Endoscopic removal of the Padlock-G clip

In recent years various new endoscopic closure techniques and devices have been developed [1]. Research has mainly been driven by the need for a secure and reliable closure for natural orifice transluminal endoscopic surgery (NOTES) [2]. At present, the clinical applicability of NOTES remains unclear, but research in this area has already immeasurably enriched our endoscopic armamentarium with regards to endoscopic closure of perforations [1,3,4].

Recently, two novel clipping devices have been developed, which are conceptually similar to endoscopic band ligation [3–5]. One of these devices is the Padlock-G clip (Fig. 1; Aponos Medical, Kingston, New Hampshire, USA), the feasibility of which has been demonstrated recently [5]. The closure mechanism consists of a 16.5-mm nitinol clip delivered via an over-the-scope delivery pod. Herein we report a technique that we have developed for the safe removal of this clip after it has been deployed.

In a 34-kg female domestic pig under general anesthesia, an 18-mm gastric wall opening was created using a needle knife and a dilation balloon. The Padlock-G clip was deployed after approximating the gastrotomy borders with a specialized tissue approximation grasper (Ovesco Endoscopy AG, Tübingen, Germany), thus creating a full-thickness closure of the defect (Fig. 2a, Video 1). Time to achieve endoscopic closure was 3 minutes.

For removal, a soft oval endoscopic snare (SD-210U-25, Olympus, Center Valley, Pennsylvania, USA) was used. By grasping two of the side bars, each anchoring pin of the clip can be pulled out of the tissue in a serial fashion and the clip is removed (Fig. 2b–d, Video 2). Removal was facilitated within 1 minute and without complications.

In conclusion, the novel Padlock-G clip seems to be a promising new device for endoscopic organ wall closure with the additional benefit of easy and swift endoscopic removal in cases of unsatisfactory or incomplete closure attempts.

Competing interests: None

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References


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Bibliography

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