

## Self- expanding metal stents as a palliative method of treatment in Carcinoma esophagus

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### **Abstract:**

#### **Background:**

Carcinoma esophagus arises from the inner lining of the oesophageal lumen. It can be either squamous cell carcinoma or adenocarcinoma. Squamous cell carcinoma arises from upper and middle parts of esophagus and adenocarcinoma arises from the lower parts and of them squamous cell is most common. Most patients present in late stage and palliative care is the only choice of treatment in such patients. Palliative therapy includes chemotherapy, brachytherapy, stent insertion, radiotherapy etc. Stent insertion is considered more effective in providing symptomatic relief to the patients. Stents are of plastic as well as metal and also are available as uncovered, partially covered and fully covered stents. Self- expanding metallic stents is one such method of palliation which is considered to relieve the patients of symptoms of dysphagia due to malignant obstruction. But some studies say that it's a long process and requires expertise and chance of recurrence of dysphagia is common. Hence in this study the role of under vision deployment of stents is studied.

**Material and method:** A prospective randomized study was done, comprising of 50 patients who consented for participation. The procedure of stent deployment was done with under vision and under C-arm vision and the outcome of post procedure complications compared and documented on follow up at 1 month and 3 month duration.

**Results:** The mean age of presentation was 63 years with predominantly male patients. The rate of complications were studied. There was a statistically significant reduced rate of complication in under vision stent deployment procedure as compared to those deployed by C-arm.

#### **Conclusion:**

The under vision deployment of stent is safe and less time consuming procedure of stent deployment.

**Key word:** squamous cell carcinoma, adenocarcinoma, self-expanding metallic stent

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### **I. Introduction:**

Patients presenting with dysphagia need to be evaluated for the causes thoroughly. They can occur due to motility disorders or achalasia or strictures or due to malignancy. Esophageal malignancy is the 8<sup>th</sup> most common malignancy in the people in India. The most common form of presentation is squamous cell carcinoma (1). Adenocarcinoma can also be present (0.12%) mostly in the lower thirds of the esophagus. The patients mostly present with dysphagia and in the late stages of the disease to the clinic. Thus, the palliative care is the only mode of treatment. Earlier, chemotherapy and radiotherapy was the option available post which these modalities had their own complications and duration of treatment required was also long. Some other modes of palliative care are brachytherapy, laser ablation, stents placements, etc. (2) Stents placements were considered to relieve the symptoms of dysphagia of the malignant obstruction in esophagus. The stents are of different types fully covered, partially covered, uncovered metallic stents, and plastic stents also. The use of self-expanding metallic stents to cure the symptoms of malignant disease is controversial. Hence the aim of the study is under vision deployment of partially covered SEMS as a palliative treatment for carcinoma esophagus.

### **II. Aim:**

Under vision deployment of esophageal partially covered self-expanding metallic stent as a palliative treatment for carcinoma esophagus.

### III. Material and methods:

- a) Place of study: MGM medical college and hospital,navi Mumbai
- b) Type of study: prospective, randomized study
- c) Sample size:50
- d) Duration of study: 5years
- e) Sample size collection :  $4Z\alpha^2P(1-P)/W^2$
- f) Study location: MGM Hospital ,Navi Mumbai.
- g) Analysis :The patients presenting to gastroenterology OPD in MGM Hospital kamothe ,Navi Mumbai were taken into consideration.Of these, those having malignant changes in oesophagus were considered for stents deployment in two groups, under vision and with C-arm.

• **Inclusion criteria:**

1. All patients with esophageal malignancy
2. Lower part of upper 1/3<sup>rd</sup>, middle 1/3<sup>rd</sup>, lower 1/3<sup>rd</sup> part of esophagus having carcinoma.

• **Exclusion criteria:**

1. Age <18 years
2. Strictures due to corrosive injury
3. Post anastomosis
4. Achalasia cardia
5. Benign strictures causing blockage or narrowing of esophageal lumen.

• **Procedure and methodology :**

i Under sedation,Upper gastrointestinal endoscopy (UGI scopy)done and it was found that scope could not be negotiated through the lumen, the oesophagus viewed and guide wire passed upto stomach and tip of terminal end of spring of metallic guide wire confirmed by portable x-ray. The lumen of the esophagus visualized and assessed for need of dilatation.

ii The lumen dilated with buggies and balloon adequately and over the guide wire the stent deployer loaded and stent passed through for deploying and fixed 1-2 cm proximal to the growth, under vision.

iii The scope withdrawn and again inserted to check the proximal end of the stent. Xray done to assess the placement of the stent AP and lateral views.

iv The endoscopy repeated after 24 hours and the stent position assessed. Follow up done at 1month and 3 month after the stent placement.

v With C-arm:

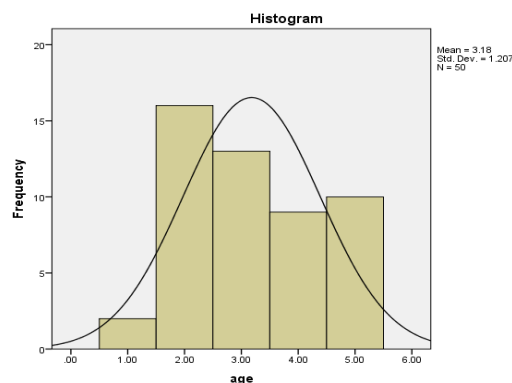
Under sedation, UGI scopy done and the upper limit of growth identified.

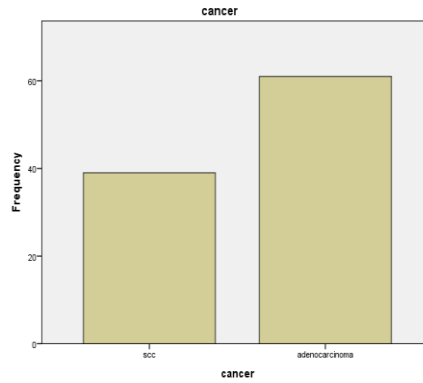
The lumen assessed for the passage of scope and decision for dilatation taken.

After assessing, under C-arm a metallic marker kept over chest at the upper limit of tumor with the help of scope and scope removed and after loading the deployer with SEMS introduced over the guide wire. SEMS under C-arm deployed 1cm above the metallic marker and the position of stent is reassessed by introducing scope.

### IV. Results:

The analysis of the follow up data was as follows:





		cancer	age	procedure
N	Valid	100	50	100
	Missing	0	50	0
Mean		1.6100	3.1800	1.3300
Median		2.0000	3.0000	1.0000
Mode		2.00	2.00	1.00
Std. Deviation		.49021	1.20695	.47258
Percentiles	25	1.0000	2.0000	1.0000
	50	2.0000	3.0000	1.0000
	75	2.0000	4.0000	2.0000

The mean age of presentation was 63 years with more prevalence in males. The chisquare test was applied to analyse the data and the results obtained were graded based on significant P value<0.05.

As per the results:

1. The occurrence of chest pain is same at 1month and 3 month in both the procedures.
2. Whereas the occurrence of dysphagia regurgitation and blockage and migration is more with C-arm then with under vision.
3. It was found that under vision deployment, reduces the chances of migration of stent.



[ **Figure 1.** Pre procedural malignant lesion]



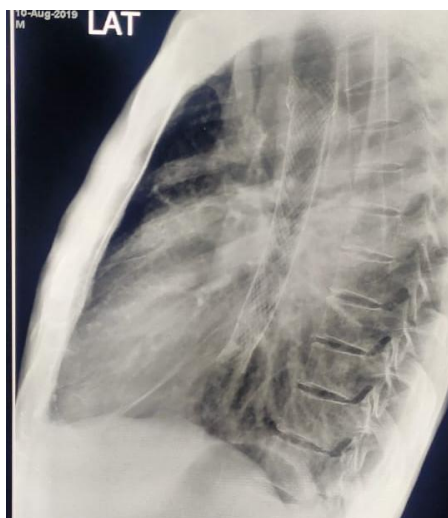
[**Figure 2.** Inter procedural with stent deployer under vision]



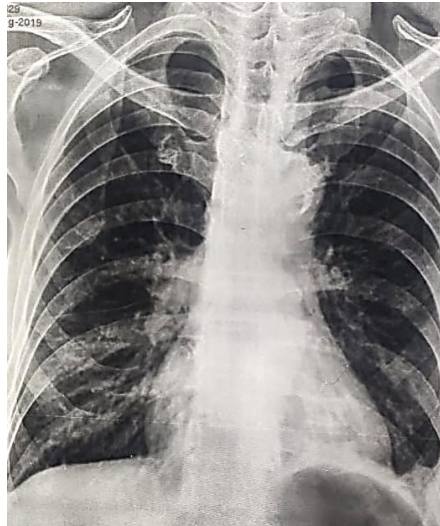
[Figure 3. Post-procedure follow up after 3months]



[Figure 4. Migrated stent into stomach]



[Figure 5. Lateral chest X-ray after stent deployment]



[Figure 6. Antero-posterior view of chest X-ray after stent deployment]

### **V. Discussion:**

Carcinoma esophagus comprises of only 1% of all cancers in the world. More common in men than women. It arises from the inner lining of the oesophageal mucosa. Squamous cell carcinoma is more common than adenocarcinoma in India. Cancer of middle part is more common which is then followed by distal part of the oesophagus. It is usually detected in late stages as the patients present late when the tumor grows and invades and presents with obstructive symptoms which accounts for about the two third of the presenting patients. Dysphagia remains the main presenting symptom and to relieve it is the primary goal of the treatment in advance condition of the disease. Thus palliative treatment remains the choice of therapy for such patients to relieve the symptoms. Among the different modalities available for palliation SEMS is considered to be one of the ways of relieving patients symptomatically. Of the different types of SEMS available covered metallic stents are considered to be better. While placing the stents certain challenges that are faced are when there are strictures in upper esophagus or tortuous strictures passages. But still the mean dysphagia score post use of SEMS was found to decrease in a case control study. Also the polyflex and the plastic stents used showed a high recurrence of dysphagia due to stent migration. Whereas the metallic stents when coated with other components showed to increase the rate of complication and failure of the procedure. And there is a significantly higher rate of complication with self-expandable plastic stents as compared to metallic ones. Hence SEMS are considered to be the most commonly used modality of choice in palliative treatment.<sup>(3,4,5)</sup> The rate of mortality and the complications was less related to procedure of SEMS placement and rate of any adverse event is also low<sup>(6)</sup>. But as per the literature fluoroscopic and endoscopic methods of SEMS placement carry same benefits<sup>(7)</sup> SEMS is technically compliant and brings immediate relief from symptoms which has made it a treatment of choice. Also the duration of procedure is reduced and requires less manpower<sup>(8)</sup> The rate of reinterventions is also less<sup>(9)</sup>. As per our study under vision deployment is the most effective method of SEMS deployment as the rate of complications is less on follow up screening. There is less occurrence of stent migration. The patients showed symptomatic improvement.

### **VI. Conclusion:**

The under vision deployment of the self-expanding metallic stents is safe and less time consuming. Also the symptomatic improvement leads to the increase in disability adjusted years for the patients presenting in late stages of the disease. The under vision deployment of stents also reduces the chance of reintervention and complication and has more shown to be more effective in lower 1/3rd part of oesophagus malignancy.

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