A CLINICAL STUDY AND SURGICAL MANAGEMENT OF CARCINOMA OESOPHAGUS AT KIMS, HUBLI
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ABSTRACT

BACKGROUND
Carcinoma oesophagus is aggressive tumour with poor prognosis occurring in mid to late adulthood with most cases presenting in the late stages. Surgical therapy remains the mainstay therapy. Survival rate varies from 10 to 45% depending upon the stage. Primary goal of palliation is restoration of swallowing, relief of pain and local control of disease.

The aim of the study is to study the-
1. Various clinical modes of presentation of oesophageal cancer and their correlates.
2. Outcome of the transhiatal oesophagectomy surgery.
3. Histopathological profile of the tumour.

MATERIALS AND METHODS
30 patients with oesophageal carcinoma (of lower one third) admitted at KIMS, Hubli, were enrolled. Data was collected using a pretested proforma. The cases were subjected to surgery (transhiatal oesophagectomy) after relevant investigations and confirmation of diagnosis by endoscopic biopsy.

RESULTS
Males are more commonly affected. Maximum incidence of disease was noted in 5th and 6th decades of life. 33.3% cases were tobacco chewers and 20% consumed alcohol. Dysphagia was the commonest presenting feature seen in all the 30 patients. Weight loss was present in 24 patients. Morphologically, 53.3% had ulcerative growth and 46.6% had ulceroproliferative growth of lesion. Most common postoperative complications was pneumonia and anastomotic leak. Postoperative mortality rate was 20%. Most common histological variety of carcinoma oesophagus was squamous cell carcinoma.

CONCLUSION
Smoking, tobacco chewing and alcohol consumption are important risk factors in development of carcinoma oesophagus. Larger study and regular follow up are required for long-term survival rate estimation.

KEYWORDS
Carcinoma Oesophagus, Dysphagia, Transhiatal Oesophagectomy.

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BACKGROUND
Carcinoma oesophagus is an extremely aggressive tumour with poor prognosis. It is the ninth most common carcinoma of all carcinomas in the world.1 It is a disease of mid-to-late adulthood. Variation in incidence occurs among the countries or even within the regions in a given country, especially among the male population. Most of the patients in our setup presents in the late stages. Considering the rate of blockage of stents and cost of procedure, more emphasis is laid on the surgical procedure, which gives long-term relief compared to other procedures.

Based on the current evidence, it would be correct to state that non-metastatic locoregional squamous cancer of oesophagus is currently best treated by surgical excision. It is also a fact that overall results and survival for resectional surgery remains poor as only 10 to 15% five-year survivals continue to be reported by most authors though the range varies from 10 to 45% depending upon the stage of the disease at which resection is performed.2

After several studies, controversy still exists regarding the operative management of carcinoma oesophagus even in Indian setup. Surgical therapy remains the main stay therapy for patients with resectable carcinoma both therapeutically as well as palliatively. Palliation is the primary goal for the patients with locally-advanced cancers and those with metastasis. Primary goal of palliation is restoration of swallowing, relief of pain and local control of disease.3 To achieve this, surgical resection gives best results in all forms of oesophageal cancers.1 Transhiatal Oesophagectomy (THE) is being performed increasingly in the resection of benign and malignant oesophageal disease and has several potential advantages over the transtrhachic
oesophagectomy due to the avoidance of thoracotomy and intrathoracic anastomosis.4

Aim of the Study
• To study the various clinical modes of presentation of oesophageal cancer and their correlates,
• To study the outcome of the transhiatal oesophagectomy surgery, and
• To study the histopathological profile of the tumour.

MATERIALS AND METHODS
A prospective study was conducted in Karnataka Institute of Medical Sciences, Hubli, from November 2014 to October 2015. 30 patients, below 72 years with cancer of lower one-third of oesophagus confirmed by endoscopic biopsy without distant metastasis were selected. Undiagnosed cases, patients unfit for surgery, patients with debilitating comorbidities, pediatric patients and those cases who did not consent for the surgery were excluded.

The patients were then subjected to a palliative surgery, transhiatal oesophagectomy to relieve pain and dysphagia. All the patients underwent elective surgery after the correction of anaemia, improvement of nutritional status and after thorough preoperative preparation. Vigorous chest physiotherapy by experts was given in the preoperative and postoperative phases. Board-spectrum antibiotics were given to all patients preoperatively, perioperatively and postoperatively.

All the patients underwent one stage transhiatal oesophagectomy with cervical oesophagogastrostomy, using gastric tube as conduit. Pyloroplasty was done in all the cases with feeding jejunostomy, bilateral intercostal drainage tube placed in cases, wherein pleura was ruptured. Operative and postoperative findings were recorded.

Results were analysed and expressed in numbers and percentages.

OBSERVATION AND RESULTS
Among the 30 cases of carcinoma oesophagus, 18 (60%) were male patients and 12 (30%) were female patients. The patient’s age ranged from 35 years to 72 years. The maximum incidence of disease was noted in 5th and 6th decade of life. The age distribution has been depicted in the following figure.

![Figure 1. Age Distribution of the Patients](image)

Most of the patients were from low and middle socioeconomic group. Dysphagia was the commonest presenting feature seen in all the 30 patients on admission. All the patients presented late with grade III dysphagia and above. Cough was present in 10 patients and most of them were chronic smokers. Anaemia was present in 14 patients, which was corrected preoperatively by giving good nutrition and blood transfusion. Weight loss was present in 24 patients (80%) loss of weight is found to be mainly due to inadequate nutrition because of dysphagia.

The important risk factors for the tumour were cigarette smoking, alcohol consumption, tobacco and betel nut chewing. The prevalence of these risk factors in the study population has been summarised in table 1. None of the study cases had comorbidities like diabetes mellitus or hypertension.

<table>
<thead>
<tr>
<th>Habits</th>
<th>No. of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarette smoking</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Alcoholism</td>
<td>2</td>
<td>6.6</td>
</tr>
<tr>
<td>Smoking + alcoholism</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Tobacco chewing</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>Betel nut chewing</td>
<td>2</td>
<td>6.6%</td>
</tr>
<tr>
<td>Use of pickled vegetables</td>
<td>30</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1. Distribution of Risk Factors in the Study Population

Preoperative laboratory investigation revealed that 8 patients (26.6%) were anaemic out of which 6 (20%) had moderate degree anaemia and 2 patients (6.6%) had severe degree anaemia Hb% of <6 g%. Adequate nutritional supplementation and blood transfusion was done. Anaemia was corrected and baseline Hb% was brought to 11 g% preoperatively.

Endoscopic oesophagastroduodenoscopy was done in all 30 patients. The findings of the endoscopy are summarised in table 2 below.

<table>
<thead>
<tr>
<th>Endoscopic Finding of CA Oesophagus of Lower Third</th>
<th>No. of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesion size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 cms</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>3 cms</td>
<td>14</td>
<td>46.6</td>
</tr>
<tr>
<td>4 cms</td>
<td>2</td>
<td>6.6</td>
</tr>
<tr>
<td>5 cms</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Morphology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulcerative</td>
<td>16</td>
<td>53.3%</td>
</tr>
<tr>
<td>Ulceroproliferative</td>
<td>14</td>
<td>46.6%</td>
</tr>
</tbody>
</table>

Table 2. Endoscopic Findings of the Cases

Abdominal ultrasonography was carried out in all 30 patients to rule out distant metastases by looking for:-
- a. Liver metastasis.
- b. Nodal involvement- upper abdominal nodes.
- c. Ascites.

CT lower thorax and upper abdomen was done only in 24 (80%) patients as rest of them could not afford for it. The CT was done to detect cancer spread into surrounding structure like bronchus, aorta, azygos vein, etc. and to detect metastasis in liver and lymph nodes.
While performing the transhiatal oesophagectomy surgery, the commonest intraoperative complication was blood loss, which was corrected perioperatively by blood transfusion. There was no perioperative mortality in our study.

The commonest postoperative complication we came across was pneumonia in 6 cases (20%). All these patients were smokers and had cough preoperatively. In spite of preoperative nebulisation and chest physiotherapy they developed pneumonia. That is out of 10 smokers (33.3%), 6 patients developed pneumonia postoperatively. This was corrected by postoperative antibiotic coverage, chest physiotherapy. Out of 6 patients, 4 died due to respiratory distress syndrome.

Anastomotic leak of the cervical anastomosis was next complication confronted in 4 of 30 patients (13.3%). Drain removal and oral intake was delayed in these patients.

Stricture of the cervical anastomosis was seen in 1 patient (6.6%), which was dilated endoscopically and the patient was taught self-dilatation by using inflated balloon of Foley’s catheter. Mediastinitis was seen in 2 patients (6.6%), which was treated with broad-spectrum antibiotics.

Anastomotic leak of the cervical anastomosis was next complication seen in 4 of 30 patients (13.3%). Drain removal and oral intake was delayed in these patients. Out of 6 patients, 4 died due to respiratory distress syndrome.

Arrhythmias/cardiac arrest

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All the cases were diagnosed based on histopathological report of-

a. Endoscopic biopsy.
b. Gross specimen.

The histopathological profile of the tumours is as follows-

Out of 30 cases, 28 were squamous cell carcinoma (93.3%) and 2 cases were found to be adenocarcinoma (6.6%). Out of 28 cases of squamous cell carcinoma, 20 cases (71%) were moderately-differentiated squamous cell carcinoma and 8 (28.5%) were well-differentiated squamous cell carcinoma.

**DISCUSSION**

The aim of the present study is to evaluate surgical management of carcinoma oesophagus lower third in the form of peroperative and immediate postoperative complications. Worldwide, there is increasing incidence of oesophageal malignancy with a remarkable geographical variety in pathology. Disease is advanced in majority of cases at the time of presentation. Incidence of adenocarcinoma is increasing at a rate exceeding that of any other neoplasm, which was 10% during 1980s.5

It is more in males than females because of habits. Epidemiological evidence has strongly implicated alcohol and tobacco consumption as predisposing factors for squamous cell carcinoma of oesophagus. Tobacco is one of the most important sources of nitrosamines by products of which are potent carcinogens. This risk is dose related with ex-smokers showing reduced risk as compared to current smokers. Paradoxically, smoking does not seem to play an important role in pathogenesis in high-risk areas of the world where dietary and environmental factors seem to predominate. In these areas, ingestion of a diet containing high levels of secondary amines such as fermented fish, fungus infested corn and pickled vegetables may be more prominent factor.6

Consumption of alcohol has also been strongly associated with oesophageal squamous cell carcinoma in America and Europe.7

Palliation is the primary goal in patients with advanced local cancers. Primary goal of palliative surgery is restoration of swallowing and relief of pain. Resection is the best form of palliation. The incidence of oesophageal stricture both benign and malignant is very less in surgery when compared to radiotherapy.

Transhiatal oesophagectomy can be performed with minimal morbidity and it is better tolerated physiologically and is preferred in patients with respiratory disease. Transhiatal oesophagectomy can be performed in most patients who need oesophageal resection and it can be done with greater safety and fewer complications than traditional transthoracic approaches.

We evaluated patients keeping in mind the limitation of our setup, the financial status of our patients and using the minimum possible investigations to get maximum information.

As a whole, the postoperative complication rate is 46.6%, which is slightly higher compared to Orringer study (27%).

Pneumonia was commonest complication encountered in 6 patients (20%) and our results coincided with the study of Parker et al and was seen in smokers who had preoperative cough. In spite of chest physiotherapy and nebulisation done pre and postoperatively.

Anastomotic leak was another complication seen in 4 patients (13.3%), which is similar as that of Orringer study and study done by Bardini et al wherein leak were 13% and 12%, respectively. Anastomotic leaks were minor leaks as per the definitions of leak adopted by surgical study group of UK. All the anastomoses done were hand sewn. Drain removal and oral intake was delayed in these patients.

Stricture of the cervical anastomosis was seen in one patient (6.6%), which is dilated endoscopically and patient was taught self-dilatation using Foley’s catheter. Postoperative mortality was 20% (6 cases), 2 patients died due to mediastinitis in spite of treatment and another 4 patients died due to pneumonia. There was no intraoperative mortality in our study.

The preoperative cough, which was resultant of smoking and tobacco chewing was responsible for postoperative pneumonia in spite of chest physiotherapy and nebulisation.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Anastomotic leak</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Stricture</td>
<td>2</td>
<td>6.6</td>
</tr>
<tr>
<td>Mediastinitis</td>
<td>2</td>
<td>6.6</td>
</tr>
<tr>
<td>Recurrent laryngeal nerve injury</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chylothorax</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Arrhythmias/cardiac arrest</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>46.6</strong></td>
</tr>
<tr>
<td>Death</td>
<td>6</td>
<td>20</td>
</tr>
</tbody>
</table>

**Table 3. Postoperative Complication**
The anaemia and malnutrition was responsible for anastomotic leaks as both patients were severely anaemic and malnourished preoperatively. There was an overall less complication rate with adenocarcinoma.

CONCLUSION
In our study of 30 cases of carcinoma oesophagus studied over a period of one year at KIMS, Hubli, following conclusion were drawn. Dysphagia was the most common symptoms at the time of presentation. The maximum incidence of disease was noted in 5th and 6th decade of life. Males were more commonly affected compared to the female. Smoking, tobacco chewing and alcohol consumption appears to be the risk factors in development of carcinoma oesophagus.

As most of the patients presented very late, more emphasis is laid on surgery for palliative bypass. All the patient included in the study underwent transhiatal oesophagectomy procedure. As transhiatal oesophagectomy is safe and well tolerated for the treatment of carcinoma oesophagus when done with care. Avoidance of thoracotomy, adequate longitudinal clearance, cervical anastomosis and short operating time are its main advantages.

The most common postoperative complication are pneumonia and anastomotic leak. Postoperative mortality rate was 20% (6 cases). In our study, the most common histopathological variety of carcinoma oesophagus is squamous cell carcinoma. All patients of carcinoma oesophagus lower third, surgery is the ideal technique in the form of transhiatal oesophagectomy for cure as well as palliation. Larger study and regular long-term follow up are required to evaluate the results of long-term survival after surgical management of oesophagus to draw concrete conclusions.

REFERENCES