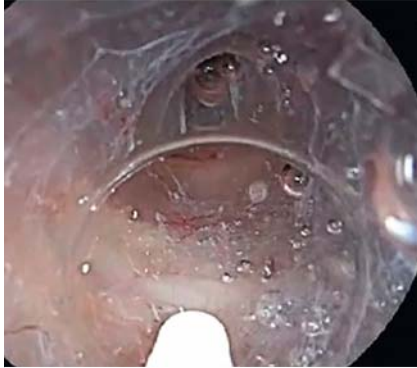
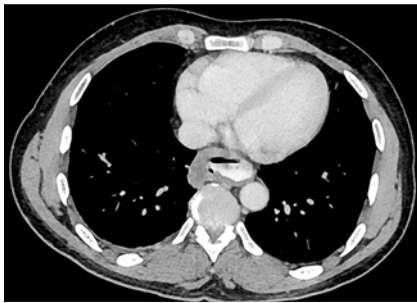


Underwater peroral endoscopic myotomy



► **Fig. 1** Underwater peroral endoscopic myotomy.



► **Fig. 2** Thoraco-abdominal computed tomography with oral contrast intake performed on the first postoperative day.

Peroral endoscopic myotomy (POEM) is an accepted treatment modality for achalasia [1]. However, postoperative pain, mainly related to CO₂ insufflation causing pneumothorax, pneumomediastinum, and pneumoperitoneum, occurs in 25%–85% of patients [2, 3]. Underwater endoscopic resection is an emerging strategy for the management of duodenal and colorectal lesions [4]. We introduced underwater POEM with the aim of limiting the complications of CO₂ insufflation.

A 53-year-old man was diagnosed with type II achalasia following the onset of solid food dysphagia, regurgitation, and weight loss. We decided to treat him with POEM.



► **Video 1** Underwater peroral endoscopic myotomy.

The procedure was completed under general anesthesia with orotracheal intubation, using a cap attachment (ST Hood; Fujifilm, Tokyo, Japan), a Fujifilm 700 gastroscop, and a triangle-tip knife J (Olympus, Tokyo, Japan). After injecting the submucosa with indigo-stained saline and performing posterior transversal mucosal incision, we started submucosal tunneling in spray coagulation mode for 1 cm. We then stopped CO₂ insufflation and pumped sterile saline solution into the tunnel through the waterjet channel of the endoscope. Submucosal tunneling and myotomy were performed using the triangle-tip knife and the usual generator settings for spray coagulation (effect 4) and endocut (effect 1/3–3). The mucosal incision was closed with four 16-mm endoclips (► **Fig. 1**, ► **Video 1**).

The postoperative course was unremarkable, and the patient was discharged after 24 hours. Thoraco-abdominal computed tomography with oral contrast intake performed on the first postoperative day (► **Fig. 2**) showed a minimal pneumomediastinum without perforation, and absence of pneumoperitoneum or subcutaneous emphysema.

We have performed underwater POEM in three patients at our institution, with favorable outcomes. This technique is feasible and safe, offers optimal visibility during the procedure, and has the potential to limit insufflation-related complications.

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Competing interests

The authors declare that they have no conflict of interest.

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