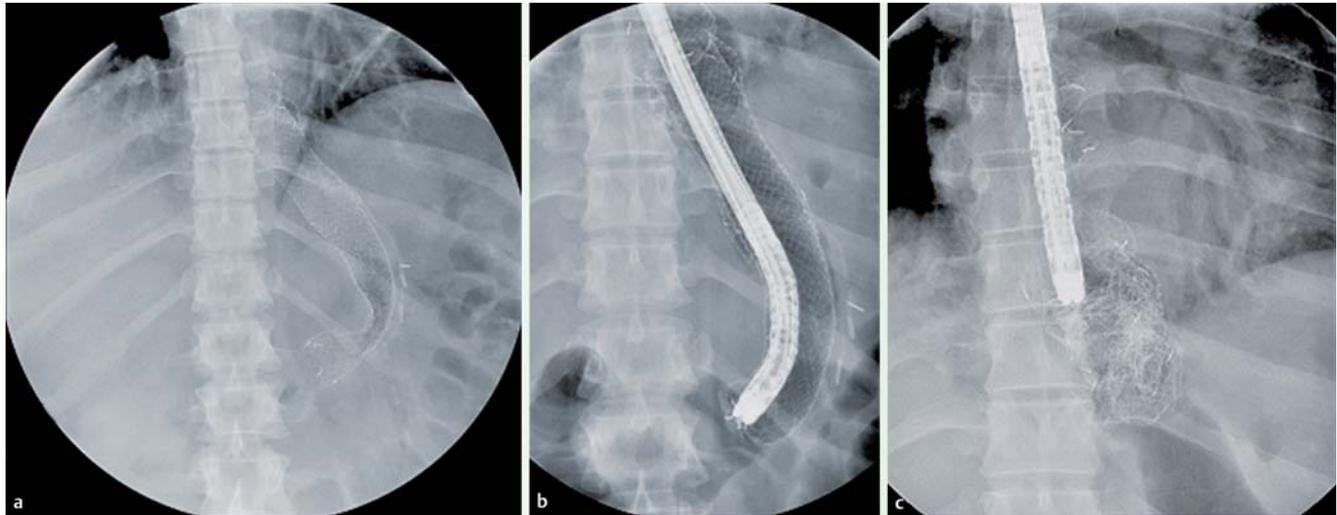
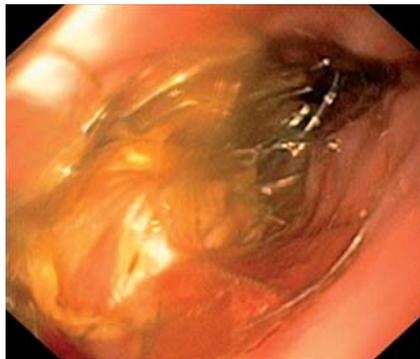


## Successful removal from the esophagus of a self-expandable metal stent that had shriveled up into a tangled ball



**Fig. 1** Radiographic views showing: **a** the 18-cm covered self-expandable metal stent (SEMS) in position at the esophagogastric junction; **b** a foreign-body forceps being used to grasp the distal lasso stitch of the SEMS during its removal; **c** the SEMS shriveled up into a tangle of metal wire in the mid-esophagus.



**Fig. 2** Endoscopic view of the self-expandable metal stent (SEMS) contracted into a knot of metal wire.



**Fig. 3** The broken self-expandable metal stent (SEMS) after its removal.



**Fig. 4** Radiographic view showing an over-the-scope clip (OTSC) in position to treat the leak from the cardia after the self-expandable metal stent (SEMS) had been removed.

A 39-year-old woman developed a leak from the cardia following a sleeve gastrectomy. She underwent placement of an 18-cm Niti-S covered esophageal self-expandable metal stent (SEMS; TaeWoong Medical, Gimpo, Korea) at the gastro-esophageal junction (● Fig. 1 a). The patient returned to undergo stent removal 4 weeks after its placement. During this procedure the lasso stitch at the distal end was grasped with endoscopic foreign-body forceps and was pulled (● Fig. 1 b). The stent began to invaginate from within but soon shrank into a tangled ball of metal wires (● Fig. 1 c and ● Fig. 2). The distal

lasso stitch slipped out of the forceps, leaving the now compacted SEMS lying in the mid-esophagus and completely obstructing the lumen.

The SEMS was gradually eased away from the esophageal mucosa using the proximal lasso stitch. The disjointed mesh wires were slowly pulled off the mucosa, and thereby the whole of the stent was successfully removed under fluoroscopic guidance (● Fig. 3). Endoscopy confirmed the absence of any esophageal injury, but

persistence of the original leak was noted. An over-the-scope clip (OTSC) was used to obliterate the leak (● Fig. 4). Fracture of an esophageal SEMS has been previously described, during positioning because of defective material and as a consequence of laser therapy that caused a late spontaneous fracture during palliative treatment [1]. It appears that corrosion is the principal cause of fracture because, once in place and fully expanded, SEMS are not subject to any great mechanical

stress [2]. Cases of fracture during removal of a covered biliary SEMS have also been described [3].

Here we report the first case, to our knowledge, of a covered SEMS compacting into a ball at the time of removal and its successful retrieval. We believe that this happened probably because the SEMS was partially fractured and became deeply embedded in the esophageal mucosa; when traction was applied, the now-damaged mesh contracted in on itself because of the inherent forces in its structure. The risk of a SEMS curling up should be considered as a potential complication of SEMS removal, in addition to other well-documented complications [4].

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**Competing interests:** None

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