

World Journal of *Clinical Cases*

World J Clin Cases 2019 August 26; 7(16): 2134-2412



**REVIEW**

- 2134** Role of infrapatellar fat pad in pathological process of knee osteoarthritis: Future applications in treatment
Jiang LF, Fang JH, Wu LD

MINIREVIEWS

- 2143** Application of Newcastle disease virus in the treatment of colorectal cancer
Song H, Zhong LP, He J, Huang Y, Zhao YX

ORIGINAL ARTICLE**Basic Study**

- 2155** Reduced microRNA-451 expression in eutopic endometrium contributes to the pathogenesis of endometriosis
Gao S, Liu S, Gao ZM, Deng P, Wang DB

Case Control Study

- 2165** Application of self-care based on full-course individualized health education in patients with chronic heart failure and its influencing factors
Sun J, Zhang ZW, Ma YX, Liu W, Wang CY

Retrospective Study

- 2176** Predicting surgical site infections using a novel nomogram in patients with hepatocellular carcinoma undergoing hepatectomy
Tang TY, Zong Y, Shen YN, Guo CX, Zhang XZ, Zou XW, Yao WY, Liang TB, Bai XL
- 2189** Serological investigation of IgG and IgE antibodies against food antigens in patients with inflammatory bowel disease
Wang HY, Li Y, Li JJ, Jiao CH, Zhao XJ, Li XT, Lu MJ, Mao XQ, Zhang HJ
- 2204** Incidence of infectious complications is associated with a high mortality in patients with hepatitis B virus-related acute-on-chronic liver failure
Wang C, Ma DQ, Luo S, Wang CM, Ding DP, Tian YY, Ao KJ, Zhang YH, Chen Y, Meng ZJ

Clinical Trials Study

- 2217** R/S ratio in lead II, and the prognostic significance of red cell distribution width in acute coronary syndrome
Coşkun A, Eren SH

- 2227** Comparative analysis of APACHE-II and P-POSSUM scoring systems in predicting postoperative mortality in patients undergoing emergency laparotomy
Nag DS, Dembla A, Mahanty PR, Kant S, Chatterjee A, Samaddar DP, Chugh P

Observational Study

- 2238** TAZ and myostatin involved in muscle atrophy of congenital neurogenic clubfoot
Sun JX, Yang ZY, Xie LM, Wang B, Bai N, Cai AL

Prospective Study

- 2247** Effects of dual sofosbuvir/daclatasvir therapy on, chronic hepatitis C infected, survivors of childhood malignancy
El-Shabrawi MH, Sherief LM, Yakoot M, Kamal NM, Almalky MA, AbdElgawad MM, Mahfouz AA, Helmy S, Kamal EM, Attia D, El-Khayat HR

Randomized Controlled Trial

- 2256** Hypoallergenicity of a thickened hydrolyzed formula in children with cow's milk allergy
Rossetti D, Cucchiara S, Morace A, Leter B, Oliva S

SYSTEMATIC REVIEWS

- 2269** Surveillance and diagnosis of hepatocellular carcinoma: A systematic review
Pascual S, Miralles C, Bernabé JM, Irurzun J, Planells M

META-ANALYSIS

- 2287** Neuraxial adjuvants for prevention of perioperative shivering during cesarean section: A network meta-analysis following the PRISMA guidelines
Zhang YW, Zhang J, Hu JQ, Wen CL, Dai SY, Yang DF, Li LF, Wu QB

CASE REPORT

- 2302** Primary malignant melanoma of the biliary tract: A case report and literature review
Cameselle-García S, Pérez JLF, Areses MC, Castro JD, Mosquera-Reboredo J, García-Mata J
- 2309** Successful treatment of tubulointerstitial nephritis in immunoglobulin G4-related disease with rituximab: A case report
Eroglu E, Sipahioglu MH, Senel S, Ertas SK, Savas S, Ozturk F, Kocyigit I, Tokgoz B, Oymak O
- 2316** Effectiveness of vedolizumab treatment in two different anti-tumor necrosis factor alpha refractory pouchitis: A case report
Cakir OO
- 2322** Clinical outcomes and safety of high-resolution manometry guided superficial partial circular muscle myotomy in per-oral endoscopic myotomy for Jackhammer esophagus: Two cases report
Choi YI, Kim KO, Park DK, Chung JW, Kim YJ, Kwon KA

- 2330** Cardiac arrhythmias and cardiac arrest related to mushroom poisoning: A case report
Li S, Ma QB, Tian C, Ge HX, Liang Y, Guo ZG, Zhang CD, Yao B, Geng JN, Riley F
- 2336** Role of abdominal drainage in bariatric surgery: Report of six cases
Liu Y, Li MY, Zhang ZT
- 2341** A patient misdiagnosed with central serous chorioretinopathy: A case report
Wang TY, Wan ZQ, Peng Q
- 2346** Large carotid body tumor successfully resected in hybrid operating theatre: A case report
Li MQ, Zhao Y, Sun HY, Yang XY
- 2352** A huge pancreatic lipoma mimicking a well-differentiated liposarcoma: A case report and systematic literature review
Xiao RY, Yao X, Wang WL
- 2360** Ulcerative colitis complicated with colonic necrosis, septic shock and venous thromboembolism: A case report
Zhu MY, Sun LQ
- 2367** Acute pancreatitis connected with hypercalcemia crisis in hyperparathyroidism: A case report
Ma YB, Hu J, Duan YF
- 2374** Treatment of invasive fungal disease: A case report
Xiao XF, Wu JX, Xu YC
- 2384** Hepatocellular carcinoma successfully treated with ALPPS and apatinib: A case report
Liu L, Li NF, Zhang Q, Lin L
- 2393** Pseudothrombus deposition accompanied with minimal change nephrotic syndrome and chronic kidney disease in a patient with Waldenström's macroglobulinemia: A case report
Mwamunyi MJ, Zhu HY, Zhang C, Yuan YP, Yao LJ
- 2401** *Ex vivo* revascularization of renal artery aneurysms in a patient with solitary kidney: A case report
Chen XY, Zhao JC, Huang B, Yuan D, Yang Y
- 2406** Malignant syphilis accompanied with neurosyphilis in a malnourished patient: A case report
Ge G, Li DM, Qiu Y, Fu HJ, Zhang XY, Shi DM

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Manabu Watanabe, MD, PhD, Full Professor, Division of Gastroenterology and Hepatology, Department of Internal Medicine, Toho University Medical Center, Ohashi Hospital, Tokyo 153-8515, Japan

AIMS AND SCOPE

World Journal of Clinical Cases (*World J Clin Cases*, *WJCC*, online ISSN 2307-8960, DOI: 10.12998) is a peer-reviewed open access academic journal that aims to guide clinical practice and improve diagnostic and therapeutic skills of clinicians.

The primary task of *WJCC* is to rapidly publish high-quality Case Report, Clinical Management, Editorial, Field of Vision, Frontier, Medical Ethics, Original Articles, Meta-Analysis, Minireviews, and Review, in the fields of allergy, anesthesiology, cardiac medicine, clinical genetics, clinical neurology, critical care, dentistry, dermatology, emergency medicine, endocrinology, family medicine, gastroenterology and hepatology, etc.

INDEXING/ABSTRACTING

The *WJCC* is now indexed in PubMed, PubMed Central, Science Citation Index Expanded (also known as SciSearch®), and Journal Citation Reports/Science Edition. The 2019 Edition of Journal Citation Reports cites the 2018 impact factor for *WJCC* as 1.153 (5-year impact factor: N/A), ranking *WJCC* as 99 among 160 journals in Medicine, General and Internal (quartile in category Q3).

RESPONSIBLE EDITORS FOR THIS ISSUE

Responsible Electronic Editor: Ji-Hong Liu

Proofing Production Department Director: Yun-Xiaojuan Wu

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Semimonthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

EDITORIAL OFFICE

Jin-Lei Wang, Director

PUBLICATION DATE

August 26, 2019

COPYRIGHT

© 2019 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Clinical outcomes and safety of high-resolution manometry guided superficial partial circular muscle myotomy in per-oral endoscopic myotomy for Jackhammer esophagus: Two cases report

Youn I Choi, Kyoung Oh Kim, Dong Kyun Park, Jun-Won Chung, Yoon Jae Kim, Kwang An Kwon

ORCID number: Youn I Choi (0000-0001-6561-6752); Kyoung Oh Kim (0000-0002-5365-2550); Dong Kyun Park (0000-0002-2862-6641); Jun-Won Chung (0000-0002-0869-7661); Yoon Jae Kim (0000-0001-8477-6823); Kwang An Kwon (0000-0002-2947-2111).

Author contributions: Choi YI, and Kim KO contributed to study concept and design, acquisition analysis and interpretation of data, drafting of the manuscript. Park DK contributed to enroll patients and critically revised the manuscript. Chung JW, Kim KO, and Kwon KA contributed to enrolled the patients. All authors read and approved the final manuscript.

Informed consent statement: Informed consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: The authors declare that they have no conflict of interest.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non

Youn I Choi, Kyoung Oh Kim, Dong Kyun Park, Jun-Won Chung, Yoon Jae Kim, Kwang An Kwon, Department of Gastroenterology, Gil Medical Center, Gachon University, Incheon 21565, South Korea

Corresponding author: Kyoung Oh Kim, MD, PhD, Associate Professor, Doctor, Professor, Division of Gastroenterology, Department of Internal Medicine, Gil Medical Center, Gachon University, 21, Namdong-daero 774 beon-gil, Namdong-gu, Incheon 21565, South Korea. kkoimge@naver.com

Telephone: +82-32-4603778

Fax: +82-32-4603408

Abstract

BACKGROUND

Jack hammer esophagus is a relatively rare disease and to date, there is no dramatic treatment option. Recently, conventional per-oral endoscopic myotomy (POEM) have expanded their area into Jackhammer esophagus. However, several complications such as post procedure motility disorders (e.g., passage disturbance) are issues after POEM. To overcome these issues, we here introduced high-resolution manometry (HRM)-guided superficial partial circular muscle myotomy, which involves cutting only the superficial layer of the esophageal circular muscle.

CASE SUMMARY

We report two cases of patients with Jackhammer esophagus who were treated with HRM-guided extremely superficial partial circular muscle myotomy during POEM. Case 1 was a 53-year-old female with medication-refractory odynophagia and case 2 was a 47-year-old man who presented with chest pain. They were diagnosed with Jackhammer esophagus using HRM, and the hypercontractile segments of the esophagus were identified. HRM-guided extremely superficial partial circular muscle myotomy was performed while preserving the lower esophageal sphincter. Therefore, the circular and longitudinal muscle layers are preserved but hypercontractile movements are reduced, even after POEM. Patients' clinical symptoms dramatically improved right after POEM, and 6-mo follow-up HRM revealed completely resolved status. During a 1-year follow-up period, patients were still in good health and remained symptom free.

CONCLUSION

HRM-guided superficial partial circular muscle myotomy may be a promising

Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Unsolicited manuscript

Received: January 19, 2019

Peer-review started: January 21, 2019

First decision: May 31, 2019

Revised: July 1, 2019

Accepted: July 20, 2019

Article in press: July 20, 2019

Published online: August 26, 2019

P-Reviewer: Isik A

S-Editor: Dou Y

L-Editor: A

E-Editor: Liu JH



alternative to conventional POEM for treating Jackhammer esophagus with improved efficacy.

Key words: Jackhammer esophagus; Hypercontractile; Partial circular muscle myotomy; Case report

©The Author(s) 2019. Published by Baishideng Publishing Group Inc. All rights reserved.

Core tip: Jack hammer esophagus is a relatively rare disease and to date, there is no dramatic treatment option. Recently, conventional per-oral endoscopic myotomy (POEM) have expanded their area into Jackhammer esophagus. However, several complications such as post procedure motility disorders (e.g., passage disturbance) are issues after POEM. To overcome these issues, we here introduced high-resolution manometry-guided superficial partial circular muscle myotomy, which involves cutting only the superficial layer of the esophageal circular muscle for two patients.

Citation: Choi YI, Kim KO, Park DK, Chung JW, Kim YJ, Kwon KA. Clinical outcomes and safety of high-resolution manometry guided superficial partial circular muscle myotomy in per-oral endoscopic myotomy for Jackhammer esophagus: Two cases report. *World J Clin Cases* 2019; 7(16): 2322-2329

URL: <https://www.wjnet.com/2307-8960/full/v7/i16/2322.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v7.i16.2322>

INTRODUCTION

Jackhammer esophagus, also referred to as hypercontractile peristalsis, is a rare esophageal motility disorder characterized by hypertensive but normally propagated peristaltic contractions^[1-3]. The manometric criteria for Jackhammer esophagus are an initial average peristaltic amplitude > 180 mmHg in the distal esophagus using conventional manometry^[1,3,4] > 20% of swallows having a distal contractile integral (DCI) value > 8000 mmHg.s.cm, and normal latency on high-resolution manometry (HRM)^[2,5-8]. The therapeutic options for Jackhammer esophagus are pharmacologic agents such as nitrates, phosphodiesterase 5 inhibitors, low-dose antidepressants, proton pump inhibitors, and endoscopic botulinum toxin injection into the esophageal body. However, the efficacy of these methods is not satisfactory^[1-3,9,10]. Per-oral endoscopic myotomy (POEM) has been used as an alternative treatment to overcome the limitations of the above therapies. However, there are still concerns regarding post-POEM complications, such as passage disturbance and sigmoid esophagus^[2,11-14]. Jack hammer esophagus is a relatively rare disease and to date, there is no definitive and dramatic treatment options. including medication, endoscopic treatments or surgical treatments.

To reduce the risk of complications after conventional POEM^[11,15], we introduced HRM-guided extremely superficial partial circular muscle myotomy during the POEM procedure for two Jackhammer esophagus cases. partial circular muscle myotomy involves cutting only the superficial layer of the esophageal circular muscle. Therefore, the circular and longitudinal muscle layers are preserved but hypercontractile movements are reduced, even after POEM. Moreover, hypercontractile segments were specifically targeted and measured though HRM.

Between April 2016 and August 2018, a total of 350 patients underwent HRM and 8 were diagnosed with Jackhammer esophagus in our hospitals. Two patients with medication-refractory Jackhammer esophagus underwent partial circular muscle myotomy during POEM. Herein, we describe two patients who presented with Jackhammer esophagus and were successfully treated using HRM-guided partial circular muscle myotomy during POEM.

CASE PRESENTATION

Chief complaints

Case 1: A 53-year-old woman was referred to our hospital for odynophagia and regurgitation.

Case 2: A 47-year-old man was referred to the gastrointestinal department for atypical chest pain for 6 mo.

History of present illness

Case 1: She had previously presented to a local hospital and had been prescribed oral proton pump inhibitors and nitroglycerin for several months, but her symptoms did not improve.

Case 2: He was previously presented to the cardiovascular department for atypical chest pain. However, his symptom was not improved even after stent angiography and administration of anti-angina medications and oral proton pump inhibitors for several months. After then he was referred to the gastrointestinal department.

History of past illness/ Personal and family history

Case 1: She had no known medical or surgical history. Her family history was negative.

Case 2: He had two-vessel cardiovascular disease with angina and a stent was inserted 5 years ago. Despite use of a patent stent, cardiovascular medications including nitrates, and a 3-mo trial of proton pump inhibitors, atypical squeezing pain in the epigastric region remained. His family history was negative.

Physical examination upon admission

Case 1: Physical examination on admission revealed no abnormal palpable mass on head and neck area.

Case 2: Physical examination on admission revealed no abnormal findings.

Laboratory examinations

Case 1: There were no abnormal findings on electrocardiogram, and laboratory tests including total blood count, liver function, renal function, and other basic chemical tests were normal.

Case 2: Laboratory tests were normal, including total blood count, liver function, renal function, and other basic chemical tests.

Imaging examinations

Case 1: Esophagography (barium radiography) showed spasmodic contraction of the distal esophagus and a narrowing of the esophageal cavity (Figure 1). HRM showed high-amplitude distal esophageal contractions with a DCI value > 8000 mmHg.s.cm for 6 of a total of 10 swallows. The highest DCI value was 13553 mmHg.s.cm (Figure 1). HRM showed high-amplitude distal esophageal contractions located 25-38 cm from the incisors according to the distance gauge of the pressure measuring tubes.

Case 2: On upper endoscopy, no abnormal findings were reported. Barium radiography showed spasmodic contractions of the distal esophagus and a narrow esophageal cavity (Figure 2). HRM showed high-amplitude distal esophageal contractions with a DCI value > 8000 mmHg.s.cm for 8 of a total of 10 swallows (Figure 2B). The highest DCI value was 21024 mmHg.s.cm. POEM was performed. HRM showed high-amplitude distal esophageal contractions located 28-39 cm from the incisors according to the distance gauge of the pressure measuring tubes.

FINAL DIAGNOSIS

Case 1: The final diagnosis was medication refractory Jack hammer esophagus without involvement of low esophageal sphincter.

Case 2: The final diagnosis was medication refractory Jack hammer esophagus without involvement of low esophageal sphincter.

TREATMENT

Case 1: The patient underwent HRM-guided superficial partial circular muscle myotomy (Figure 3). Since HRM showed high-amplitude distal esophageal contractions located 25-38 cm from the incisors, we performed partial circular muscle myotomy of the esophageal muscle on the right side (Figure 3). We preserved the lower esophageal sphincter.

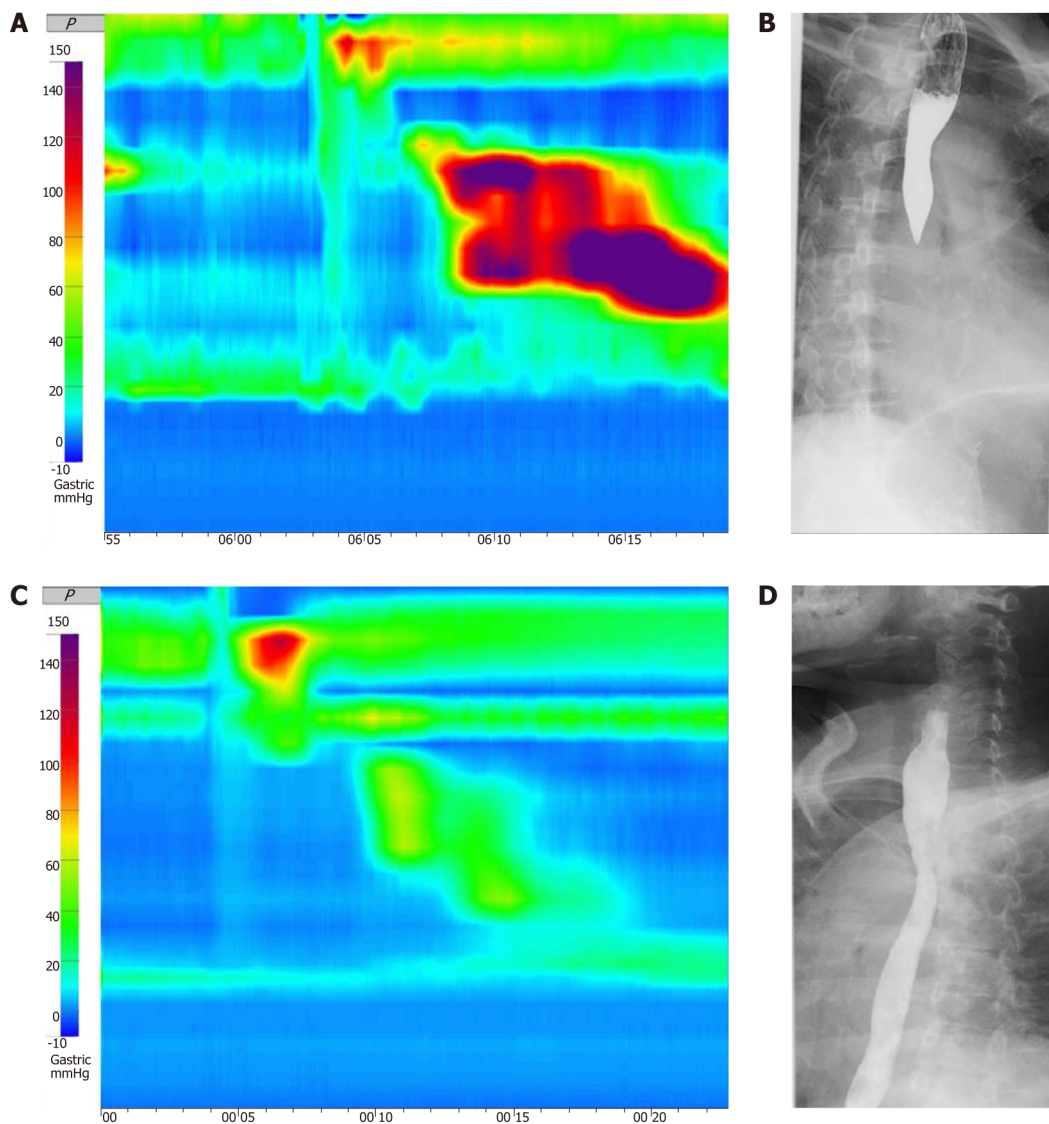


Figure 1 The examination of 53-year-old woman conducted before superficial circular muscle per-oral esophageal myotomy. A: Pre-treatment high-resolution esophageal manometry (HRM) image depicted a jackhammer esophagus patient with distal contractile index over 8000 mmHg.s.cm; B-D: Barium radiography showed spasmodic contraction of the distal esophagus and a narrowing of the esophageal cavity (C) Post-treatment HRM revealed distal contractile integral of 980 mmHg.s.cm (D) Post-treatment esophagogram showed improved.

Case 2: The patient underwent HRM-guided superficial partial circular muscle myotomy (Figure 3). Since HRM showed high-amplitude distal esophageal contractions located 25-38 cm from the incisors, we performed partial circular muscle myotomy of the esophageal muscle on the right side (Figure 3). We preserved the lower esophageal sphincter.

We performed HRM-guided superficial partial circular muscle myotomy of the esophageal muscle. Since HRM showed high-amplitude distal esophageal contractions located 28-39 cm from the incisors, we performed partial circular muscle myotomy of the esophageal muscle on the right side (Figure 3) and preserved the lower esophageal sphincter.

OUTCOME AND FOLLOW UP

Case 1: After the procedure, the patient's symptoms dramatically improved and post-POEM HRM was within the normal range. During a 1-year follow-up period, patients were in good health and remained symptom free.

Case 2: After the procedure, the patient's symptoms dramatically improved and post-POEM HRM was within the normal range (Figure 2C). During a 6-mo follow-up period, patients were in good health and remained symptom free.

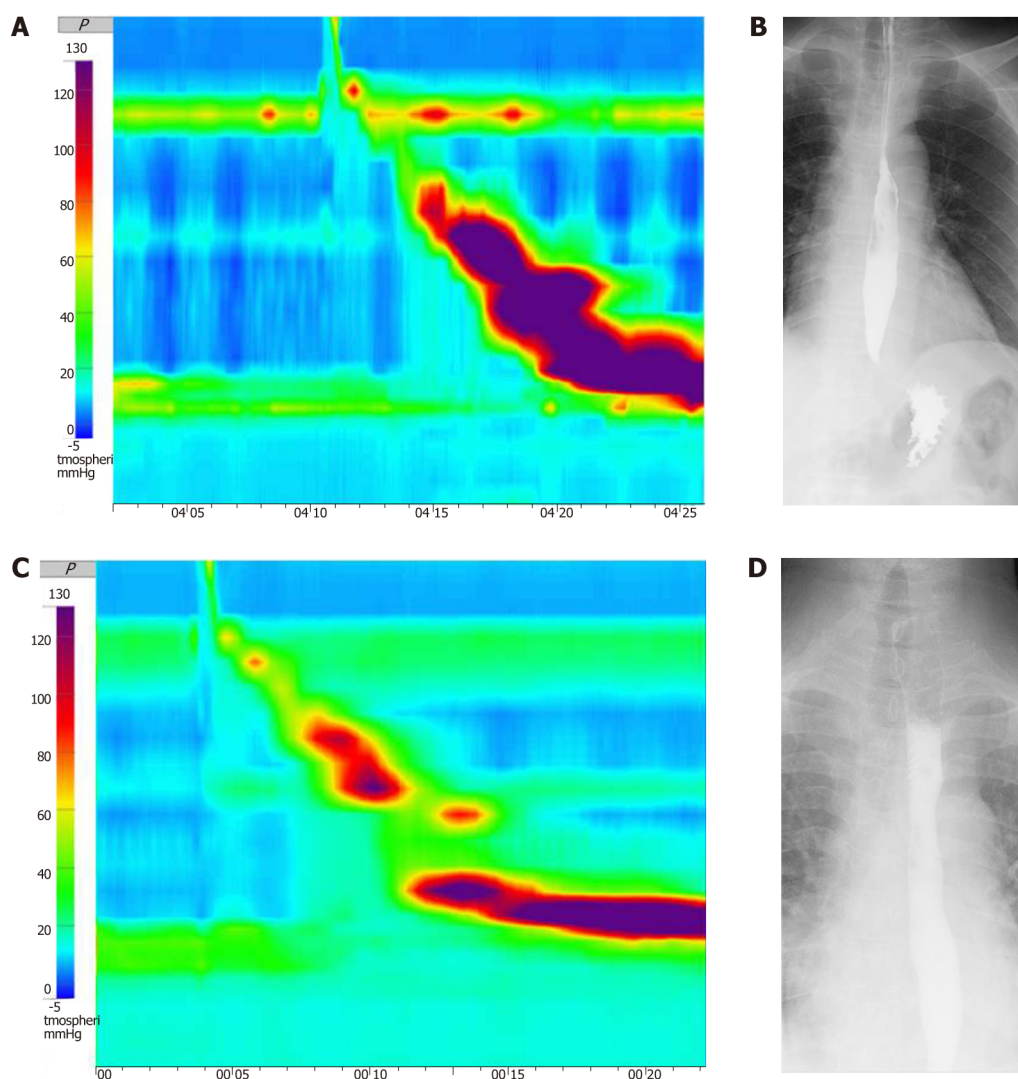


Figure 2 The examination of 47-year-old man conducted before superficial circular muscle per-oral esophageal myotomy. A: Pre-treatment high-resolution manometry (HRM) showed high-amplitude distal esophageal contractions with a distal contractile integral (DCI) value > 8000 mmHg.s.cm for 8 of a total of 10 swallows and the highest DCI value was 13553 mmHg.s.cm; B-D: Pre-treatment esophagography showed spasmodic contraction of the distal esophagus (C) Post-treatment HRM revealed within normal range of DCI (D) Post-treatment esophagogram showed improved function of passage of esophagus.

DISCUSSION

We here report two patients with Jackhammer esophagus who were successfully treated with HRM-guided superficial partial circular muscle myotomy during POEM. After the procedures, both patients reported improve symptoms with no side effects. The current cases suggest that HRM-guided superficial partial circular muscle myotomy may be a potential treatment option for Jackhammer esophagus with a relatively low rate of post-procedure complications as compared to conventional POEM.

Jackhammer esophagus is rare and severe disease^[2,16,17]. Jackhammer esophagus is extremely high amplitudes contractions and within normal limit of peristaltic contractions^[4]. Treatment strategy for Jackhammer esophagus includes medication for smooth muscle relation (nifedipine), anti-reflex medication, and pneumatic dilatation of LES^[4]. Because of the rare incidence of Jackhammer esophagus, proper evaluation of incidence is not easy, the medication refractory Jackhammer esophagus has been increasing. Recently for medical refractory Jackhammer esophagus, POEM was introduced^[11].

POEM is the first clinically efficacious natural orifice transluminal endoscopic surgery (NOTES) with an endoscopic safety profile^[1,15,18,19]. However, despite its safety profile, post-POEM complications are not rare^[6,7,9,20]. Conventional POEM for Jackhammer esophagus is associated with several side effects including post-procedure sigmoid esophagus and ineffective esophageal motility^[14,19]. It remains debated whether the lower esophageal sphincter should be cut to prevent symptom

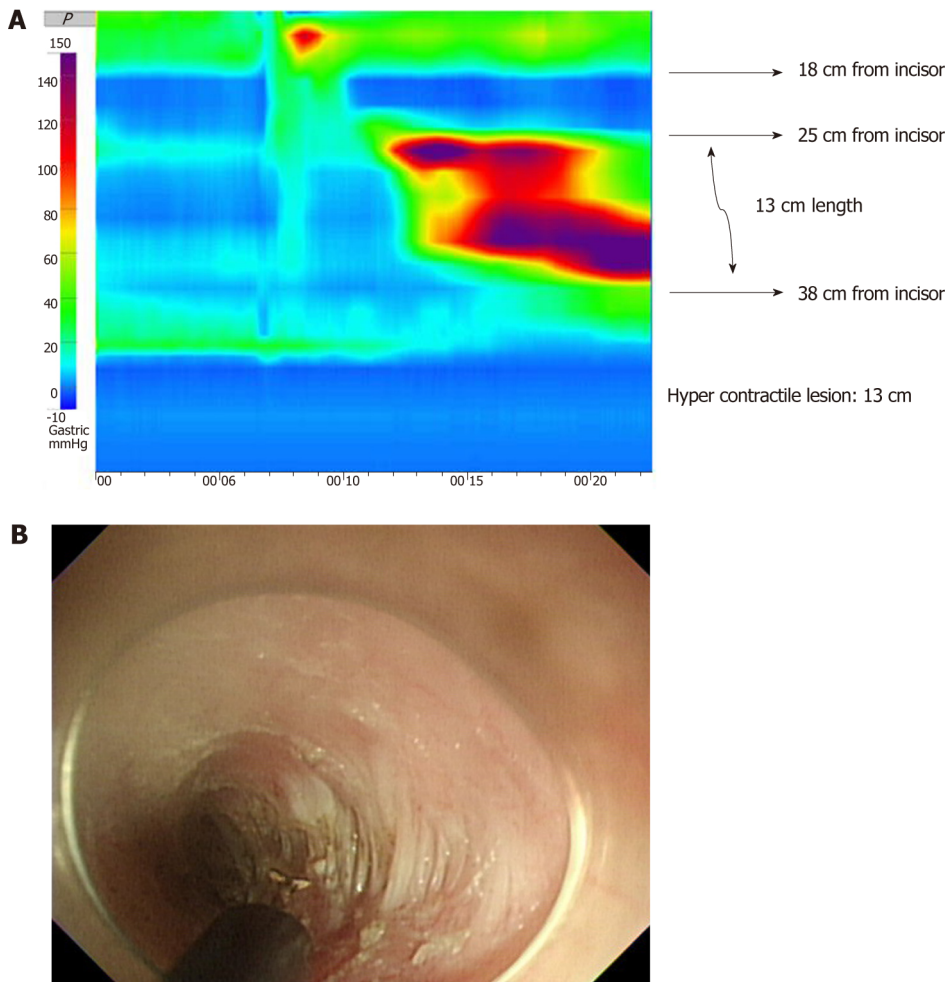


Figure 3 Procedures of high-resolution manometry guided superficial partial circular muscle myotomy. A: We first detect the hypercontractile lesion through high-resolution manometry (HRM), and in this patients' case, HRM showed high-amplitude distal esophageal contractions located 25-38 cm from the incisors according to the distance gauge of the pressure measuring tubes. B: Therefore, we performed superficial partial circular muscle myotomy of the esophageal muscle on the right side, (B) Superficial partial circular muscle myotomy during POEM. Remnant circular muscle.

development after the procedure^[7,14,18]. Recent systemic review showed that the pooled rate of clinical success in patients of Jackhammer esophagus for POEM was 89.6%^[21]. The success rates of both the length > 10 cm, and the length < 10 cm were 91.1% and 89.1%, respectively^[21]. There are several researches on the symptom in patients with Jackhammer esophagus and the pre-peak and post-peak phase of contraction^[3,22]. In these regards, to distinguish the contractile integral components of pre-peak and post peak phase contractile activity is important to treat Jack hammer disease^[3,22]. However, there are still concerns regarding post-POEM complications for medication refractory Jackhammer esophagus after POEM, such as passage disturbance and sigmoid esophagus^[2,11-14].

To improve treatment efficacies and reduce the complications in the treatment of Jack hammer esophagus after POEM, we focused two issues: (1) To measure the accurate segments which are hypercontractile in the esophagus; and (2) To conserve the esophageal motility after POEM procedures. HRM-guided superficial partial circular muscle myotomy which we introduced is a modified type of conventional POEM, and this method is expected to reduce side effects and increase treatment efficacy^[5,11,14]. Because partial circular myotomy during POEM involves cutting only the superficial layer of the circular esophageal muscle and not the full thickness of the muscle nor the full circular muscle layer, even after POEM, the previously diagnosed Jackhammer esophagus consists circular and longitudinal layer of muscle with its nature but reduced hypercontractile movements^[11,14,19]. Moreover, in addition to region-targeted therapy, partial circular muscle myotomy was performed under HRM guidance to selectively detect hypercontractile segments. Therefore, decreased esophageal motility after the procedure are prevented. Moreover, it is not necessary to cut the lower esophageal sphincter in a partial circular myotomy when low esophageal sphincter is not involved^[23]. This method not only reduces the occurrence

of side effects associated with conventional POEM, including partial or full thickness POEM, but also improves treatment efficacy.

CONCLUSION

HRM-guided superficial partial circular muscle myotomy during POEM may be a promising alternative to conventional POEM for the treatment of patients with Jackhammer esophagus who are refractory to conventional medical therapy, which is associated with improved efficacy and safety profile.

REFERENCES

- Kandulski A**, Fuchs KH, Weigt J, Malfertheiner P. Jackhammer esophagus: high-resolution manometry and therapeutic approach using peroral endoscopic myotomy (POEM). *Dis Esophagus* 2016; **29**: 695-696 [PMID: 24460870 DOI: 10.1111/dote.12182]
- Herregods TV**, Smout AJ, Ooi JL, Sifrim D, Bredenoord AJ. Jackhammer esophagus: Observations on a European cohort. *Neurogastroenterol Motil* 2017; **29** [PMID: 27753176 DOI: 10.1111/nmo.12975]
- Xiao Y**, Carlson DA, Lin Z, Alhalel N, Pandolfino JE. Jackhammer esophagus: Assessing the balance between prepeak and postpeak contractile integral. *Neurogastroenterol Motil* 2018; **30**: e13262 [PMID: 29193439 DOI: 10.1111/nmo.13262]
- Jia Y**, Arenas J, Hejazi RA, Elhanafi S, Saadi M, McCallum RW. Frequency of Jackhammer Esophagus as the Extreme Phenotypes of Esophageal Hypercontractility Based on the New Chicago Classification. *J Clin Gastroenterol* 2016; **50**: 615-618 [PMID: 26927491 DOI: 10.1097/MCG.0000000000000496]
- Roman S**, Pandolfino JE, Chen J, Boris L, Luger D, Kahrilas PJ. Phenotypes and clinical context of hypercontractility in high-resolution esophageal pressure topography (EPT). *Am J Gastroenterol* 2012; **107**: 37-45 [PMID: 21931377 DOI: 10.1038/ajg.2011.313]
- Clermont MP**, Ahuja NK. The Relevance of Spastic Esophageal Disorders as a Diagnostic Category. *Curr Gastroenterol Rep* 2018; **20**: 42 [PMID: 30079434 DOI: 10.1007/s11894-018-0650-9]
- Crespin OM**, Liu LWC, Parmar A, Jackson TD, Hamid J, Shlomovitz E, Okrainec A. Safety and efficacy of POEM for treatment of achalasia: a systematic review of the literature. *Surg Endosc* 2017; **31**: 2187-2201 [PMID: 27633440 DOI: 10.1007/s00464-016-5217-y]
- Sato H**, Takahashi K, Mizuno KI, Hashimoto S, Yokoyama J, Hasegawa G, Terai S. Esophageal motility disorders: new perspectives from high-resolution manometry and histopathology. *J Gastroenterol* 2018; **53**: 484-493 [PMID: 29134329 DOI: 10.1007/s00535-017-1413-3]
- Dawod E**, Saumoy M, Xu MM, Kahaleh M. Peroral endoscopic myotomy (POEM) in jackhammer esophagus: a trick of the trade. *Endoscopy* 2017; **49**: E254-E255 [PMID: 28759922 DOI: 10.1055/s-0043-115887]
- Khan MA**, Kumbhari V, Ngamruengphong S, Ismail A, Chen YI, Chavez YH, Bukhari M, Nollan R, Ismail MK, Onimaru M, Balassone V, Sharata A, Swanson L, Inoue H, Repici A, Khashab MA. Is POEM the Answer for Management of Spastic Esophageal Disorders? A Systematic Review and Meta-Analysis. *Dig Dis Sci* 2017; **62**: 35-44 [PMID: 27858325 DOI: 10.1007/s10620-016-4373-1]
- Li C**, Gong A, Zhang J, Duan Z, Ge L, Xia N, Leng J, Li M, Liu Y. Clinical Outcomes and Safety of Partial Full-Thickness Myotomy versus Circular Muscle Myotomy in Peroral Endoscopic Myotomy for Achalasia Patients. *Gastroenterol Res Pract* 2017; **2017**: 2676513 [PMID: 28316620 DOI: 10.1155/2017/2676513]
- Al-Qaisi MT**, Siddiki HA, Crowell MD, Burdick GE, Fleischer DE, Ramirez FC, Vela MF. The clinical significance of hypercontractile peristalsis: comparison of high-resolution manometric features, demographics, symptom presentation, and response to therapy in patients with Jackhammer esophagus versus Nutcracker esophagus. *Dis Esophagus* 2017; **30**: 1-7 [PMID: 28881883 DOI: 10.1093/dote/dox085]
- Roman S**, Kahrilas PJ. Management of spastic disorders of the esophagus. *Gastroenterol Clin North Am* 2013; **42**: 27-43 [PMID: 23452629 DOI: 10.1016/j.gtc.2012.11.002]
- Bechara R**, Ikeda H, Inoue H. Peroral endoscopic myotomy for Jackhammer esophagus: to cut or not to cut the lower esophageal sphincter. *Endosc Int Open* 2016; **4**: E585-E588 [PMID: 27274539 DOI: 10.1055/s-0042-105204]
- Kahn A**, Al-Qaisi MT, Obeid RA, Katzka DA, Ravi KM, Ramirez FC, Crowell MD, Vela MF. Clinical features and long-term outcomes of lower esophageal sphincter-dependent and lower esophageal sphincter-independent jackhammer esophagus. *Neurogastroenterol Motil* 2019; **31**: e13507 [PMID: 30443964 DOI: 10.1111/nmo.13507]
- Isik A**, Firat D, Yilmaz I, Peker K, Idiz O, Yilmaz B, Demiryilmaz I, Celebi F. A survey of current approaches to thyroid nodules and thyroid operations. *Int J Surg* 2018; **54**: 100-104 [PMID: 29709542 DOI: 10.1016/j.ijsu.2018.04.037]
- Isik A**, Firat D, Peker K, Sayar I, Idiz O, Soyutürk M. A case report of esophageal perforation: Complication of nasogastric tube placement. *Am J Case Rep* 2014; **15**: 168-171 [PMID: 24803977 DOI: 10.12659/AJCR.890260]
- Bechara R**, Inoue H. POEM, the Prototypical "New NOTES" Procedure and First Successful NOTES Procedure. *Gastrointest Endosc Clin N Am* 2016; **26**: 237-255 [PMID: 27036895 DOI: 10.1016/j.giec.2015.12.002]
- Tanaka S**, Toyonaga T, Kawara F, Grimm IS, Hoshi N, Abe H, Ohara Y, Morita Y, Umegaki E, Azuma T. Peroral endoscopic myotomy using FlushKnife BT: a single-center series. *Endosc Int Open* 2017; **5**: E663-E669 [PMID: 28691051 DOI: 10.1055/s-0043-111721]
- Schaheen LW**, Sanchez MV, Luketich JD. Peroral Endoscopic Myotomy for Achalasia. *Thorac Surg Clin* 2018; **28**: 499-506 [PMID: 30268295 DOI: 10.1016/j.thorsurg.2018.07.005]
- Chandan S**, Mohan BP, Chandan OC, Jha LK, Mashiana HS, Hewlett AT, Khashab MA. Clinical efficacy of per-oral endoscopic myotomy (POEM) for spastic esophageal disorders: a systematic review and meta-analysis. *Surg Endosc* 2019 [PMID: 31073769 DOI: 10.1007/s00464-019-06819-6]
- Xiao Y**, Carlson DA, Lin Z, Rinella N, Sifrim D, Pandolfino JE. Assessing the pre- and postpeak phases in

- 22 a swallow using esophageal pressure topography. *Neurogastroenterol Motil* 2017; 29 [PMID: 28544141 DOI: 10.1111/nmo.13099]
- 23 **Khashab MA**, Familiari P, Draganov PV, Aridi HD, Cho JY, Ujiki M, Rio Tinto R, Louis H, Desai PN, Velanovich V, Albéniz E, Haji A, Marks J, Costamagna G, Devière J, Perbtani Y, Hedberg M, Estremera F, Martin Del Campo LA, Yang D, Bukhari M, Brewer O, Sanaei O, Fayad L, Agarwal A, Kumbhari V, Chen YI. Peroral endoscopic myotomy is effective and safe in non-achalasia esophageal motility disorders: an international multicenter study. *Endosc Int Open* 2018; 6: E1031-E1036 [PMID: 30105290 DOI: 10.1055/a-0625-6288]



Published By Baishideng Publishing Group Inc
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
Telephone: +1-925-2238242
Fax: +1-925-2238243
E-mail: bpgoffice@wjgnet.com
Help Desk: <https://www.f6publishing.com/helpdesk>
<https://www.wjgnet.com>

