



## Research Article

# Management of Oesophageal Cancer: A 3 Years Retrospective and 1 ½ years 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*

**Aim:** *To study the management protocol and post-operative complications of oesophageal cancer patients at Civil Hospital, Aizawl.*

**Methods:** *A Descriptive study (3 years retrospective and 1½years prospective) was conducted at Civil Hospital, Aizawl, Mizoram from July 2013 to December 2014 (1 ½ years) amongst 104 patients reporting to Civil Hospital, Aizawl for oesophageal cancer.*

**Results:** *Histopathological examination of rescted esophageal specimen showed 95.71% patients were detected with Squamous cell carcinoma, 4.29% patients were detected with no proper malignancy/residual tumor. Transhiatal Oesophagectomy (THE) + Gastric pull up (GPU) + Feeding Jejunostomy (FJ) was common (37%) surgical management procedure was done in patients.*

**Conclusion:** *Results of present study suggest that squamous cell carcinoma is the major histologic type found in esophageal cancer patients. Most of patients presented in advance stage and had grave prognosis.*

**Keywords:** *Dysphagia, Squamous cell carcinoma, Oesophagus.*

## Introduction

Oesophageal cancer is eighth most common cancer worldwide and sixth most common cause of death from cancer.<sup>1</sup> 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<sup>2</sup>

Squamous cell cancer and adenocarcinoma are the most common types of oesophageal carcinomas.<sup>3</sup>

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 CT scan is needed

to identify lung and abdominal metastasis. It also helps in assessing the local resectability of growth by delineating the invasion into mediastinal structures.<sup>4</sup>

Mizoram has the second highest incidence of oesophageal cancer in India,<sup>5</sup> and Civil Hospital, Aizawl is the main centre for treating these patients, it is high time to have proper documentation of clinical presentation, pathological staging, surgical treatments and survival of patients with oesophageal cancer.

In Mizoram, the first surgery for oesophageal cancer was done in 2002.<sup>6</sup> Since then both Trans hiatal oesophagectomy (THE) and Trans thoracic oesophagectomy (TTE) have been performed regularly without proper documentation.

Therefore, a 3 years retrospective and 1½ years prospective descriptive study of management of oesophageal cancer conducted in Civil Hospital, Aizawl.

### Aim

To study the management protocol and post operative complications of esophageal cancer patients at Civil Hospital, Aizawl.

### Methodology

A Descriptive study (3 years retrospective and 1½ years prospective) was conducted at Civil Hospital, Aizawl, Mizoram from July 2013 to December 2014 (1 ½ 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, & occupation and who underwent for management of it at Civil Hospital, Aizawl.

**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 SPSS version 16.

### Results

**Table no. 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 fig. no. 1.**

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.

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.

For primary evaluation of Oesophageal cancer, routine blood investigations plus Upper GI endoscopy, Chest X-ray, Bronchoscopy, USG abdomen, CECT of abdomen & thorax, barium swallow were done.

On Upper GI endoscopy, most common site of growth found was middle third of the oesophagus (48.08%), followed by distal third of oesophagus (45.19%). 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.

Bronchoscopy was done in 54 patients among total 104 patients. In 9.26% patients were observed with tracheal indentation with narrowing and 3.7% patients were observed with trachea-oesophageal fistula.

Pleural Effusion and Pneumonitis (2.85%) was common findings over chest X ray.

Hepatomegaly with ascitis was common finding over USG (4.28%).

CECT abdomen showed abdominal lymphadenopathy in 28.84% of the patients. Among patients with abdominal lymphadenopathy on CECT abdomen, (27) 90% patients had perigastric lymphadenopathy, (2) 6.66% of the patients had periaortic lymphadenopathy and (1) 3.33% 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. Dilation of proximal part was present in 14.9% of the patients.

**Table no. 2** shows the treatment given to patients diagnosed with oesophageal cancer. Transhiatal Oesophagectomy (THE) + Gastric pull up (GPU) + Feeding Jejunostomy (FJ) was done in 37.5% of the patients, Transthoracic Oesophagectomy (TTE) + GPU+ FJ was done in the 29.81% of patients. Only feeding jejunostomy (FJ) was done in 22.12% of the patients and feeding gastrostomy (FG) was done in 1.92% of the patients. 8.65% patients could not tolerate surgery so nothing was done in them owing to very poor general condition.

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. This distribution of histopathological diagnosis is shown in **fig. no. 2**.

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.

Of the 70 patients who underwent oesophageal resection, on gross morphological examination of the specimen, 1/3 rd circumference involvement of the oesophagus was observed in 27.14% of patients, 1/2 circumference involvement was found in 22.86% of the patients. Full circumference involvement was observed in 25.71% patients and 3/4<sup>th</sup> circumference involvement was observed 24.29% of the patients.

Out of the total 95 patients operated for either oesophageal resection or feeding jejunostomy of gastrostomy and assessed for lymph node status, abdominal lymph nodes were affected in 31.58% of patients and mediastinal lymph nodes were affected in 21.05% of patients. Both were affected in 11.58% of patients.

Out of the total 95 patients operated for either oesophageal resection or feeding jejunostomy of gastrostomy and assessed for metastasis, metastasis to distant sites was present in 8.42% of the patients. Among the patients showing distant spread, metastasis to liver was seen in 7 (87.5%) of the patients and 1 (12.5 %) patients showed metastasis to peritoneum.

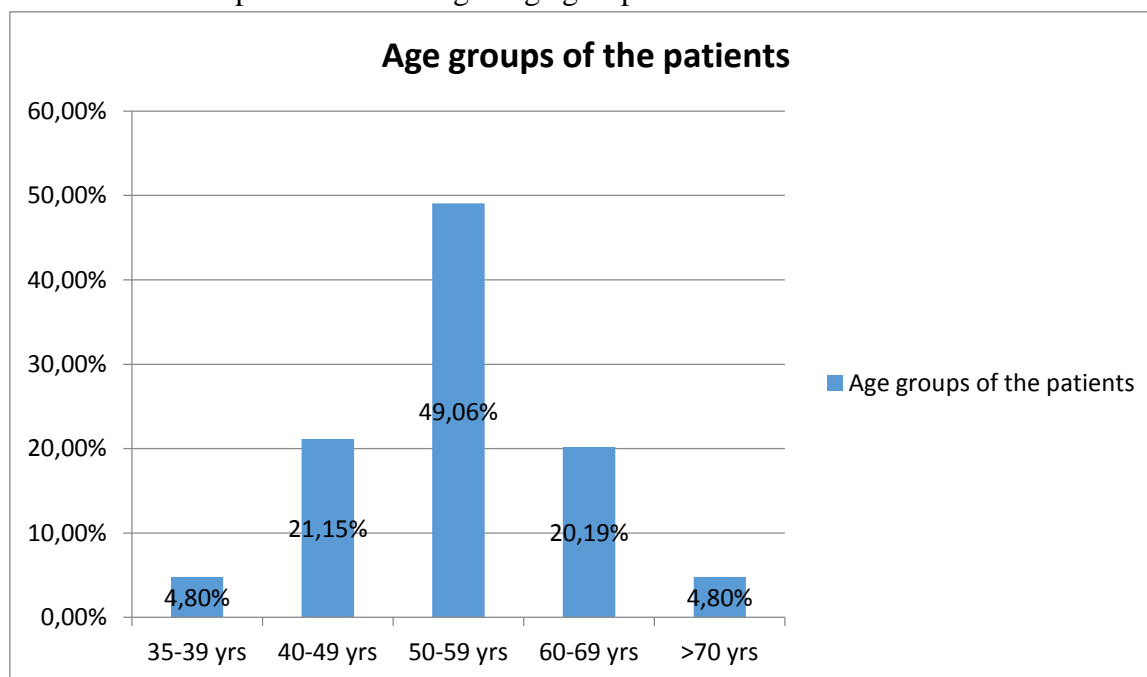
Out of the 67 patients who were diagnosed with malignancy on histopathological examination among the total patients of oesophagectomy examined histopathologically, based on The American Joint Committee on Cancer (AJCC) staging, instituted in year 1988 on TNM system, 20.90% patients were detected with 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 fig. no. 3**.

**Table no. 3** shows the post operative complications noted in patients. Death due to post operative sepsis was seen in 2 (1.92%) patients. Death due to cardiac arrest was seen in 7 (6.73%) patients.

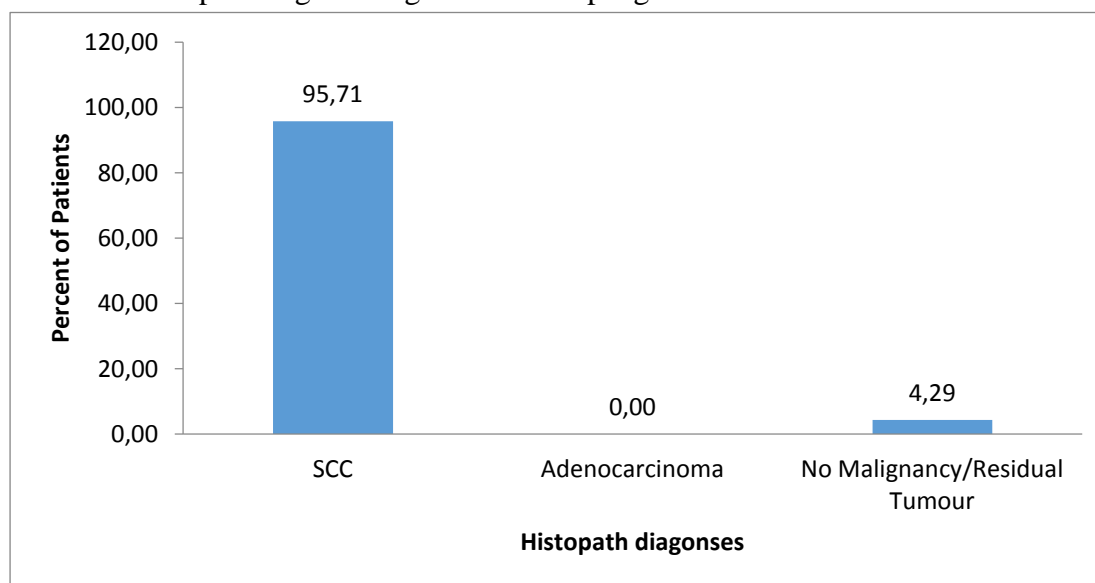
**Fig. no. 4** showed that out of the 25 patients operated for oesophageal resection in our prospective study period, only 14 (56%) patients came for follow up. Out of the patients came for follow up, 7 (50%) expired during follow up.

17 patients received neoadjuvant chemotherapy in the prospective study period. Among the patients receiving neoadjuvant chemotherapy, 1 (5.88%) patient received one cycle of neoadjuvant chemotherapy, 3 (17.64%) patients received two cycles, 8 (47.08%) patients received three cycles, 3 (17.64%) patients received four cycles and 2 (11.76%) patients received 6 cycles of neoadjuvant chemotherapy.

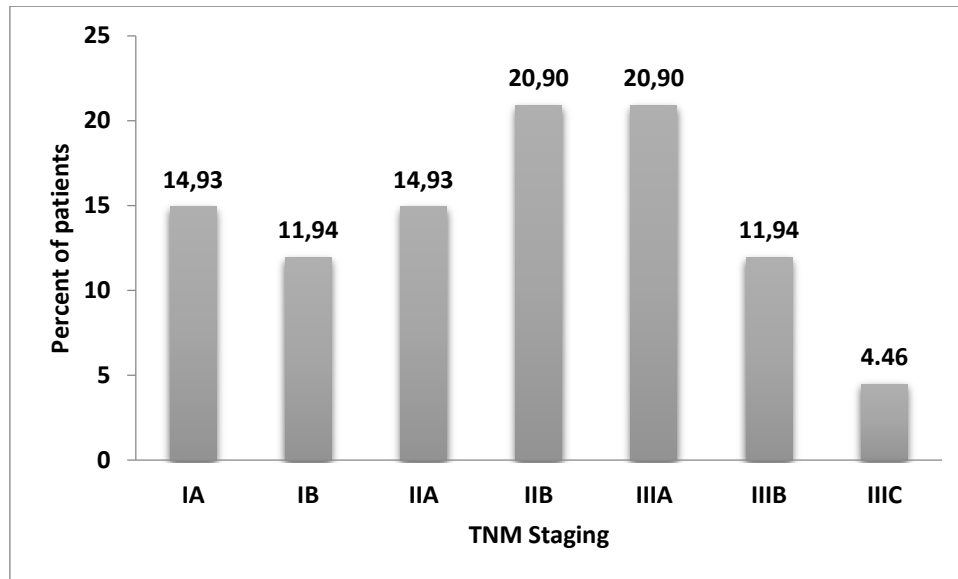
**Fig. No.1:** Distribution of patients according to age group.



**Fig. No. 2:** The final histopathological diagnosis of oesophageal resection



**Fig No. 3:** The TNM staging of patients



**Fig. No. 4:** Distribution of study subjects by follow-up analysis

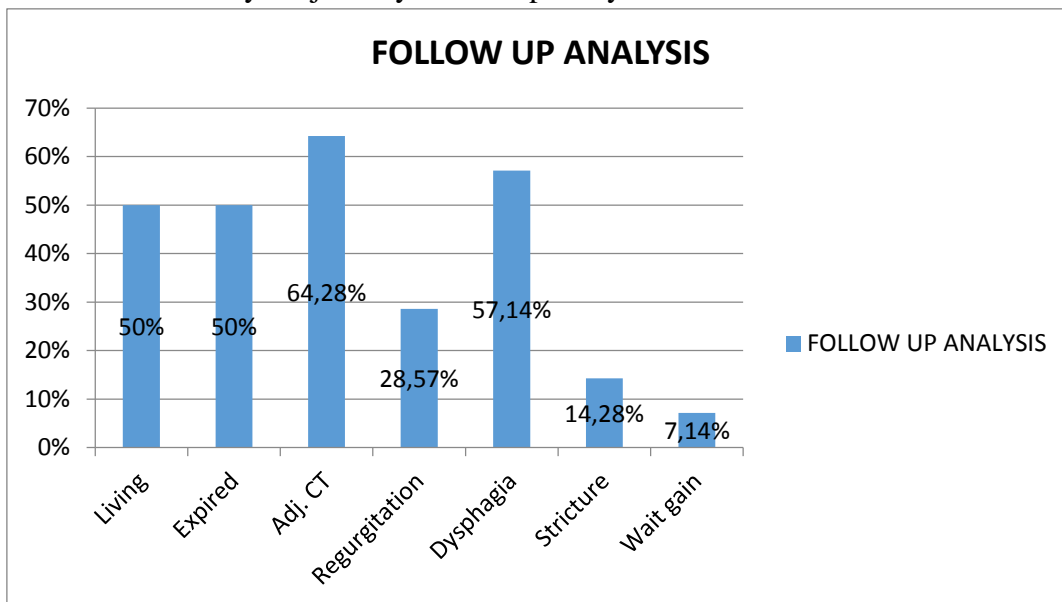




Fig. No 5: Oesophageal growth (Photo)



Table no. 1: Socio-demographic profile of patients (N=104).

Parameters	
<b>1. Age</b>	
Age groups (Years)	Percentage (%)
35- 39	4.80
40 – 49	21.15
50 – 59	49.06
60-69	20.19
>70	4.80
<b>2. Gender</b>	
Sex	Percentage (%)
Male	19.23%
Female	80.77
<b>3. Type of Religion</b>	
Religion	Percentage
Christian	99.03%
Hindu	0.97%

Table no. 2: Surgical management given to the patients

Treatment	Frequency	Percentage
THE+GPU+FJ	39	37.5
TTE+GPU+FJ	31	29.81
Feeding Jejunostomy	23	22.12
Feeding Gastrostomy	2	1.92
None(patient not tolerating surg)	9	8.65
Total	104	100

**Table no.3:** Observed complications in patients

Complications	Frequency	Percentage
death due to sepsis (post op)	2	1.92
death due to pneumonia	4	3.85
death due to cardiac arrest	7	6.73
anastomotic stricture (post op)	3	2.88
tension pneumothorax (post op)	1	0.96
pleural effusion (post op)	4	3.85
wound infection (post op)	1	0.96
hoarseness of voice (post op)	1	0.96
neck drain discharge (post op)	4	3.85
ICD leak (post op)	1	0.96
subcutaneous emphysema (post op)	1	0.96
ectopic beats (post op)	1	0.96
Pneumonitis (post op)	1	0.96

### Discussion

In our study mean (SD) age of patient was 54.19  $\pm$ 8.89 years whereas a study conducted by W. Hu et al -the mean age was 55.98yrs with SD of 9.16<sup>7</sup> and Jian Yang Ma et. al. the mean age was found to be 55.8yrs with SD of 5.2<sup>8</sup>. 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.<sup>9</sup>In a study conducted by Kritika Patel et al, the number of males who had oesophageal cancer was 92 (57.9%) and females were 67 (42.1%)<sup>10</sup> and W. Hu et al, males were found to be 57(67.9%) and female were found to be 27(32.1%).<sup>7</sup> 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 solids to was found 91.35% patients and history of progressive dysphagia to liquids was found in 42.3% of patients. In a study done by Hu W et al, progressive dysphagia to solids was found in 82 (97.6%) patients and no one with dysphagia to liquids.<sup>7</sup>Khan NA et al found that most common presentation was dysphagia to solids (90%).<sup>11</sup>

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 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.<sup>10</sup>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.<sup>7</sup> 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.<sup>8</sup>

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. Kritika Patel et al found that Squamous-cell carcinoma (SCC) accounted for 92.45% (147cases), while adenocarcinomas (ADC) accounted for 7.54% (12 cases) from the total of 159 cases.<sup>10</sup>In Ma JY 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.<sup>8</sup> In a study by Khan NA et al, 629 patients had SSC (92.5%) while 50 (7.35%) patients had adenocarcinoma.<sup>11</sup> 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.<sup>12</sup> Khan NA et al found that morphologically the lesion was ulcerative, infiltrative and polypoid in 24.5%, 20.14% and 16.17% respectively.<sup>11</sup>

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 D 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.<sup>13</sup>

Of the 25 patients operated for oesophageal resection in our study in the prospective study period, only 14 (56%) patients came for follow up. Of the patients came for follow up, 7 (50%) expired during follow up. Total of 9 (64.28%) patients from the followed up patients received adjuvant chemotherapy. None of the patients received adjuvant radiotherapy. 4 (28.57%) patients complained of regurgitation on follow up. 8 (57.14%) patients complained dysphagia to solids on follow up. None complained dysphagia to liquids. 2 (14.28%) of patients showed evidence of stricture on upper GI endoscopy on follow up. 1 patient (7.14%) was found to have gained weight and eating well after removal of feeding jejunostomy.

## Conclusion

Results of present study suggest that squamous cell carcinoma is the major histologic type found in esophageal cancer patients. Most of patients presented in advance stage and had grave prognosis. 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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