



Case Report

Initial Experience with Peroral Endoscopic Myotomy in Bulgaria: Case Series

Nikola Boyanov^{1,2}, Katina Shtereva², Katerina Madzharova², Vladimir Andonov^{3,4}, Neno Shopov⁵, Petko Dimov⁶

¹ Medical Simulation Training Center at Research Institute of Medical University of Plovdiv, Bulgaria

² Department of Gastroenterology, Pulmed University Hospital, Plovdiv, Bulgaria

³ Second Department of Internal Medicine, Medical University of Plovdiv, Bulgaria

⁴ Clinic of Gastroenterology, Kaspela University Hospital, Plovdiv, Bulgaria

⁵ Department of Surgery, Pulmed University Hospital, Plovdiv, Bulgaria

⁶ Department of Surgery, Burgasmed Hospital, Burgas, Bulgaria

Corresponding author: Katina Shtereva, Pulmed University Hospital, Medical University of Plovdiv, Plovdiv, Bulgaria; Email: katinashtereva@gmail.com

Received: 20 July 2022 ♦ **Accepted:** 8 Aug 2022 ♦ **Published:** 31 Dec 2022

Citation: Boyanov N, Shtereva K, Madzharova K, Andonov V, Shopov N, Dimov P. Initial experience with peroral endoscopic myotomy in Bulgaria: case series. *Folia Med (Plovdiv)* 2022;64(6):982-984. doi: 10.3897/folmed.64.e90599.

Abstract

Achalasia is a rare motility disorder with unknown etiology that results in failure of relaxation of the lower esophageal sphincter (LES). As there is no etiological treatment, different pharmacological agents and invasive techniques have been used for relieving the symptoms. For the past decade, peroral endoscopic myotomy (POEM) has proven to have excellent results.

We present a retrospective study of five patients that underwent POEM for primary achalasia. We used anterior approach for the submucosal tunneling. The procedure showed immediate results and no severe short- or long-term adverse events. We have been following the patients up for more than 3 years now.

Since its invention more than ten years ago, the POEM procedure and its advantages and disadvantages compared to the pneumatic dilatation and the Heller myotomy have been extensively studied. There is still no universal opinion on which procedure should be the first line treatment.

Keywords

anterior approach, Heller myotomy, pneumatic dilatation, POEM

INTRODUCTION

Primary achalasia is a motility disorder with yet undiscovered etiology that is thought to be either viral, autoimmune or neurodegenerative.^[1] The incidence of achalasia is 1.63/100,000, therefore, it is considered a rare disease.^[2] It results from progressive degeneration of ganglion cells in the myenteric plexus in the esophageal wall, leading to failure of relaxation of the lower esophageal sphincter (LES).^[3] Thus, the proposed treatments aim to reduce the pressure of LES, namely pharmacologic agents, pneumatic dilation

and endoscopic and surgical myotomy.^[1] For the past decade, peroral endoscopic myotomy (POEM) has proven to have excellent results and can be now considered treatment of choice in the countries where it is performed.^[4]

PATIENTS AND METHODS

This is a retrospective study on the initial five patients we performed POEM on - four males and one female. All of them had symptoms of dysphagia and retrosternal pain,

as well as weight reduction. Their symptoms were graded according to the Eckardt scoring system, as it is the most frequently used one when it comes to achalasia.^[5] The subjects were diagnosed via barium swallow and upper digestive endoscopy, as esophageal manometry was not available to perform.

The procedure was performed under general anesthesia and the patients were placed in supine position. A forward-viewing endoscope with a transparent distal cap was used. At the beginning, the distance between the dentition and the cardia of every subject was measured. After injecting a high molecule solution of adrenaline, gelofusine and Indigo Carmine, linear incision was positioned on the front wall of the esophagus, approximately at two o'clock, between eight and seventeen centimeters proximal of the gastroesophageal junction (GEJ). Submucosal tunnel was created from there to two centimeters distal of the GEJ, onto the gastric cardia. Once the submucosal tunnel was completed, full-thickness myotomy of the lower esophageal sphincter was performed, followed by one to two centimeters myotomy in the cardia. The tunnel was sealed with Endoclips only after the relaxation of the LES was verified. On the following day, new upper GI series were ordered, this time with peroral ingestion of urografin to confirm once again the success of the procedure and lack of perforation.

RESULTS

None of the subjects had severe adverse events in the early post-procedural period. In all of them subcutaneous emphysema was observed which resorbed by itself in the next couple of days. In one of the cases, classified as type III achalasia, necrosis of the mucosa occurred about 28 days after the POEM.

The subjects were endoscopically controlled at two months and at one year after the procedure. One had mild reflux and another one did not comply with the endoscopic follow-up program but kept in touch and did not report any residual symptoms. Furthermore, their symptoms, if any, were once again graded according to the Eckardt system. The comparison between the preprocedural and postprocedural score showed excellent results in relieving the symptoms.

DISCUSSION

The POEM procedure was first performed on humans in 2008 by Inoue et al.^[6] Since then, it has gained traction and has become widely used for the treatment of achalasia. Nowadays, there are meta-analyses comparing it to the Heller myotomy. They include thousands of patients^[7] and studies, where follow-ups are performed for up to 10 years^[8]. In a randomized controlled trial, comparing POEM to Heller myotomy, clinical success at the two years follow-up was observed at 83% of the POEM group and at 81.7% of the surgical myotomy group. When compared, se-

rious adverse events occurred in 2.7% of the subjects after the POEM and in 7.3% after the laparoscopic myotomy.^[9]

Moreover, when measuring clinical outcomes of POEM and pneumatic dilatation (PD), the second most used endoscopic technique for treatment of achalasia, the patients that underwent POEM showed significantly better short- and long-term outcomes.^[10]

Since fundoplication is not performed along with POEM, as it is with Heller myotomy, the development of gastroesophageal reflux disease was a major concern. Studies show that the frequency of GERD differs according to the method used for its diagnosis – symptom development, pH monitoring and endoscopic findings.^[8,9,11] Ultimately, while the risk of GERD is higher with POEM, overall rate of severe erosive esophagitis is low.^[12]

CONCLUSIONS

Per-oral endoscopic myotomy is a safe, minimally-invasive procedure, that shows excellent clinical outcomes and symptoms reduction when used for the treatment of achalasia. It can be used as a therapy of choice, compared to the Heller myotomy and pneumatic dilatation.

REFERENCES

1. Patel DA, Kim HP, Zifodya JS, et al. Idiopathic (primary) achalasia: a review. *Orphanet J Rare Dis* 2015; 10:89.
2. Sadowski DC, Ackah F, Jiang B, et al. Achalasia: incidence, prevalence and survival. A population-based study. *Neurogastroenterol Motil* 2010; 22(9):e256-61.
3. Ghoshal UC, Daschakraborty SB, Singh R. Pathogenesis of achalasia cardia. *World J Gastroenterol* 2012; 18(24):3050-7.
4. Jawaid S, Draganov PV, Yang D. Esophageal POEM: the new standard of care. *Transl Gastroenterol Hepatol* 2020; 5:47.
5. Laurino-Neto RM, Herbella F, Schlottmann F, et al. Evaluation of esophageal achalasia: from symptoms to the Chicago classification. *Arq Bras Cir Dig* 2018; 31(2):e1376.
6. Inoue H, Minami H, Kobayashi Y, et al. Peroral endoscopic myotomy (POEM) for esophageal achalasia. *Endoscopy* 2010; 42(4):265-71.
7. Ofosu A, Mohan BP, Ichkhanian Y, et al. Peroral endoscopic myotomy (POEM) vs. pneumatic dilation (PD) in treatment of achalasia: A meta-analysis of studies with \geq 12-month follow-up. *Endosc Int Open* 2021; 9(7):E1097-E1107.
8. Onimaru M, Inoue H, Fujiyoshi Y, et al. Long-term clinical results of per-oral endoscopic myotomy (POEM) for achalasia: First report of more than 10-year patient experience as assessed with a questionnaire-based survey. *Endosc Int Open* 2021; 9(3):E409-E416.
9. Werner YB, Hakanson B, Martinek J, et al. Endoscopic or surgical myotomy in patients with idiopathic achalasia. *N Engl J Med* 2019; 381(23):2219-29.
10. Ofosu A, Mohan BP, Ichkhanian Y, et al. Peroral endoscopic myotomy (POEM) vs pneumatic dilation (PD) in treatment of achalasia: A meta-analysis of studies with \geq 12-month follow-up. *Endosc Int Open* 2021; 9(7):E1097-E1107.
11. Shiwaku H, Inoue H, Sasaki T, et al. A prospective analysis of GERD

after POEM on anterior myotomy. Surg Endosc 2016; 30(6):2496–504.
12. Facciorusso A, Singh S, Abbas Fehmi SM, et al. Comparative efficacy

of first-line therapeutic interventions for achalasia: a systematic review and network meta-analysis. Surg Endosc 2021; 35(8):4305–14.

Первый опыт пероральной эндоскопической миотомии в Болгарии: серия случаев

Никола Боянов^{1,2}, Катина Щерева², Катерина Маджарова², Владимир Андонов^{3,4}, Нено Шопов⁵, Петко Димов⁶

¹ Медицинский симуляционный учебный центр, Научно-исследовательский институт, Медицинский университет – Пловдив, Пловдив, Болгария

² Отделение гастроэнтерологии, УМБАЛ „Пульмед“, Пловдив, Болгария

³ Второе отделение внутренних болезней, Медицинский университет – Пловдив, Пловдив, Болгария

⁴ Клиника гастроэнтерологии, УМБАЛ „Каспела“, Медицинский университет – Пловдив, Пловдив, Болгария

⁵ Отделение хирургии, УМБАЛ „Пульмед“, Пловдив, Болгария

⁶ Отделение хирургии, Больница „Бургасмед“, Бургас, Болгария

Адрес для корреспонденции: Катина Щерева, УМБАЛ „Палмед“, Медицинский университет – Пловдив, Пловдив, Болгария; Email: katinashtereva@gmail.com

Дата получения: 20 июля 2022 ♦ **Дата приемки:** 8 августа 2022 ♦ **Дата публикации:** 31 декабря 2022

Образец цитирования: Boyanov N, Shtereva K, Madzharova K, Andonov V, Shopov N, Dimov P. Initial experience with peroral endoscopic myotomy in Bulgaria: case series. Folia Med (Plovdiv) 2022;64(6):982-984. doi: 10.3897/folmed.64.e90599.

Резюме

Ахалазия – это редкое нарушение моторики неизвестной этиологии, которое приводит к нарушению расслабления нижнего пищеводного сфинктера (НПС). Поскольку не существует этиологического лечения, для облегчения симптомов используются различные фармакологические средства и инвазивные методы. За последнее десятилетие пероральная эндоскопическая миотомия (РОЕМ) показала отличные результаты.

Мы представляем ретроспективное исследование пяти пациентов, перенесших РОЕМ по поводу первичной ахалазии. Мы использовали передний доступ для подслизистого туннелирования. Процедура показала немедленные результаты и отсутствие серьезных краткосрочных или долгосрочных побочных эффектов. Мы наблюдаем за пациентами уже более 3-х лет.

С момента своего изобретения более десяти лет назад процедура РОЕМ, её преимущества и недостатки по сравнению с пневматической дилатацией и миотомией по Геллеру тщательно изучались. До сих пор нет единого мнения о том, какая процедура должна быть лечением первой линии.

Ключевые слова

передний доступ, миотомия по Геллеру, пневматическая дилатация, РОЕМ
