

Fibrin sealant for closure of mucosal penetration at the cardia during peroral endoscopic myotomy (POEM)

Cardiac mucosal penetrations occurred during peroral endoscopic myotomy (POEM) in two patients with achalasia, and were treated by fibrin sealant.

Case 1 was a 27-year-old man with dysphagia for over 1 year who underwent endoscopic botulinum injection, but dysphagia reoccurred just weeks later. During tunnel establishment a penetration was caused, probably by over-electrocautery from the submucosal space to the esophageal lumen near the cardia (● Fig. 1 a). We sprayed fibrin sealant into the distal end of the submucosal tunnel under direct endoscopic vision to ensure that the fibrin sealant fully covered the hole (● Fig.1 b). After 6 weeks, a repeat gastroscopy showed that the hole had healed well (● Fig.2). Dysphagia was relieved, with lower esophageal sphincter pressure decreased from 63.2mmHg before POEM to 28.0mmHg 4 months after.

Case 2 was a 38-year-old woman with dysphagia for over 7 years who received balloon dilation first, but her dysphagia was not relieved. ● Fig. 3 shows the treatment of the penetrations, and ● Fig. 4 shows the sealed penetrations.

Studies have preliminarily confirmed the short-term effectiveness and safety of POEM [1–4]. However, complications such as cardiac mucosal penetration have been reported [1–2], but treated differently – either subjected to observation without special treatment, or sealed by hemostatic clips. No pictures of the cardiac mucosal penetrations were presented in either of the earlier articles. Penetrations destroyed the completeness of the tunnel, and therefore fluids from the stomach or the esophagus could flow into the tunnel and affect the healing of the incised muscles.

We also tried to use hemostatic clips to seal the penetration in one patient, but failed because, when a target mucosa was clipped, the adjacent mucosa was spontaneously split, which made it hard to seal the penetration. Since fibrin sealant has been widely used for many surgical applications such as wound closure, hemostasis, and tissue sealing [5], we used the fibrin sealant to deal with the penetrations, and achieved a satisfying result.

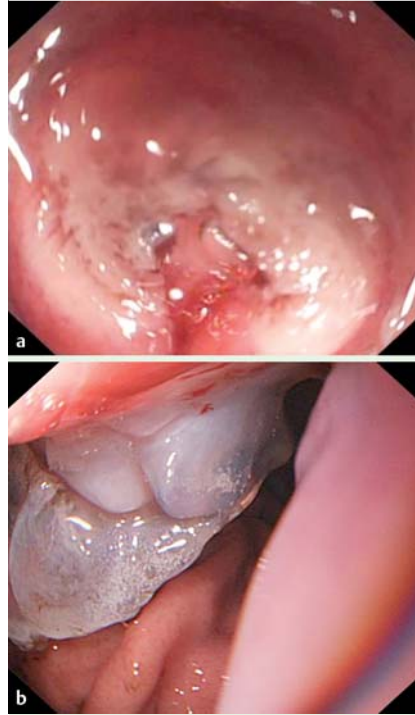


Fig. 1 Case 1. **a** Cardiac mucosal penetration. **b** Fibrin sealant was sprayed into the distal end of the tunnel, and a small amount of the coagulated fibrin sealant sealed the cardiac mucosal penetration.



Fig. 2 During the repeat gastroscopy of case 1, 6 weeks after peroral endoscopic myotomy (POEM), a vague red scar is seen where the cardiac mucosal penetration occurred.

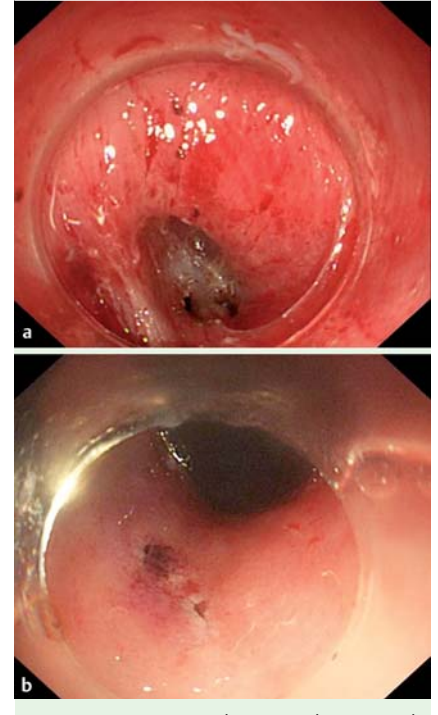


Fig. 3 Case 2. **a** Two adjacent cardiac mucosal penetrations seen from inside the tunnel. **b** The two penetrations seen from inside the esophageal lumen.



Fig. 4 During the repeat gastroscopy of case 2, 1 week after peroral endoscopic myotomy (POEM), fibrin sealant is seen where the cardiac mucosal penetration occurred.

Endoscopy_UCTN_Code_TTT_1AO_2AN

Competing interests: None

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DOI <http://dx.doi.org/10.1055/s-0032-1309358>
Endoscopy 2012; 44: E215–E216
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

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