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### Endoscopic Extraction of a Covered Esophageal Z-Stent with the Aid of Endoloops

We describe here a simple technique facilitating the extraction of a covered self-expandable metallic stent.

A 52-year-old man had undergone a proximal gastric resection with esophagogastrostomy for an adenocarcinoma of the cardia (stage T2N0M0, GII). The patient developed mediastinitis nine days after surgery due to an anastomotic leak, which was unsuccessfully repaired with a second surgical intervention. A covered Gianturco-Rösch Z-stent with barbs (Cook, Mönchengladbach, Germany) was then placed after two attempts at fibrin glue setting had also failed. The fistula having sealed well, the patient was discharged from the hospital.

He presented again nine months later with symptoms of dysphagia. Endoscopy re-

vealed a hyperplastic stricture above the upper margin of the stent. At this stage, he was referred to our hospital for stent removal and further treatment. As the stricture could not be negotiated even with the 7.9 mm pediatric endoscope, a Tracer glide wire was inserted, and the stricture was dilated using the 27, 33, and 36 Fr Savary-Gilliard dilators (Wilson-Cook, Winston-Salem, USA). Several attempts were then made to grasp the upper end of the stent with a polypectomy snare and remove it. However, all of these attempts failed, as the stent was firmly fixed in the esophageal wall due to the barbs. The endoscope was then retroflexed in the stomach, and the stent was pulled into the stomach. After this, four Endoloops (MAJ-254, Olympus, Tokyo, Japan) were placed around the freely lying stent to constrict it and reduce its diameter (Figure 1). The

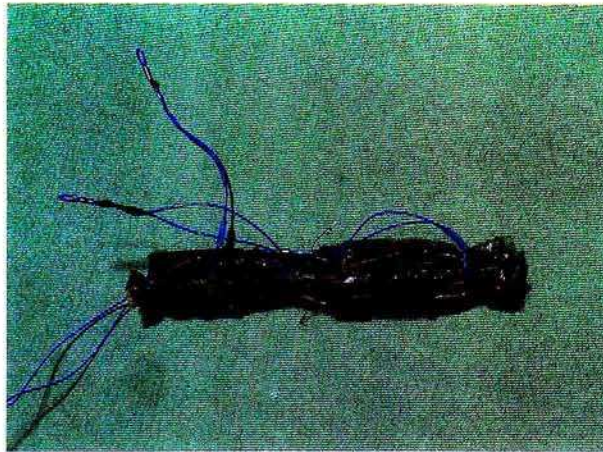
stent could then be removed without any difficulty. An overtube was not required. The postprocedural course was uneventful, and the patient's dysphagia improved considerably. A check-up after six months showed no recurrence of the stricture.

Endoscopic removal of self-expandable metal stents is known to be very difficult, or even impossible. A few short reports have been published describing the removal of nitinol coil stents; some of the cases were associated with significant complications (1,2). Mallery and Freeman described successful removal of an incompletely expanded Ultraflex esophageal stent using an overtube, 24 hours after placement (3). Recently, Song et al. (4) presented a newly designed retrievable covered Z-stent. The proximal end of this stent is constructed using a nylon loop, making it easier to extract it through an overtube. Another interesting innovation might be a biodegradable stent that dissolves after a certain time (5). For post-operative fistulae, instead of using the covered expandable stent, we would recommend use of the Celestin prosthesis with a transnasal fixation catheter as an effective and simple endoscopic alternative (6).

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**Figure 1:** The covered Gianturco stent constricted by the Endoloops after removal.

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