC	0	0	10	25

Demography

The median age of the patients in the study was 58 years ranging from 34 to 88 years. This study included 157 males (73%) and 57 females (27%) in the ratio of 3.7:1. Most of the patients in both sexes were above 50 years of age. 155 out of 214 patients (73%) patients were from rural areas and 159 (26.4%) patients were from urban areas. [Table 1].

Symptoms, Sign and Stage-

Most of the patients had symptoms for duration of 3 months or less. Most of the patients presented with dysphagia Though dysphagia is the most common presentation irrespective of tumor site, odynophagia is the main complaint (70%) in upper-third cancer. Weight loss and anemia were present in 161 (75%) and 134 (63%) patients, respectively. The most common location was mid-esophagus in 103 patients (58%) followed by the lower esophagus 54 patients (30%) and upper esophagus 21 patients (12%). Among the lower esophagus cancer patients, 43 patients had involvement of GE junction of both SCC and AC. [Table 2]. SCC was the most common histology with 179 (84%) patients, and 35 (16%) patients had adenocarcinoma (AC). Most of the patients presented in the advanced stage with 96 (45%) patients in stage III and 63 (30%) patients in stage IV, rest belong to early stages. Stage I had 16 and stage II had 39 patients.

Treatment and survival

Patients were treated with either surgery, chemotherapy, radiotherapy, or combination of any of these. 10 (5%) patients had undergone surgical resection followed by radiotherapy. 164 (77%) patients had received radiotherapy either as curative or palliative intention. 39 (18%) patients had received palliative chemotherapy alone.

Table 3: Survival analysis		
Factors	Median survival (months)	P value
Histology		
SCC	7	0.011
AC	5	
Stage		
Metastatic	4	0.000
Non-metastatic	7	
Treatment		
Surgery followed by RT	11	0.000
Curative chemoradiotherapy	9	
Palliative radiotherapy	4	
Palliative chemo	3	

SCC patients had more survival than AC patients which was statistically significant ($P = 0.011$). Patients presenting with the locoregional disease had more survival than the metastatic disease (7 vs 4.3 months) and results were statistically significant ($P = 0.000$) [Table 3]. Median survival for the patients treated with surgery alone or with RT was 11 months and most of the patients (80%) in this group had lower esophagus cancer. For patients receiving curative radiotherapy median survival was 9 months, whereas the palliative radiotherapy arm had a median overall survival of 4 months. Patients with palliative chemotherapy had survived for a median period of 3 months only. The association of the survival pattern with the treatment approach was statistically significant ($P = 0.000$). These results show that concurrent chemoradiation improves the overall median survival of upper and mid-EC patients whereas surgery gives better result for lower EC.

DISCUSSION-

EC is dreadful disease with rapidly progressing worldwide and have unfavourable prognosis.[6] with identify risk factors and life modification, screening, and early diagnosis we can form good strategy and prevent the disease.[9] Majority of patients in our study belong to older age group that is similar to some studies like schlansky et al. (10) whereas contrast to some study Choksi et al (9) and Mchembe et al. (11) where presentation was in earlier age groups. According to GLOBOCON 2020[2] approx. 70% of cases are seen in males(male predominance) which is similar to our study with male to female ratio of 3.7:1 which is higher than few Indian studies.[9] high male predominance is probably due to higher incidence of smoking and alcohol by which is supported by the previous studies.[11-13] Due to poor socioeconomic status, less health awareness, and facilities, increase risk of esophageal cancer is seen with rural population.[14] This is in similar with the present study. Dysphagia and weight loss are the two most common presenting features of EC. [10,11,15] Similarly in our study 88.8% and 75.4% of patients were presented, respectively, with dysphagia and weight loss. Worldwide squamous cell carcinoma is more prevalent than adenocarcinoma which is similar to our study. [8] In our study also 84% of patients had SCC whereas only 16% of patients had AC. Increasing incidence of adenocarcinoma in lower 3rd of esophagus that is frequently associated with Barrett esophagus.[16] Similarly in our study, 65% of the lower third cancers were AC. Acid

reflux can be the main reason behind Increasing prevalence of adenocarcinoma in the study population.[7] In our study most frequent site is middle third which is similar to other studies.[7,11,12] In our study more patients presented in stage III than stage IV. In one study, done by Mchembe *et al.* [11] had shown similar results likewise advance stage presentation stage III patients were more in that study whereas a study in Mozambique by Come *et al.* [17] had shown even contradictory results with more stage I and II patients. Our study had documented 10% of metastatic disease which was lower than similar studies by Mchembe *et al.* [11] Liver was the most common site of metastasis in a previous study.[18] But in the present study, most common site was the lung followed by the liver. Surgery is mainstay of treatment in early stage cancer i.e. stage Tis, T1, and some T2 carcinoma of the esophagus.[8] In our study a smaller number of patients undergone surgical resection because of advancement of the disease. Radiotherapy with or without chemotherapy is curative treatment for advanced unresectable tumours. For palliative patients chemotherapy or palliative radiotherapy can be planned.[19] In our study, 39% of patients were treated with curative concurrent chemoradiation whereas 31% and 23% had received palliative radiotherapy and chemotherapy, respectively. The mean overall survival in this study was 8.3 months which was lower than the study by Kollarova *et al.* [4] in study from Mozambique [17] had shown lower survival (3.5 months) than ours. Performance status, and advanced stage had a significant impact on survival. In our study patients with KPS ≥ 70 had better survival which was comparable with a previous study.[12] Metastatic EC had a poor survival rate [10] which is true for our study also. Patients treated with curative intent with either surgery or concurrent chemoradiation had significantly higher survival period [12] which is similar to our study.

The potential limitation of our study is retrospective study TNM was performed based on upper gi endoscopy and CT scan report due to lack of endoscopic ultrasound.

CONCLUSION

Esophageal cancer is aggressive tumour with less survival even after the treatment taken. It often presents in advance stage. chemoradiation is mainstay of treatment in mid-esophagus and surgery followed by CTRT is done in lower 3rd esophageal carcinoma. This study shows that an effective modality is needed to face the challenges to cure esophageal cancer. More number of patients and more clinical trials are needed to reach better approach for cure.

Conflict of interest – There are no conflict of interest.

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