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Preventing migration of fully covered esophageal stents with an over-the-scope clip device (with videos)

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Palliation of malignant esophageal obstruction is traditionally achieved by using partially covered self-expandable metal stents (PCSEMSs), which have a low migration rate because of embedment of bare metal ends into the esophageal wall. Fully covered self-expandable metal stents (FCSEMSs) are now used to treat benign leaks, perforations, and benign strictures.[1]

Compared with PCSEMSs, FCSEMSs reduce tissue hyperplasia. The complete covering allows for removability. However, migration rates exceed 30%.[2,3] Securing FCSEMSs in place with through-the-scope (TTS) hemostatic clips is disappointing because of limited opening widths, closure strengths, and depth of penetration.[4] Some endoscopists use PCSEMSs for benign diseases to reduce migration while sealing perforations and/or leaks.[5,6] Subsequent stent extraction can be difficult, often requiring a "stent-in-stent" removal technique.[5] This technique incurs additional procedures and cost of an additional prosthesis. Recently, a full-thickness suturing device has been used to secure stents in place and prevent migration.[7,8]

An over-the-scope clip (OTSC) is available to close perforations and fistulae and to control bleeding.[9] These clips have a wider and significantly stronger closing force than TTS clips. We describe securing esophageal FCSEMS with an OTSC in patients who experienced migration of esophageal SEMSs.

Abbreviations: FCSEMS, fully covered self-expandable metal stent; OTSC, over-the-scope clip; PCSEMS, partially covered self-expandable metal stent; SEMS, self-expandable metal stent; TTS, through-the-scope.

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METHODS

Patients

From August 2012 to May 2013, 13 patients (9 men, 4 women) from 2 tertiary-care referral centers (median age 67 years, range 40-89 years) had placement of OTSCs (OTSC system; Ovesco Endoscopy AG, Tubingen,

TABLE 1. Clinical characteristics of patients undergoing placement of fully covered self-expandable metal stents secured with over-the-scope clips after migration of FCSEMS or PCSEMS

Patient no.	Age/sex*	Indication	Duration of lesion before treatment with FCSEMS and OTSC, d	Previously secured with hemostatic clips	Treatment of lesion before FCSEMS was secured with OTSC
		Leak			
1	40/M	Leak after SG with retro-gastric abscess	72	Yes	OTSC, fibrin, hemostatic clips, FCSEMS × 2, PCSEMS × 2, percutaneous drain
2	74/M	Leak after esophagectomy with retrocardiac abscess	22	No	FCSEMS
3	67/F	Leak after SG with abscess	94	Yes	OTSC × 3, hemostatic clips, FCSEMS ×2, PCSEMS × 2, percutaneous drain
4	77/M	Leak after esophagectomy	28	No	FCSEMS
		Perforation			
5	42/M	Perforation after dilation of malignant stricture	1	No	FCSEMS
		Benign stricture			
6	80/F	Anastomotic leak after esophagectomy	120	Yes	Dilation × 2, FCSEMS
7	54/M	Peptic	400	Yes	Dilation × 4, corticosteroid × 2, FCSEMS × 3
8	71/M	Peptic	450	Yes	Dilation × 6, corticosteroid × 1, FCSEMS × 2
		Malignant stricture			
9	48/F	Esophageal squamous cell cancer	120	No	FCSEMS
10	55/M	Esophageal squamous cell cancer	90	Yes	FCSEMS x 2
11	89/M	Esophageal adenocarcinoma	21	No	Dilation x 2, FCSEMS x 1
12	63/M	Esophageal adenocarcinoma (metastatic)	910	Yes	PCSEMS × 2, FCSEMS × 1
13	76/F	Breast cancer metastatic to mediastinum/esophagus	350	Yes	FCSEMS × 1

FCSEMS, Fully covered self-expandable metal stent; *PCSEMS,* partially covered self-expandable metal stent; *OTSC,* over-the-scope clip; *M,* male; *SG,* sleeve gastrectomy; *F,* female.
*Median age 67 years.

Germany) to secure FCSEMSs. Written, informed consent was obtained from all patients before we secured the FCSEMSs (esophageal Niti-S Stent, Taewoong Medical, Korea, and esophageal WallFlex stent, Boston Scientific, Natick, Mass) with OTSCs. Demographic and clinical data included patient age, sex, diagnosis, stent type, technical aspects, procedural outcomes, and adverse events (Tables 1-3). All patients were followed after the procedures with clinic visits and/or imaging studies and endoscopy. Institutional review board approval was obtained.

All patients had experienced migration of an FCSEMS or PCSEMS. Indications for stent placement included leaks, perforations, and esophageal strictures (benign and malignant). The index patient had a refractory gastric leak after sleeve gastrectomy. Both FCSEMSs and PCSEMSs migrated despite TTS clip placement to the proximal stent edge and esophagus. The patient refused surgical revision.

Definitions

Stent migration was defined as movement of the prosthesis from the site of deployment with failure to resolve the underlying disease process. The duration required for OTSC placement was calculated from endoscope