Endoscopic Snapshot

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Peroral Endoscopic Myotomy with Water Pump-Assisted Submucosal Tunnel Creation

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Keywords
Achalasia · Peroral endoscopic myotomy · Water pump · Endoscopy · Dysphagia

Miotomia endoscópica peroral com criação do túnel na submucosa assistida por bomba de água

Palavras Chave
Acalásia · Miotomia endoscopica peroral · Bomba de água · Endoscopia · Disfagia

Achalasia is an idiopathic motor disorder of the esophagus characterized by impaired lower esophageal sphincter relaxation and loss of esophageal peristalsis, which results in the classic presentation of dysphagia to solids and liquids associated with regurgitation of food and saliva [1]. From the available treatment options, endoscopic balloon dilatation and laparoscopic Heller myotomy have been the most frequently used. More recently, peroral endoscopic myotomy (POEM) was developed in Japan. This endoscopic technique requires the creation of a submucosal tunnel as an operating space to access the circular muscle layer for performance of the myotomy [2]. Short-term results from the available series are promising when compared to the alternative approaches. However, procedure length still varies greatly, and the use of devices has also not been standardized. Water jet-assisted POEM, which uses needleless submucosal injections to create a submucosal fluid cushion (usually using a hybrid knife), has been demonstrated to significantly decrease POEM procedure length and to facilitate reinjection, contributing to a lower rate of intraprocedural bleeding [3]. A modified technique with a method of injecting saline mixed with indigo car-

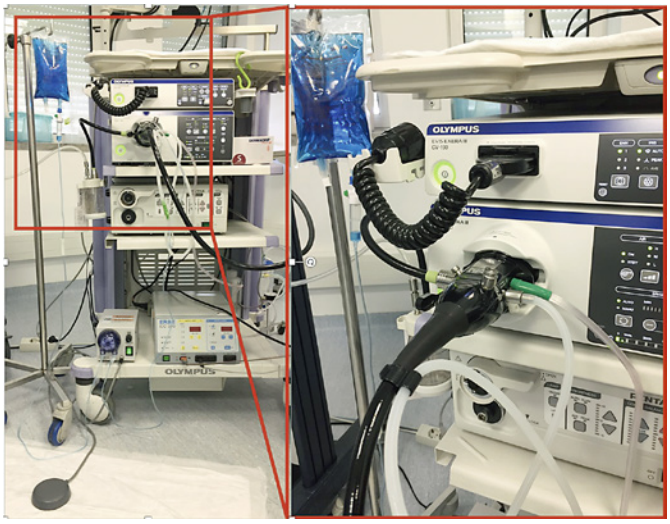

Fig. 1. Equipment for jet injection of dyed saline. Water pump connected to a flask with solution to inject into the submucosa (Voluven® and indigo carmine).

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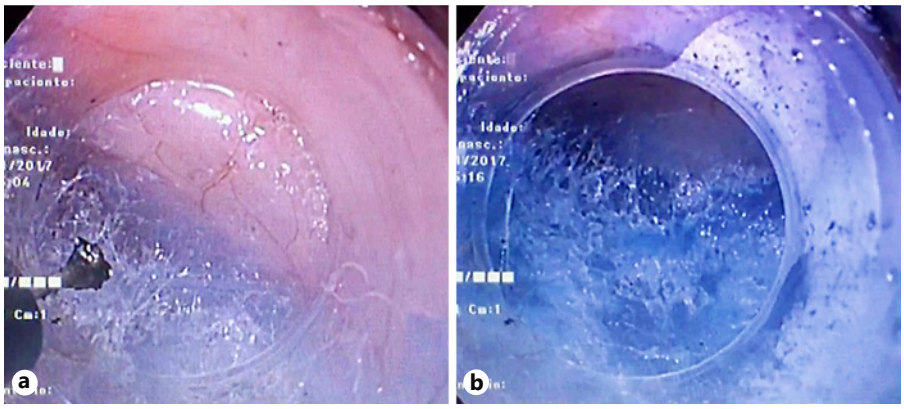

Fig. 2. Submucosal tunnel before (**a**) and after (**b**) jet injection of dyed saline.

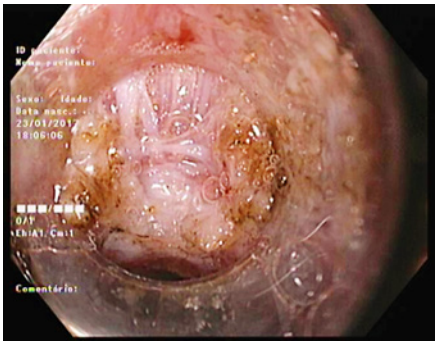

Fig. 3. Esophageal circular muscular layer myotomy.

mine through an integrated water jet channel was subsequently described. Using the water pump, repeated jet injection of dyed saline is performed whenever the submucosal plane becomes unclear. This technique is simple, feasible, and may make POEM easier and more efficient than the standard method [4]. We present a case where this technique was performed.

A 35-year-old male patient presented with dysphagia, which started several months before (Eckardt score of 6 at presentation), and was diagnosed with type I achalasia. Following a discussion of all therapeutic options with the patient, POEM was decided on, and a written informed consent was obtained. The procedure was performed under general anesthesia, with CO_2 insufflation using the Triangle Knife (Olympus) and an Olympus gastroscope (GIF-HQ190) connected to the water pump. The water pump was connected to a bag with solution to inject into the submucosa (Voluven® and indigo carmine) (Fig. 1). An anterior approach was performed with incision in the esophageal mucosa at 2–3 o'clock, followed by a submucosal tunnel creation (17 cm extension). During tunnel creation, the water pump was activated whenever necessary with good submucosal expansion without the necessity of changing the knife for the needle/catheter spray throughout the procedure (Fig. 2). After tunnel creation, myotomy was performed (approximately 12 cm extension) followed by mucosal closure with clips (Fig. 3). The procedure was performed in 90 min. Considering that our clinical experience is still in an early stage, this case was treated faster than the mean procedural time described in this setting (140 min) [5]. The patient remained hospitalized for 48 h without complications. Four months after the procedure, the patient remains asymptomatic (Eckardt score 0). To our knowledge, this is the first report showing endoscopic treatment of achalasia by POEM with water pump-assisted submucosal tunnel creation in a European center.

Statement of Ethics

Written informed consent was obtained from the patient.

Disclosure Statement

The authors report no potential conflict of interest.

Author Contributions

All authors have seen and approved the manuscript being submitted. All authors listed contributed significantly to the work.

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