

A Case Series Analysis of Complications of Malignant Dysphagia Treated by Self-Expanding Metallic Stent**James Thiek¹, Mrinmoy Talukdar², Evanisha Marbaniang³, Akash Guha⁴**¹Consultant, Department of CTVS, PTMH²Associate Professor, Department of CTVS, Assam Medical College & Hospital, Dibrugarh, Assam, India³MCh Resident, Department of CTVS, Gauhati Medical College & Hospital, Assam, India⁴MCh Resident, Department of Surgical Oncology, BBCI, Guwahati, Assam, India

Received: 01-06-2026 / Revised: 15-07-2026 / Accepted: 21-08-2026

Corresponding author: Dr. James Thiek

Conflict of interest: Nil

Abstract

Background: For patients of carcinoma oesophagus post chemoradiation and those with tracheoesophageal fistula or those patients considered unfit for any modality of treatment owing to gross systemic impairment, self-expanding metallic stents offer a good modality of palliation for dysphagia. Historical data suggests that oesophageal stents have been used for palliation of malignant dysphagia in the past. But these were usually made from rigid plastic and they were associated with a wide host of complications. With the advent of self-expanding metal stents (SEMSs) in the early 1990s, the utility of plastic stents have gone down, as SEMS were associated with better palliation of dysphagia in greater than 85% of patients. This paper is a case series analysis of one year duration wherein we record the complication spectrum and rates of each complication associated with self-expanding metallic stents placed for palliative alleviation of dysphagia in patients of advanced or locally advanced carcinoma of oesophagus in a tertiary care cancer institute of north eastern part of India. The main objective of this study is to observe the complication spectrum and their rates post SEMS so that proper forewarning can be provided to the patient and patient party prior to the procedure for better compliance and transparency. It will also aid in the early vigilance towards the said complications for early detection and management.

Patients and Methods: This retrospective study was conducted in Guwahati Medical College and Hospital, Assam. Herein data was collected from all oesophageal stentings done from 12/10/20 to 11/10/21. The patients were followed up for a minimum duration of 3 months. A total of 99 stentings were done as per records during the study period. 5 cases were excluded as the patients expired due to causes unrelated to the stenting. Of these 6 of the recorded cases were that of re-stenting. Thus, 88 patients were left in the study group.

Conclusion: On reviewing the complication spectrum and the rates of each complication it was observed that most complications were minor and could be managed non operatively. Even though radiotherapy/brachytherapy do offer better long-term palliation from dysphagia, yet SEMS is also viable option for a selected group of patients who need urgent alleviation of dysphagia or those who are unable to tolerate the former owing to poor general performance status. The complications even though present were mostly minor which respond well to conservative management.

Keywords: Sems, Carcinoma Oesophagus, Palliation of Malignant Dysphagia, Study from a Tertiary Cancer Center, Dysphagia, Sems Complications.

DOI: 10.25258/ijcpr.18.9.3

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Self-expanding metallic stents offer a good modality of palliation for malignant dysphagia not amenable to other modalities. Historical data suggests that oesophageal stents have been used for palliation of malignant dysphagia in the past [1]. With the advent of self-expanding metal stents (SEMSs) in the early 1990s, the utility of plastic stents have gone down, as SEMS were associated with better palliation of dysphagia in greater than

85% of patients [2-4]. This paper is a case series analysis of one year duration wherein we record the complication spectrum and rates of each complication associated with self-expanding metallic stents placed for palliative alleviation of dysphagia in patients of advanced or locally advanced carcinoma of oesophagus in a tertiary care cancer institute of North Eastern part of India. The main objective of this study is to observe the

complication spectrum and their rates post SEMS so that proper forewarning can be provided to the patient prior to the procedure for better compliance and transparency. It will also aid in the early vigilance towards the said complications for early detection and management.

Oesophageal cancer is the eighth most common cancer with an incidence of 456,000 new cases per year worldwide [5]. In the Indian subcontinent, it accounts for the fourth most common cause of cancer-related deaths. In recent years there has been a steady but notable increase in the incidence of esophageal cancer worldwide, same can be said about the Indian scenario. Much regional variation exists in the incidence and pathology of esophageal cancer. Thus, there is the utmost need for updated region based national cancer registries [6]. According to records the highest incidence rates of oesophageal cancer is found in Asia, including China and Central Asia, and in Africa. This has a co-relation to the genetic makeup; cultural, social and fooding norms followed in these regions [7]. The Northeast registry of 2017 in relation to carcinoma of the oesophagus, tops the chart for both men and women.

Cancer of the oesophagus is the leading site in the registries in the states of Assam, Meghalaya, Mizoram, and Nagaland [7]. Along with the high incidence rate, carcinomas of esophagus is usually diagnosed at an advanced stage, with very few patients eligible for potentially curative resection at the time of presentation, that leaves us with palliation as a more realistic option for these patients [9]. More than 70% of patients with esophageal cancer present with dysphagia as the presenting symptom; which results in weight loss and malnutrition. Weight loss and malnutrition in turn impact the treatment choice and quality of life in this group of patients who are already heavily burdened by the primary disease [10]. This has led to the development of a variety of treatment modalities to help maintain caloric intake and improve the quality of life remaining for patients with advanced disease.

The objective of the study is to analyze the spectrum of complications of malignant dysphagia treated by self-expanding metallic stents.

Patients and Methods

For this case series analysis data was collected from all oesophageal stentings done from 12/10/20 to 11/10/21 in Guwahati Medical College and Hospital Dept. of CTVS. The patients were followed up for a minimum duration of 3 months with detailed history and clinical evaluation followed by a routine upper gastro-intestinal endoscopy. A total of 99 stentings were done as per records during the study period. 5 cases were excluded as the patients

expired due to causes unrelated to the stenting. Each patient was only included once in the study and re-stentings were excluded which were 6 in number. Thus, 88 patients were left in the study group. Stent used – As per local availability, uncovered self-expanding metallic stents were used in all cases- sizes 12 cm and 15 cm as directed by the length of oesophagus involved by the tumor. The stents were from either Boston Scientific or Intus.

Inclusion Criteria: All oesophageal stentings done from 12/10/20 to 11/10/21 were included in the study except those fulfilling the exclusion criteria.

Exclusion Criteria: If the patients expired before the completion of 3 months due to any other cause unrelated to the stenting like ischemic heart disease, cerebrovascular disease, pulmonary disease and metastasis were excluded from the study.

How we chose the stent:

1) Tumor margins must be determined endoscopically prior to the procedure. The stent should extend 2–4 cm beyond the ends of the stricture to minimize the chances of tumor overgrowth at the ends of the stent.

2) In most cases, dilatation is required to allow stent passage. The luminal diameter of the obstructing tumor must allow for passage of the stent-introducer catheter.

3) Midesophageal lesions are best suited for stenting. Nevertheless, stents can be also placed in the distal esophagus (albeit with increased risk of gastric reflux, regurgitation, and aspiration), and in the proximal esophagus (though the tumor must be more than 2 cm from the upper esophageal sphincter). In a small series of patients, a newly designed Self expanding metallic stents with a short upper flange (0.7 cm in length) was used in the treatment of proximal/cervical esophageal cancers. Stent placement was successful in these patients with no serious complications. [11] SEMS with an antireflux valve in the management of malignant dysphagia due to distal esophageal and gastric cardia malignancy is another option; though study on SEMS with this antireflux valve has yielded inconsistent results regarding efficacy of reflux prevention [12].

Technique of Insertion: Endoscopy guided stent placement method was used in our institution. The patient is placed supine and mild conscious sedation employed. Flexible esophagoscopy was performed to characterize the lesion and the proximal and distal extent of the tumor evaluated by accurate length measuring from incisors. If the endoscope could not be passed through the tumor, dilation was performed using bougie dilator. A

guidewire placed through the tumor and the delivery system inserted over the wire. The stent is deployed across the tumor length previously measured keeping 2 cm length proximal and distal to the tumor margin. Check endoscopy was performed after the procedure to confirm the position and luminal patency achieved. Check for immediate post procedure haemorrhage was also conducted.

Post-procedure Care: After placement of any oesophageal stent and before reinstitution of oral feeding, an X-ray of the chest to confirm the correct position of the prosthesis was carried out. Nutritional instructions are given to the patients to avoid food impaction within the stents. Usually, patients were allowed oral feeding 24 hours post-procedure in order to allow adequate time to detect any procedure-related complications. Diet was

usually started as soft or liquid; diets high in fiber were promoted. Drinking with meals was recommended to wash away any food remnants. Patients with oesophageal stents should not lie down flat; they were advised to eat in an upright position and to sleep at a 30-degree angle. Nebulisation with duolin and budacort was advised for every patient for first 24 hours given 8 hourly post procedure. Maintenance intravenous fluid was provided for the first 24 hours. A proton pump inhibitor was recommended for all patients who develop reflux after stent deployment and in those where the stent was placed across the GE junction. Patient was discharged after 48 hours post procedure if dysphagia grade improved to below II (Modified Takita grade)[13].

Discussion and Results

Table 1: Sex Distribution

Men	Women	Total	M:W Ratio
63	25	88	2.52

The male female ratio of the cases under study is M:W= 2.52.

Table 2: Age Distribution

Age Group (In Years)	No. Of Cases	Percentage
10- 19	0	0
20- 29	0	0
30- 39	5	5.68%
40- 49	7	7.95%
50- 59	35	39.87%
60- 69	31	35.14%
70- 79	9	10.23%
80- 89	1	1.13%
TOTAL	88	100%

75% of the cases fall in the age bracket between 50 to 69 years.

Table 3: Complications

Complication	No. Of Cases	Percentage
Haemorrhage	8	9.1%
Aspiration Pneumonitis	4	4.5%
Post Procedure Chest Pain	25	28.4%
Reflux	10	11.36%
Stent Migration	5	5.68%
Tumor Overgrowth	8	9.1%
Malposition	6	6.8%

As per the data published by Vermeulen BD et al the observed major complications included esophageal perforation (2%), hemorrhage (8%), and pneumonia due to aspiration (5%), fever (5%), fistula formation (3%), and pressure necrosis (2%).

Minor complications that were reported included post-procedural pain (30%) and gastroesophageal reflux (7%). Another reported complication after stent placement is recurrent dysphagia (in 31% of patients) due to stent migration (11%), tumor in- or

overgrowth (14%), or food obstruction (7%)[14,15].

According to a meta-analysis by Yakoub, compared to plastic stents, metal stents are associated with significantly reduced stent-related mortality, rates of oesophageal perforation and incidence of stent migration. On the other hand, tumor in-growth through the open mesh architecture may occur more frequently in SEMS cases compared to plastic stents [16,17]. The complication spectrum in our study was similar to

these studies with complications including hemorrhage (9.1%), aspiration pneumonitis (4.5%), post procedure chest pain(25%), gastroesophageal reflux(11%), stent migration(5.68%) and tumor overgrowth(9.1%). Malpositioning occurred in 6 cases wherein re-insertion was performed. There

are a number of fallacies of the study though including short follow up, low number of overall cases, non-availability of intra procedure fluoroscopy and non-availability of newer model stents.

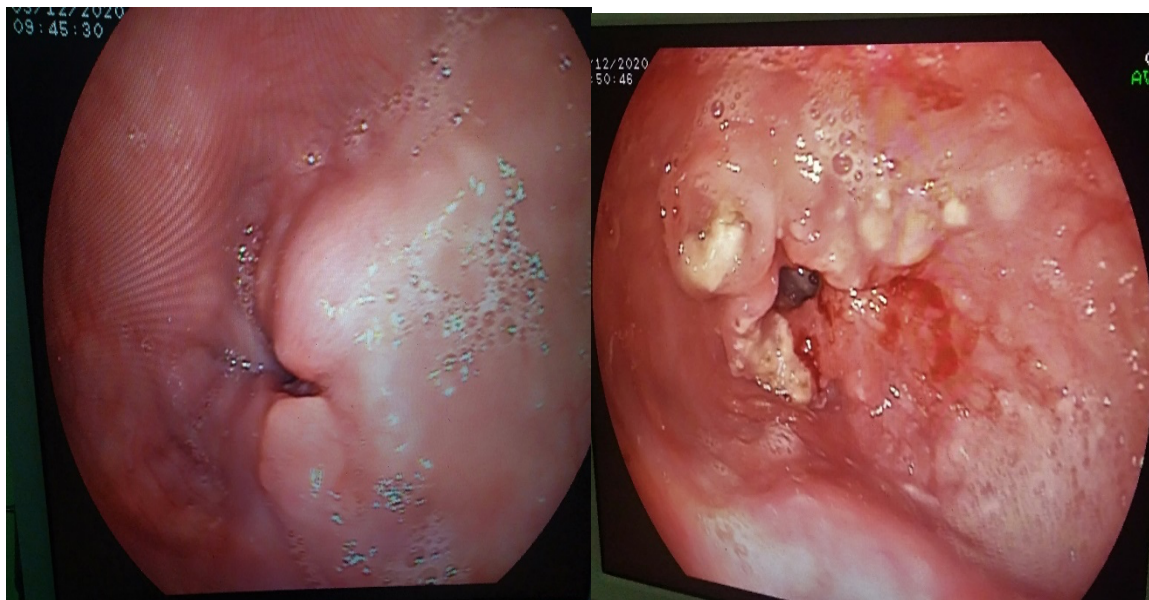


Figure 1 & 2:



Figure 3:

Figure 1,2 And 3 Showing Circumferential Growth In Oesophagus Causing Near Total Luminal Obliteration. All Four Patients Presentes with Dysphagia for both Solids and Liquids with a Modified Takita Dysphagia Grade V.

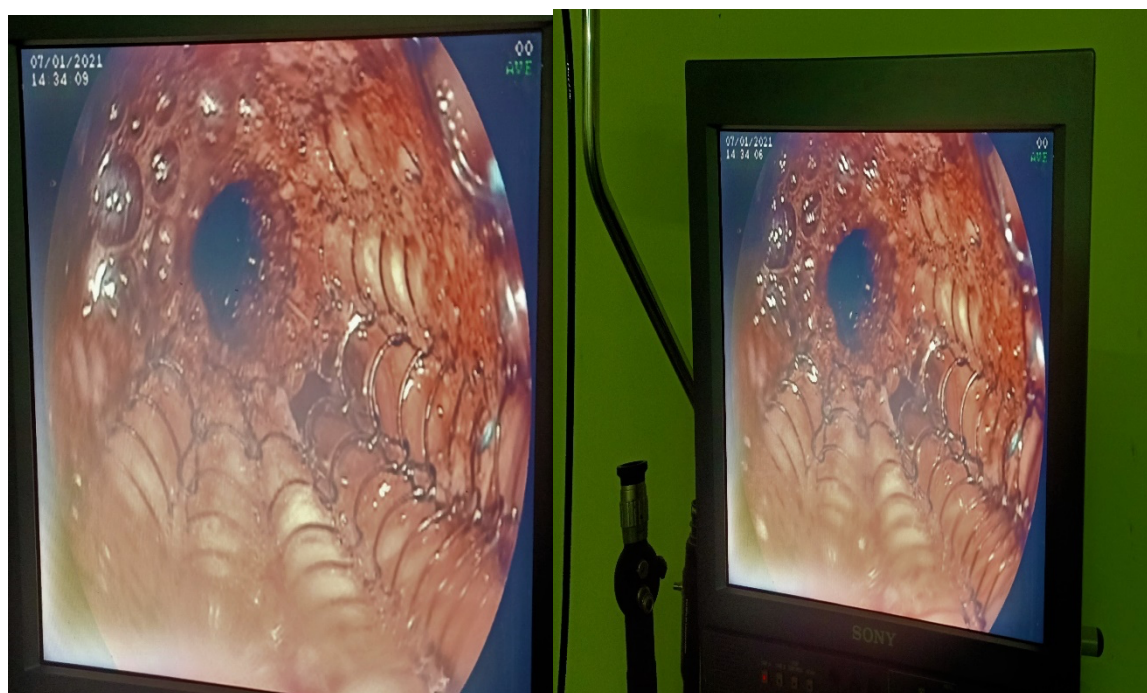


Figure 4 & 5: Showing Post Sems Deployment Status- There Is Immediate Dilation of Oesophagus with Appearance of Luminal Patency- Minor Bleeding Can Be Seen In the Backdrop



Figure 6 & 7: Showing Post Stenting X-Ray

Conclusion

On reviewing the complication spectrum and the rates of each complication it was observed that most complications were minor and could be managed non operatively.

Even though radiotherapy/brachytherapy do offer better long-term palliation from dysphagia, yet SEMS is also viable option for a selected group of patients who need urgent alleviation of dysphagia or those who are unable to tolerate the former owing to poor general performance status. The

complications even though present were mostly minor which respond well to conservative management.

Ethical Considerations

Protection of Humans and Animals: The authors declare that the procedures followed complied with the ethical standards of the responsible human experimentation committee and adhered to the World Medical Association and the Declaration of Helsinki. The procedures were approved by the institutional Ethics Committee.

Confidentiality, Informed Consent, and Ethical Approval: The authors have obtained approval from the Ethics Committee for the analysis of routinely obtained and anonymized clinical data, so informed consent was not necessary. Relevant guidelines were followed.

Declaration on the use of artificial intelligence: The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

Bibliography

1. Lee JG, Lieberman D. Endoscopic palliation for esophageal cancer. *Dig Dis*. 1997;15:100–112. [PubMed] [Google Scholar]
2. Parker CH, Peura DA. Palliative treatment of esophageal carcinoma using esophageal dilation and prosthesis. *Gastroenterol Clin North Am*. 1991;20:717–729. [PubMed] [Google Scholar]
3. Christie NA, Buenaventura PO, Fernando HC, et al. Results of expandable metal stents for malignant esophageal obstruction in 100 patients: short-term and long-term follow-up. *Annals of Thoracic Surgery*. 2001;71(6):1797–1802. [PubMed] [Google Scholar]
4. Fugger R, Niederle B, Jantsch H, Schiessel R, Schulz F. Endoscopic tube implantation for the palliation of malignant esophageal stenosis. *Endoscopy*. 1990;22(3):101–104. [PubMed] [Google Scholar]
5. Samarasam I. Esophageal cancer in India: Current status and future perspectives. *Int J Adv Med Health Res* 2017;4:5-10
6. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013.
7. Center M, Siegel R, Jemal A. Global Cancer Facts and Figures. 2nd edition. American Cancer Society; 2008. [Google Scholar]
8. Samarasam I. Esophageal cancer in India: Current status and future perspectives. *Int J Adv Med Health Res* 2017;4:5-10
9. Weigel TL, Frumiento C, Gaumintz E. Endoluminal palliation for dysphagia secondary to esophageal carcinoma. *Surgical Clinics of North America*. 2002;82(4):747–761. [PubMed] [Google Scholar]
10. (Brierley JD, Oza AM. Radiation and chemotherapy in the management of malignant esophageal strictures. *Gastrointestinal Endoscopy Clinics of North America*. 1998;8(2):451–463. [PubMed] [Google Scholar]
11. Shim CS, Jung IS, Bhandari S, et al. Management of malignant strictures of the cervical esophagus with a newly-designed self-expanding metal stent. *Endoscopy*. 2004;36(6):554–557. [PubMed] [Google Scholar].
12. Sharma P, Kozarek R. Role of esophageal stents in benign and malignant diseases. *American Journal of Gastroenterology*. 2010; 105(2):258–273. [PubMed] [Google Scholar]
13. Baerlocher MO, Asch MR, Dixon P, Kortan P, Myers A, Law C. Interdisciplinary Canadian guidelines on the use of metal stents in the gastrointestinal tract for oncological indications. *Canadian Association of Radiologists Journal*. 2008;59(3):107–122. [PubMed] [Google Scholar]
14. Vermeulen BD, Siersema PD. Esophageal Stenting in Clinical Practice: an Overview. *Curr Treat Options Gastroenterol*. 2018 Jun;16 (2):260-273. Doi: 10.1007/s11938-018-0181-3. PMID: 29557070; PMCID: PMC5932108
15. Doosti-Irani A, Mansournia MA, Rahimi-Foroushani A, Haddad P, Holakouie-Naieni K. Complications of stent placement in patients with esophageal cancer: a systematic review and network meta-analysis. *PLoS One*. 2017;12(10):e0184784. [PMC free article] [PubMed] [Google Scholar]
16. Yakoub D, Fahmy R, Athanasiou T, et al. Evidence-based choice of esophageal stent for the palliative management of malignant dysphagia. *World Journal of Surgery*. 2008;32 (9):1996–2009. [PubMed] [Google Scholar]
17. Knyrim K, Wagner HJ, Bethge N, Keymling M, Vakil N. A controlled trial of an expansile metal stent for palliation of esophageal obstruction due to inoperable cancer. *New England Journal of Medicine*. 1993;329(18): 1302–1307. [PubMed] [Google Scholar]