Original Article

Palliative Esophageal Stenting in Advanced Esophageal Carcinoma: Experience from 80 Cases in Northern Bangladesh

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Abstract

Background: Esophageal carcinoma is a major health burden in Bangladesh, frequently diagnosed at advanced, inoperable stages. In such patients, palliation of malignant dysphagia is a key therapeutic goal. Self-expanding metal stents (SEMS) offer rapid relief, yet data from larger Bangladeshi cohorts remain limited.

Objective: To evaluate the clinical outcomes, complication profile, and survival following SEMS placement for palliation of inoperable esophageal carcinoma in Northern Bangladesh.

Materials & Methods: A retrospective analysis was conducted on 80 consecutive patients undergoing SEMS placement over a period of 05 years at selected endoscopy centers of northern Bangladesh. Data on demographics, tumor characteristics, pre- and post-stent dysphagia scores, complications, and survival were analyzed. Dysphagia was scored from 0 (normal diet) to 4 (complete dysphagia) at baseline, 1 week, and 1 month.

Results: The cohort comprised 48 men (60%) and 32 women (40%), mean age 62.5 years. Squamous cell carcinoma predominated (65%), with the lower esophagus most frequently affected (55%). Baseline mean dysphagia score was 3.2 ± 0.5, improving to 1.1 ± 0.7 at 1 week and 1.0 ± 0.8 at 1 month post-stent ($p < 0.001$); 90% achieved a score ≤ 1 by 1 month. Complications occurred in 28 patients (35%), including chest pain >48 h (20%), stent migration (8.75%), blockage (7.5%), and bleeding requiring intervention (3.75%). No procedure-related mortality was observed. Median survival was 192 days (range: 28–480), with 56.25% surviving beyond 6 months.

Conclusion: SEMS placement provides rapid, significant, and sustained relief of dysphagia in patients with inoperable esophageal carcinoma, with low immediate risk and manageable complications, offering tangible quality-of-life improvements within the limited survival period.

Keywords: Esophageal cancer, Self-expanding metal stent, Palliative care, Dysphagia, Bangladesh.

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Introduction:

Esophageal carcinoma (EC) ranks as the 7th most common cancer globally (604,000 new cases/year) and the 6th leading cause of cancer mortality (544,000 deaths/year), with pronounced geographic disparities in incidence and histopathology.[1] In Bangladesh, EC represents a critical public health challenge, with age-standardized incidence rates of 8.4/100,000 in males and 5.1/100,000 in females which is significantly higher than global averages.[2] Northern Bangladesh reports particularly aggressive presentations, where >70% of patients are diagnosed at Stage III/IV due to limited screening infrastructure and delayed symptom recognition.[3] The histopathological dichotomy of EC is starkly region-dependent; a) Squamous cell carcinoma (SCC) dominates in Asia (80–95% of cases), linked to tobacco use, betel quid chewing, and nutritional deficiencies,[4] b) Adenocarcinoma prevails in Western populations (70–80%), associated with obesity and gastroesophageal reflux disease.[5]

In Bangladesh, SCC constitutes 65–80% of EC cases, with adenocarcinoma rising in urban cohorts.[6] For inoperable EC (60–70% of patients at diagnosis), malignant dysphagia causes devastating sequelae; i) 89% develop malnutrition (BMI <18.5 kg/m²),[7] ii) 45% suffer aspiration pneumonia,[8] iii) Quality-of-life scores plummet by 60–80% on EORTC QLQ-C30 scales.[9]

Self-expanding metal stents (SEMS) have emerged as a cornerstone for alleviating malignant dysphagia and improving quality of life. SEMS have established it's superiority after randomized trials established superiority over plastic stents and laser ablation. They have several benefits and privileges. Dysphagia relieves in 85–94% patients in contrast to radiotherapy where only 67-72% get it.[10] Another advantage is its rapid symptom relief within 24-48 hours after placement.[11] The most encouraging issue in resource limited countries is cost-effectiveness. SEMS demanding about $1,200-$1,800/stent in comparison to brachytherapy about $8,000-$12,000 per case.[12] In Bangladesh we have some specific challenges; like radiotherapy scarcity in cancer treatment. We have only 0.22 machines/million people vs. WHO-recommended 4/million.[13]

Others are low chemotherapy access i.e <20% receive systemic therapy due to cost/distance[14] and limitations of endoscopy machine and gastroenterologists (1.2/million in rural areas).[15] This retrospective study evaluates the clinical outcomes and complications of esophageal stenting in a larger cohort of patients with inoperable esophageal carcinoma in Northern Bangladesh.

Materials & Methods:

Retrospective data were collected from the endoscopy registries of Rangpur Medical College Hospital and three major private endoscopy centers in Northern Bangladesh. Records of 80 consecutive patients who underwent SEMS placement for palliation of inoperable esophageal carcinoma between January 2019 and December 2024 over 5 years were analyzed. Data extracted included demographic details, pre-procedural dysphagia score (scored 0-4: 0=normal diet, 1=some solids, 2=semi-solids, 3=liquids only, 4=complete dysphagia), tumor characteristics (location, histopathology), procedural details, post-stent complications, and survival duration. These data are usual follow up data after SEMS placement of those study centers. Dysphagia scores were assessed pre-stent and at 1-week and 1-month post-stent placement. Complications and survival data were also tracked until patient death or study conclusion as per intervention centers regulation. Data were analyzed by statistical software SPSS Version 15.0 (IBM Corp., Armonk, NY, USA). All continuous variables analyzed using Student's t-test, and categorical variables using Chi-square test. P-values of < 0.05 were considered as significant. Ethical permission was taken from the respective authority of Rangpur Medical college hospital.

Results:

In this study, out of 80 patients male were 48, (60%) and female were 32, (40%). Mean age were 62.5 years (Range: 38-88 years). Among presenting symptom dysphagia was universal (100%, mean pre-stent score: 3.2 ± 0.5). Significant weight loss (>10% body weight) was reported in 62 patients (77.5%). Other symptoms included regurgitation 35%, chest pain 28%. Location of tumor were distributed as lower esophagus 55%, mid 37.5%, upper 7.5%. Histopathology reveals Squamous cell carcinoma 65%, adenocarcinoma 35% (Table-I).

Table I: Distribution of patients according to baseline demographics and clinical characteristics (N=80)

Characteristic	Category	N=80(%)
Sex	Male	48 (60)
	Female	32 (40
Presenting symptoms	Dysphagia	80 (100)
	Weight loss >10% body weight	62 (77.5)
	Regurgitation	28(35)
	Chest pain	22(28)
Tumor location	Lower esophagus	44 (55)
	Mid esophagus	30 (37.5)
	Upper esophagus	6 (7.5)
Histopathology	Squamous cell carcinoma	52 (65)
	Adenocarcinoma	28 (35)

Note: Where only percentages were provided, counts are not shown.

Regarding dysphagia Relief, mean score improved to 1.1 at 1 week and 1.0 at 1 month ($p < 0.001$).By 1 month, 90% achieved score ≤1 (able to eat most solids/some solids). Median overall survival was 192 days (Range: 28-480 days). 45 patients (56.25%) survived for more than 6 months post-stent placement (Table II). Tumor stages at diagnosis and survival time were depicted at Figure 1 and 2.

Table II: Distribution of patients according to post stent outcomes and complications

Domain	Metric	Value	n (%)
Dysphagia relief	Mean score at 1 week	1.1 ± 0.7	—
	Mean score at 1 month	1.0 ± 0.8	—
Dysphagia relief	p-value (pre vs post)	<0.001	—
Dysphagia relief	Score ≤1 at 1 month	—	72(90)
Complications	Any complication	—	28(35)
	Chest pain (>48 h analgesics)	—	16(20)
	Stent migration	—	7(8.75)
	Stent blockage (food/ingrowth)	—	6(7.5)
	Persistent dysphagia (score ≥2 at 1 mo)	—	5(6.25)
	Bleeding (requiring intervention)	—	3(3.75)
	Stent misplacement	—	1(1.25)
	Procedure-related mortality	—	0
	Mean time to complication onset	54.3 ± 31.8 days	—
Survival	Median overall survival	192 days	—
	Survival range	28–480 days	—

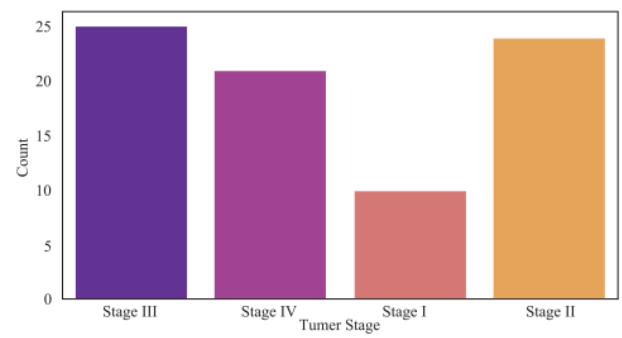

Figure-I: Distribution of Tumor Stages

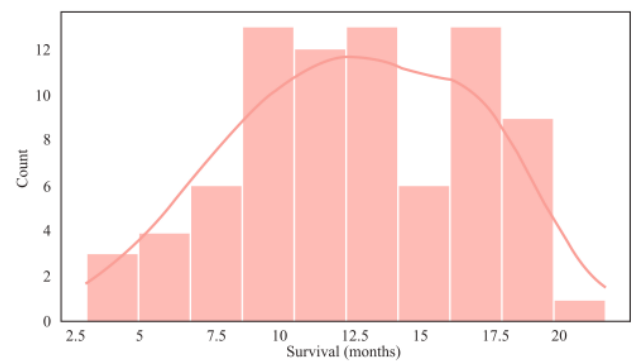

Figure-II: Distribution of Survival time of study populations

Below are correlation tables analyzing the relationship between demographic/tumor characteristics and key outcomes of esophageal stenting in 80 patients with inoperable esophageal carcinoma. Statistical significance was determined using chi-square tests (Fisher's exact test for small cell counts).

Table III: Distribution of patients according to factors associated with successful dysphagia relief.

(Success = Dysphagia Score ≤1 at 1 month post-stent; n=72/80, 90%)

Factor	Group	Success Rate	p-value
Age	<60 years (n=30)	93.3% (28/30)	0.42
	60–70 years (n=35)	88.6% (31/35)	
	>70 years (n=15)	86.7% (13/15)	
Sex	Male (n=48)	91.7% (44/48)	0.47
	Female (n=32)	87.5% (28/32)	
Tumor Location	Lower (n=44)	97.7% (43/44)	**<0.001**
	Mid (n=30)	90.0% (27/30)	
	Upper (n=6)	33.3% (2/6)	
Histopathology	SCC (n=52)	90.4% (47/52)	0.85
	Adenocarcinoma (n=28)	89.3% (25/28)	

Table IV: Distribution of patients according to factors associated with complications of esophageal stenting:

(Any complication; n=28/80, 35%)

Factor	Group	Complication Rate	p-value
Age	<60 years (n=30)	26.7% (8/30)	0.18
	60–70 years (n=35)	34.3% (12/35)	
	>70 years (n=15)	53.3% (8/15)	
Sex	Male (n=48)	33.3% (16/48)	0.60
	Female (n=32)	37.5% (12/32)	
Tumor Location	Lower (n=44)	22.7% (10/44)	**<0.001**
	Mid (n=30)	40.0% (12/30)	
	Upper (n=6)	100% (6/6)	
Histopathology	SCC (n=52)	36.5% (19/52)	0.62
	Adenocarcinoma (n=28)	32.1% (9/28)	

Table V: Distribution of patients according to Factors Associated with Survival >6 Months:

(n=45/80, 56.3%)

Factor	Group	>6-Month Survival	p-value
Age	<60 years (n=30)	73.3% (22/30)	**0.03**
	60–70 years (n=35)	51.4% (18/35)	
	>70 years (n=15)	33.3% (5/15)	
Sex	Male (n=48)	62.5% (30/48)	0.10
	Female (n=32)	46.9% (15/32)	
Tumor Location	Lower (n=44)	59.1% (26/44)	0.45
	Mid (n=30)	56.7% (17/30)	
	Upper (n=6)	33.3% (2/6)	
Histopathology	SCC (n=52)	51.9% (27/52)	0.28
	Adenocarcinoma (n=28)	64.3% (18/28)	

Discussions:

This multicenter retrospective analysis from Northern Bangladesh reinforces that self-expanding metal stents (SEMS) offer rapid, clinically meaningful relief of malignant dysphagia in patients with inoperable esophageal carcinoma, with an acceptable safety profile in a resource-constrained setting. The magnitude and speed of symptom improvement observed here-mean dysphagia score declining from 3.2 to 1.1 at 1 week and 1.0 at 1 month, with 90% achieving a score ≤1-mirrors the well-established efficacy of SEMS for swift palliation, which has consistently surpassed alternative modalities in terms of rapid swallowing restoration.16-18 The absence of procedure-related mortality and the manageable complication profile further align with contemporary guideline expectations for palliative stenting in advanced disease.[18-19]

Our cohort's immediate functional gains are congruent with prior studies reporting substantial short-term dysphagia relief after SEMS placement, typically within days and sustained at early follow-up.[16,17] The observed complication spectrum-chest pain (20%), migration (8.75%), stent blockage from food/ingrowth (7.5%), and bleeding requiring intervention (3.75%)-falls within the ranges reported across large series and guidelines, where chest pain is the most frequent early adverse event and migration and obstruction represent the leading causes of late dysfunction.18,20,21 The mean time to complication onset of approximately two months is consistent with the typical trajectory of late events such as overgrowth, ingrowth (for partially or uncovered designs), and food bolus impaction.[17]

Median overall survival of 192 days (~6.3 months) corresponds to survival expectations for patients selected for palliative stenting, who frequently harbor advanced locoregional disease and systemic spread at presentation. Multiple cohorts and systematic reviews have documented median survivals in the 3-7 month range following palliative SEMS, underscoring that the primary therapeutic aim is quality-of-life improvement rather than survival extension.15,16 In this context, the proportion surviving beyond six months (56%) suggests durable clinical benefit for a meaningful subset.

The predominance of squamous cell carcinoma (65%) and lower to mid-esophageal involvement mirrors regional epidemiology across South Asia, where SCC remains prevalent and often presents late with profound dysphagia and weight loss. (17-22) Adenocarcinoma comprised 35%, consistent with a growing global burden but still secondary to SCC in many Asian settings.

The proportion achieving near-normal swallowing by 1 month (≤1 in 90%) compares favorably with reports citing 70–90% early dysphagia response after covered SEMS insertion.[17,18] The statistical robustness of improvement ($p<0.001p<0.001$) is in line with the large effect sizes typically seen when transitioning from liquid-only diets to solids after stent deployment. Migration rates of 7–15% are commonly reported for covered SEMS, influenced by tumor location, stent design (anti-migration features, flares), and adjuvant therapies; our rate (8.75%) sits within that band.[17, 22] Obstruction from food or tumor tissue (7.5%) is also concordant with literature values of roughly 5–20% over follow-up, and bleeding requiring intervention typically ranges from 1–8%.[17,19] Notably, no procedure-related mortality was observed, reflecting the low peri-procedural risk reported in experienced centers.[19]

Although formal QoL instruments were not reported here, prior randomized and observational data show stenting rapidly improves swallowing-related QoL domains, while radiotherapy (external beam or brachytherapy) may offer superior longer-term dysphagia control at the expense of slower onset and different toxicity profiles.[16,17] In many low-resource contexts, SEMS provides an immediately impactful, pragmatic option.

The dominant early complaint of chest pain, often self-limited yet occasionally requiring analgesia beyond 48 hours, is well recognized and may reflect stent radial force, tumor stretch, and esophageal spasm.[17] Migration risk is heightened in short strictures, the lower esophagus, and fully covered stents; mitigation strategies include selecting appropriate length and diameter, ensuring adequate tumor overlap (typically ≥2 cm proximally and distally), and, where available, choosing designs with anti-migration features.[18] Stent obstruction is frequently preventable with dietary counseling-small bites, thorough chewing, avoidance of fibrous meats and sticky foods-and can be managed endoscopically by clearance, dilation for overgrowth, or stent-in-stent when needed.[17,19] The low bleeding rate here is reassuring; vigilance remains warranted in friable SCCs, anticoagulated patients, and when concomitant radiotherapy is used.[19]

Conclusion:

This larger retrospective analysis confirms that SEMS placement is a highly effective and safe palliative modality for managing malignant dysphagia in patients with inoperable esophageal carcinoma in Northern Bangladesh. It provides rapid and significant improvement in swallowing ability for the vast majority of patients, thereby enhancing quality of life. While complications occur in a significant minority (35%), they are generally manageable. The procedure carries a low immediate risk, making it a valuable option in resource-constrained settings. The survival data underscores the importance of effective palliation in this patient population with limited life expectancy.

Conflict of Interest:

There is no conflict of interest of any authors in this study.

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