Introduction

Achalasia is an idiopathic motility disorder characterized by impaired relaxation of lower esophageal sphincter (LES) and loss of peristalsis in the body of the esophagus. It results in severe dysphagia for solids and liquids. There are discoordination between the 2 muscle layers and different motor patterns in 3 types of achalasia. The therapy for achalasia focuses on the forced relaxation of the LES by endoscopic method or surgery. Peroral endoscopic myotomy (POEM) has been introduced as a novel endoscopic procedure for the treatment of achalasia and POEM was first performed to achalasia patients in 2010. POEM has been performed for achalasia patients in Korea. The advantages of POEM are theoretically based on the endoscopic operation such as no skin incisions, decreased pain, and less blood loss.

Subjects and techniques

A total of 24 patients with achalasia were enrolled in this study from November 2011 to March 2013 at Soon Chun Hyang University Hospital (Seoul : Bucheon 18 : 6). The inclusion criteria were symptomatic achalasia confirmed by contrast fluoroscopy, high resolution manometry and esophagogastroduodenoscopy. About 2 cm longitudinal mucosal incision of mid-esophagus was performed as a mucosal entry to submucosal space under general anesthesia. Submucosal tunnel was created and expanded to gastric cardia by endoscopic submucosal dissection technique using various knives such as Dual Knife, Hook Knife, and T-type Hybrid Knife. Carbon dioxide gas was used for insufflations during the procedure, using a CO2 insufflator. After tunneling completion, the inner circular muscle bundle was completely dissected from 2 cm distal to mucosal entry to gastric cardia, approximately 6 to 13 cm length. After myotomy, the mucosal entry site was closed with endoscopic clipping device. Most patients were scheduled to take follow-up symptom score questionnaires, high resolution manometry, and esophagography. Treatment success was defined by a posttreatment Eckardt score ≤3.

Results

Endoscopic esophageal myotomy was successfully completed in 24 patients with symptomatic achalasia. The
mean age±standard deviation was 44.2±15.4 years and the male:female ratio was 7:17. Nine patients had received prior treatment for achalasia; balloon dilatation (n=6), botulinum toxin injection (n=2), and laparoscopic Heller myotomy (n=1). On baseline, 17 patients were type I achalasia, 3 patients were type II, and 4 patients were type III (including 23 nonsigmoid and one sigmoid cases). Median submucosal tunnel length was 10 cm and median total myotomy length was 8 cm. Mean operating time was about 110 min and mean hospital stay after the procedure was 5.3 days. No serious complication was reported. Treatment success was achieved in 100% of cases. Mean posttreatment Eckardt score was 0.9±1.1, compared to 6.3±2.2 prior to the treatment (p=0.001). Baseline manometry data was available for all study patients. However, the follow-up manometry at 3 months after the procedure was available in 11/24 cases. The mean LES pressure was 30.3 mmHg prior to the treatment and 15.3 mmHg after the treatment (p=0.007). The mean pretreatment- and posttreatment-IRP (integrated relaxation pressure) was 26.0 and 10.8 mmHg, respectively (p=0.008). During follow-up, no specific complications, problems, or symptoms were encountered.

Conclusions

We reported 24 successful cases of POEM. Endoscopic esophageal myotomy is a feasible, safe, less invasive and effective treatment and may possibly substitute established treatments of achalasia.

References

2. Hong SJ, Bhargava V, Jiang Y, Denboer D, Mittal RK. A unique esophageal motor pattern that involves longitudinal muscles is responsible for emptying in achalasia esophagus. Gastroenterology 2010;139:102-111.