

TRANSHIATAL OESOPHAGECTOMY IN LOW AND MID OESOPHAGEAL CANCERS - A PROSPECTIVE STUDY

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ABSTRACT

BACKGROUND

Among the least studied cancers, oesophageal cancer is one. With the recent advances in technology, cancer oesophagus has diverted attention of many researchers as changes have occurred in the epidemiologic patterns associated with disease.

MATERIALS AND METHODS

Our study was performed as prospective study to look for the clinical and surgical profiles of patients undergoing surgery through transhiatal route. Patients initially were managed and monitored in post-operative high dependency ward for 48 hours and then shifted to general surgical ward and managed until their whole hospital stay. All patients were seen at the outpatient clinic at intervals of one week during first month and two weekly over the next two months and then monthly thereafter.

RESULTS

In our study, more than one symptom and more than one risk factors were encountered. Out of a total of 30 patients, most patients have fallen between 50 and 70 years with mean age of patient was 62.1±8.6 in years, showing the male female ratio in patients diagnosed with carcinoma oesophagus where more than 60% patients were males. Anastomotic leak was commonly encountered in those patients with serum albumin of less than 3 gm/dl. Duration of surgery with most falling in 201-250 minutes range with mean operating time of 213±53.8 mins.

CONCLUSION

From this study we found that carcinoma oesophagus is common in Kashmir with dysphagia was the most common symptom and regional dietary habit contributes a lot to the high prevalence of carcinoma oesophagus in Kashmir. Transhiatal oesophagectomy with intrathoracic gastric placement together with cervical anastomosis is a procedure with less surgical trauma and fewer respiratory complications.

KEYWORDS

Oesophagectomy; Albumin; Anastomosis; Chylothorax.

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BACKGROUND

Cancers arising from the oesophagus are usually not that common in United states including cancers arising from oesophageal junctions with 13900 new cases and 13000 deaths anticipated in 2003.¹ The overall risk for men and women is 0.8% and 0.3% respectively.² As the age increases the lifetime risk also increases.³ Adenocarcinoma and

squamous cell cancer contributes to 90% histopathological variant of this malignancy.³ Among the leading cause of deaths worldwide oesophageal cancer stands at sixth position.⁴ Whereas Adenocarcinoma is mostly found in distal oesophageal malignancies but squamous cell is mostly distributed in middle and lower third of Oesophageal malignancies.

Aetiology and Risk Factors

Studies has revealed increased risk of cancer oesophagus with smoking cigarettes.^{5,6} The cause of malignancy due to smoking is contributed to nitrosamines which in contact with oesophageal mucosa causes cancer.⁷ Prior history of radiation to mediastinum as a therapeutic modality for the treatment of breast, lymphoma etc is also a predisposing factor causing cancer oesophagus.⁸

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Transhiatal Esophagectomy

In 1978, Marc Orringer ushered in the modern era of transhiatal esophagectomy with the presentation of the paper, "Esophagectomy without Thoracotomy," The ensuing discussion provided many references to the early history of oesophageal surgery. Ronald Belsey indicated that he was very interested in this "essay on blind surgery and Orringer's expedition into the dark Ages. Others recalled their memories of surgical history by referring to long forgotten pioneers of trans mediastinal esophagectomy without thoracotomy.⁹

Aims and Objectives

- To Study the clinical and surgical profile of oesophageal Cancer.
- To see peri-operative events and Complications of Transhiatal esophagectomy.

MATERIALS AND METHODS

This study was conducted in the Department of General Surgery, Government Medical College Srinagar (performing more than 30 esophagectomy procedures per year).

Inclusion Criteria

- Histologically confirmed carcinoma of the mid-to-distal oesophagus.
- Carcinoma of the gastric cardia involving the distal oesophagus.
- No evidence of distant metastasis.
- Should not have unresectable local disease.
- Patients older than 18 years of age.

Exclusion Criteria

- Previous or coexisting cancer.
- Previous gastric or oesophageal surgery.
- Recurrent laryngeal nerve palsy.
- Extension of the tumor that made it impossible for the surgeon to construct a gastric tube.

The preoperative diagnostic workup consists of all baseline investigations were done-

Transhiatal Esophagectomy

Esophagectomy is performed in 4 phases.

- Initially, the abdomen is opened and assessed for metastasis and resectability. The stomach is mobilized in preparation for resection.
- In the second phase, the oesophageal hiatus is widened, and mediastinal oesophagus is mobilized.
- In the third phase, through a cervical incision, the cervical oesophagus is mobilized, and upper mediastinal dissection is performed.
- Finally, the oesophagus is resected, and a stomach tube created. The stomach tube is brought up in the neck and esophagogastric anastomosis is done.

Postoperative Management

Patients initially were managed and monitored in post-operative high dependency ward for 48 hours. The patients were then shifted to general surgical ward and managed until their whole hospital stay. All patients were seen at the outpatient's clinic at intervals of one weeks during first month and two weekly next two months and then monthly thereafter. The follow-up data was also obtained telephonically from the patient or his or her family. The patients were looked for any procedure related complication or recurrence during his or her follows up. Whenever a relapse was suspected on clinical grounds, radiologic, endoscopic, or histologic confirmation was sought.

RESULTS

Presenting complaints in our study with carcinoma oesophagus reveals that more than one symptom were present in patients where dysphagia, weight loss were the predominant symptoms. Risk factors encountered in patients with carcinoma oesophagus, more than one risk factors were present in some patients. Out of a total of 30 patients, 24 (80%) were from rural areas while as only 6 (20.0%) belonged to urban area. The incidence of carcinoma oesophagus and most patients have fallen between 50 and 70 years with mean age of patient was 62.1±8.6 in years. Male female ratio in patients diagnosed with carcinoma oesophagus where more than 60% patients were males. Showing relationship between the albumin and anastomotic leak with P value is <0.001 (significant). Anastomotic leak was commonly encountered in those patients with serum albumin less then 3gm/dl.

Presentation in Patients

Presenting Complaints	Number (n=30)	Percentage
Dysphagia	25	83.3
Weight loss	10	33.3
Heart burn	9	30.0
Odynophagia	3	10.0
Regurgitation	1	3.3
Early satiety	2	6.66
Non-specific	4	13.3

Table 1

Table 1 showing presenting complaints in patients with carcinoma oesophagus, more than one symptom were present in patients where dysphagia, weight loss were the predominant symptoms.

Risk Factors	Number (n=30)	Percentage
Heavy intake of red meat	30	100
Hot tea and Kehwa	28	93.33
Spicy food	25	83.33
Sun dried and smoked fish	20	66.66
Smoking (Hukkah/cigarettes)	19	63.3

Dried and pickled vegetables	22	73.33
Reflux dyspepsia / oesophagitis	13	43.33
Family history of carcinoma	2	6.6
Alcohol intake	1	3.3
Table 2		

Table 2 showing risk factors encountered in patients with carcinoma oesophagus, more than one risk factors were present in some patients.

Age Group (Years)	Number (n=30)	Percentage
< 40	0	0
41 – 50	3	10.0
51 – 60	10	33.3
61 – 70	13	43.3
>70	4	13.4
Total	30	100.0
Table 3		

Table 3 showing age distribution with respect to the incidence of carcinoma oesophagus and most patients have fallen between 50 and 70 years with mean age of patient was 62.1±8.6 in years.

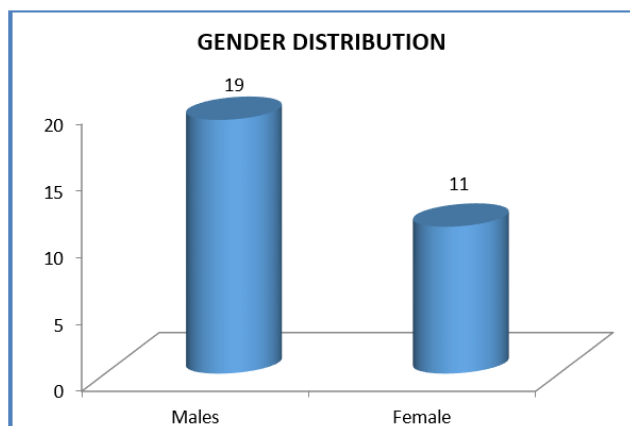


Figure 1

Figure 1 showing the male female ratio in patients diagnosed with carcinoma oesophagus where more than 60% patients were males.

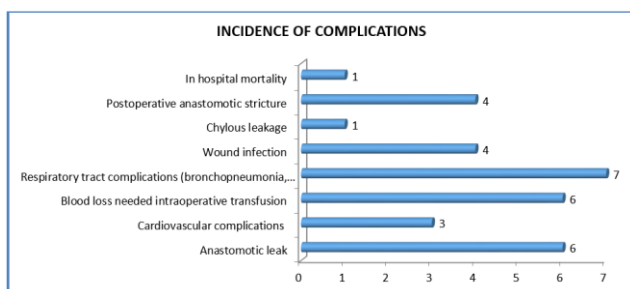


Figure 2

Figure 2 showing complication with their incidence, anastomotic leak and respiratory complication were commonly seen.

DISCUSSION

Among the various procedures done for cancer oesophagus transthoracic and Transhiatal esophagectomy are widely performed and literature confers no statistical differences between the two but there are many reports where its been said that transthoracic approach is associated with higher rates of complications especially respiratory.¹⁰ Taking into consideration the rates of complications associated with transthoracic approach the Transhiatal is usually now preferred over the past 20 years as the procedure of choice for patients with infracarinal cancer of the oesophagus as either curative or palliative surgery.¹¹ In our study of transhiatal esophagectomy as treatment modality for mid and lower oesophageal cancers, we observed followed parameters:

Regarding the presentation (Table 1) we found more than one symptoms were present in all the patients undergoing Transhiatal esophagectomy. Dysphagia as a symptom was present in 25 patients (83.3%). Significant weight loss was present in 10 patients (33.3%). Dysphagia and weight loss were the presenting features in many studies. Both were described as usual symptoms in one study by Gurkan et al,¹² Steven H. Lin, Joe Y. Chang¹³ in their study recognized the most common presenting symptoms of patients with oesophageal cancers are dysphagia and weight loss, occurring in nearly 90% of patients.

Almost whole of Kashmiri population consume meat in good proportions 30/30 patients (100%). Almost all the patients gave history of ingestion of tea, kehva, red meat, smoked-dry fish and spicy food has already been described as a risk factor for oesophageal and gastric carcinoma in Kashmir by Khuroo et al.¹⁴ In Kashmir the most commonly served tea is hot Salted tea apart from causing thermal injury to Oesophageal mucosa and addition of Common salt is a well-known irritant of gastric epithelium and has been considered a risk factor for gastric cancer.¹⁵ Another dietary habits of Kashmiri population is use of sun dried vegetables in winters which contains N-nitroso compounds.¹⁶ In addition of these dietary habits the other contributor of this malignancy is the use of Red chilies which also contains substantial amount of N-nitroso compounds.¹⁷ About 83.3% (25/30) of people gave history of ingestion of heavy spicy food and 66.6%% (20/30) patients gave history of chronic ingestion of sun dried and smoked fish (Table 2). Smoking as a risk factor was present in more than half number of patients 63.3% Wu AH⁷ concluded that among independent risk factors for cancer oesophagus cigarette smoking and high body mass index are significant one. Brown LM⁸ in their study postulated that regarding the aetiology of cancer oesophagus combination of four major risk factors – Alcohol intake, consumption of raw fruits, vegetables, low-income and tobacco intake accounts for almost 98% squamous cell cancers in Whites and 99% of Black population.

Most of the patients admitted were from rural areas with predominance of male>female population (Figure 1). Wanqing Chen et al¹⁸ in their population-based cancer registries reported that the burden of oesophageal cancer remained high in China, especially for males in rural areas.

Most of the patients were between 50 and 70yrs with mean age between 62±8 years (Table 3), Nin T et al¹⁹ in his study had also mean age of 64 with SD of ± 12 which is almost similar to our study.

Patil and colleagues²⁰ reported a positive correlation between anastomotic leakage and an albumin level less than 3 g/dL. In our study, serum albumin in patients with anastomotic leak was statistically significant. (P =0 .0001).

Mid oesophagus was mostly involved 53% in THE group followed by distal oesophagus 33%.^{3,21} Abbas Tabatabai²² in their study found 50.7% (31/61) of the patients, tumours were detected in the middle one third part of the oesophagus which is comparable to our study. The mean operating time was 213±53 minutes which in comparison with study conducted by Chu KM²³ is more this is attributed to the fact that handsewn anastomosis was done in our study without the use of stapler. Mean blood loss in our study was 750ml with S.D. ± 50ml, Orringer²⁴ in his study comprising of 100 patients also had mean blood loss of 880 ml which is comparable with our study.

Most of the patients operated were found to have TNM stage III (stage III 66% stage I-6.6% and II 26.6%). The patients having stage I disease were far less than that described in literature because stage I patients are usually asymptomatic and routine screening is not possible in our set up and most of the patient presents in late stage of their illness.²⁵

Based on HPE of the specimen most of were squamous cell ca, (80%) and 20% were adenocarcinoma which is also shown by the study conducted by Law S et al²⁶ showed the squamous cell variant is the predominant histology.

Post-operative complications (figure 2): In our study perioperative cardiac events like arrhythmias were noted in 3 patients which required medication this was usually seen those patients with underlying cardiovascular comorbidity and also attributed to the fact the cardiac stress induced by surgery and toxic effect of drugs used perioperatively and direct compression while doing mediastinal dissection. Among three, two had atrial fibrillations and the other suffered from atrial flutter and both were managed medically. Mohammad I et al²⁷ in his study stated Post-operative cardiac complications occurred in 36.8% during the first post-operative week, which is more as compared to our study which is due to the fact that less number of patients enrolled in our study, however percentage of patients suffering from intra operative atrial fibrillations and atrial flutter are comparable.

About 13.3% patients developed post-operative anastomotic strictures, study conducted by Stark et al²⁸ which showed comparable results with our study. Most patient developed stricture after six months, they presented as dysphagia subsequently diagnosed by endoscopy and were managed by endoscopic dilatation. Respiratory complication were noted in from mild to severe 23.3% which were subsequently managed conservatively. In study conducted by Rahul et al²⁹ respiratory complication were noted in 24% of patients which is almost comparable to our study. wound infections and chyle leak were seen in 13.3%

and 3.3% respectively, study by Rahul et al²⁹ showed wound infection in 8.8% which is higher in our study which is attributed to the fact that chance of infection is high in our setup compared to developed country and was managed conservatively and chyle leak in 2.1% which is comparable with our study it was mild leak diagnosed in immediate post-operative periods during 1 week and was also managed conservatively.

Mortality varies in literature from 0 to 27% which decrease with increasing experience³⁰ Rahul and Coworker²⁹ showed 6.3% mortality from literature (from 1986 to 1996) which is less in our study (only one case) which may be attributed to the fact that number of patients were less in our study and long-term mortality was not seen in our study because prolonged follow up was not possible and study period was less compared to other studies done in literature. Mean hospital stay was 14.3±3.3 in our study which Abbas Tabatabai et al²² showed in his study was 12.5 ± 8.11 days which is comparable with our study.

Summary

The study was conducted in the department of Surgery Government medical college Srinagar between May 2014 and September 2016 a total of 30 patients were assigned to treatment undergoing THE surgical approached. Our study was performed as prospective study to look for the clinical and surgical profiles of patients undergoing surgery through Transhiatal approach and to determine the outcome of this approach. In this study we observed that;

- More than one symptom were present in all patients diagnosed with Carcinoma Oesophagus, Dysphagia as a symptom was present in 25 patients (83.3%). Significant weight loss was present in 10patients (33.3%).
- Almost all the patients gave history of ingestion of tea, kehva, red meat, smoked-dry fish and spicy food. Smoking as a risk factor was present in more than half number of patients 63.3%.
- Most of the patients admitted were from rural areas with predominance of male >female population.
- Serum albumin in patients with anastomotic leak was statistically significantly (P = .0001).
- Mid oesophagus was mostly involved 53% in THE group followed by distal oesophagus 33%.
- Most of the patients operated were found to have TNM stage III (TTE 66% stage I- 6.6%and II 26.6%).
- Based on HPE of the specimen most of were squamous cell ca, (80%) and 20% were adenocarcinoma.

CONCLUSION

From this study we found that carcinoma oesophagus is common in Kashmir with dysphagia as the most common symptom and regional dietary habits contribute a lot to the high prevalence of carcinoma oesophagus in Kashmir. Transhiatal oesophagectomy with intrathoracic gastric placement together with cervical anastomosis is a procedure with less surgical trauma and fewer respiratory complications. There is a strong relationship between serum albumin and anastomotic leak. So, we recommend

correcting nutritional status of patients before subjecting the patient to surgery.

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