Case Report

Reflux Esophagitis After POEM in Achalasia Cardia type II: A Comprehensive Case Report

Shailaja K*[1], Vaishnavi V[2], Sriram R[2], Prithiha B[2], Harish R[2]

[1]Asso. professor, Department of Pharmacy Practice, C L Baid Metha College of Pharmacy, Affiliated to "The Tamil Nadu Dr. MGR Medical University," Thoraipakkam, Chennai – 97, Tamil Nadu, India.

[2]Pharm.D IV Year, Department of Pharmacy Practice, C L Baid Metha College of Pharmacy, Affiliated to "The Tamil Nadu Dr. MGR Medical University", Thoraipakkam, Chennai – 97, Tamil Nadu, India.

***Corresponding author's E-mail:** shailajampharm@gmail.com

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ABSTRACT

This case study discusses a 59-year-old obese male with a six-month history of dysphagia, regurgitation, weight loss, and chest pain, diagnosed with Achalasia Cardia type II. Initial interventions involved Sucralfate to prevent ulcer formation. The Gastrografin study ruled out leaks and significant bowel dilatation. Eckardt Symptoms Score confirmed the diagnosis [8/12], and tests revealed a tight esophageal sphincter, confirming Achalasia Cardia. High-resolution manometry showed absent peristalsis, pan-pressurization, and raised Integrated Relaxation Pressure, classifying it as type II. The patient underwent an uncomplicated POEM procedure, receiving post-op care and dietary recommendations. One-month follow-up indicated improved LES relaxation but reflux esophagitis and gastritis. POEM proved effective and less invasive. Prolonged PPI therapy post-POEM or combining anti-reflux procedures with POEM can prevent reflux esophagitis in type II achalasia.

Keywords: Myenteric Plexus, Lower Esophageal Sphincter, Eckardt score, Esophagogastroduodenoscopy, Per Oral Endoscopic Myotomy.

INTRODUCTION

Achalasia Cardia is a rare, esophageal motility disorder manometrically characterized by insufficient relaxation of the LES and loss of peristalsis. As a result, the movement of ingested food through the esophagus is hindered, leading to the common symptom of dysphagia[1]. Achalasia was first reported in 1679 by Doctor Thomas Willis, who dilated the esophagus by using a sponge at the end of a whalebone which showed a great improvement in the patient's symptoms[2]. Achalasia cardia is equally prevalent in both males and females, while it is most frequently diagnosed between the ages of 40 and 60. The incidence rate stands at 1.6 cases per 100,000 individuals, whereas the general occurrence rate is 10 cases per 100,000 people[3]. However, the incidence of achalasia cardia in India is not known due to underreporting of the cases.

Achalasia is classified based on manometric patterns into 3 types: Type I, Type II and Type III. These subtypes have subtle differences in clinical presentations but have distinct responses to various treatment modalities, including pharmacological, endoscopic and surgical methods[4]. Despite being discovered 300 years ago, the precise cause and underlying mechanisms of the disease remain uncertain[2]. Achalasia involves chronic inflammation, neurodegeneration, fibrosis and hypertrophy of the esophageal muscles [5]. Figure 1 shows the exact mechanism of Achalasia cardia.

The diagnosis of achalasia is suspected based on the patient's clinical history whereas definitive diagnosis requires HRM testing, which measures the pressure in the esophagus. Additional diagnostic procedures such as EGD are necessary to rule out other potential conditions, including malignancies that can mimic achalasia. Surgical procedures like LHM and POEM may provide benefits in 85-90% of the cases. Surgical procedures involve cutting the muscle fibers in the LES to relieve the obstruction and improve esophageal emptying[2]. We now report a case of Type II Achalasia Cardia in a 59 years old male.

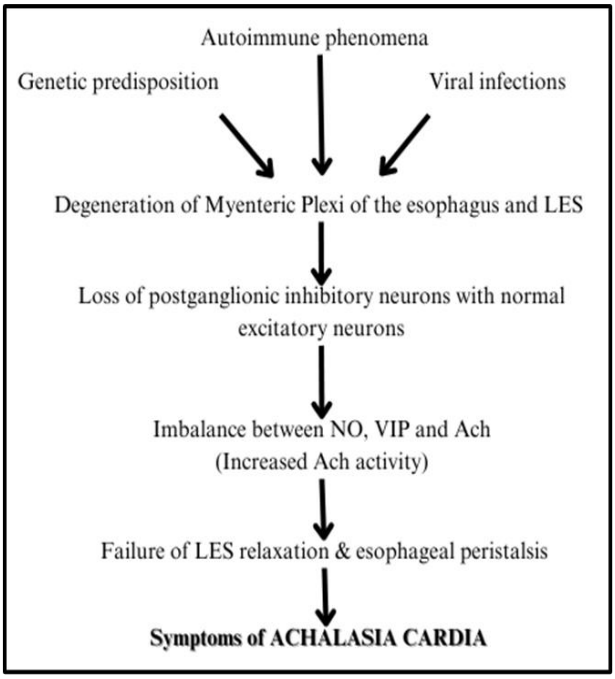

Figure 1: Mechanism of Achalasia Cardia[2]

CASE REPORT

A fifty-nine-year-old male patient who is obese with a BMI of 31.6kg/m^2, came to the hospital with a six-month history of dysphagia to solids and liquids which had worsened significantly in the past month with each meal leading to mild weight loss of <5kg. The patient also experienced regurgitation of liquids with every meal, epigastric held up sensation to liquids and recurrent chest infections for six months and occasional retrosternal chest pain following liquid foods for one month. Family history of related diseases were negative in his first-degree relatives. His physical examination revealed stable vitals. He had a history of systemic hypertension for the past 10 years and was on regular medication with Tab. Amlodipine 5mg once daily. Laboratory investigations were irrelevant to his condition. He was initially given with Sucralfate 15mL syrup Q6hrs to prevent ulcer formation due to regurgitation. He was then explored by giving 30mL of diluted GGF and subsequent radiographs were taken. GGF or diatrizoate is a radiopaque contrast medium used before X-ray examination of GIT to get the scan pictures unambiguous. No definite contrast leaks were identified. The stomach distension and jejunal loops appear normal with no significant bowel dilatation. He was advised to start oral liquids after GGF study. The ES score ranges from 0 to 12 and considers four symptoms including dysphagia, regurgitation, pain and weight loss. Scores greater than or equal to 3 are considered suggestive of Achalasia Cardia. The patient scored 8/12 (D3R3P1W1) *(Table 1).*

Table 1: Eckardt Symptoms Score

Symptoms	Score				Patient's score
	0	1	2	3	
Dysphagia	None	Occasional	Daily	With every meal	3
Regurgitation	None	Occasional	Daily	With every meal	3
Chest pain	None	Occasional	Daily	Several times a day	1
Weight loss (kg)	0	<5	5-10	>10	1
Total					**8/12**

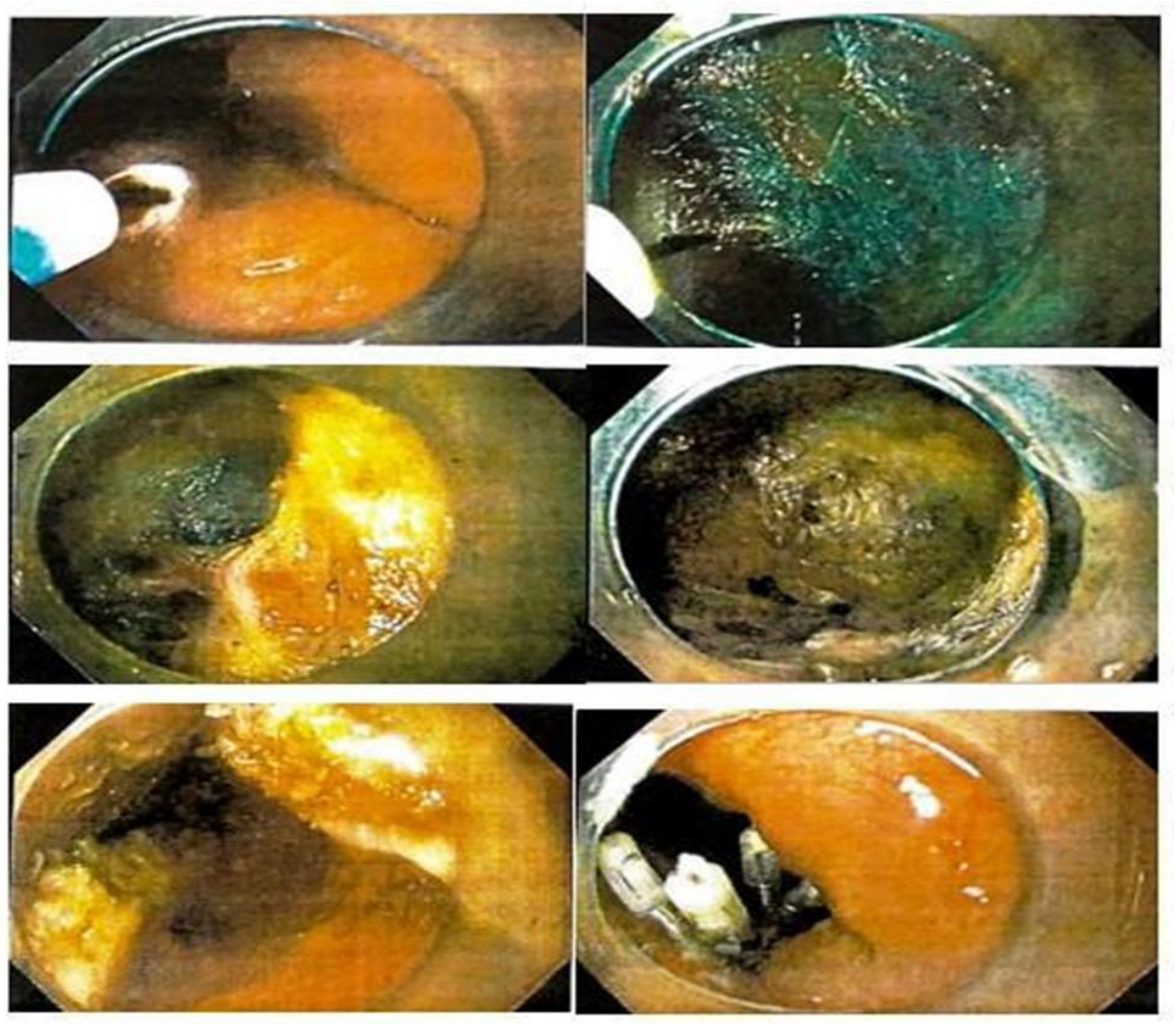

Figure 2: EGD images

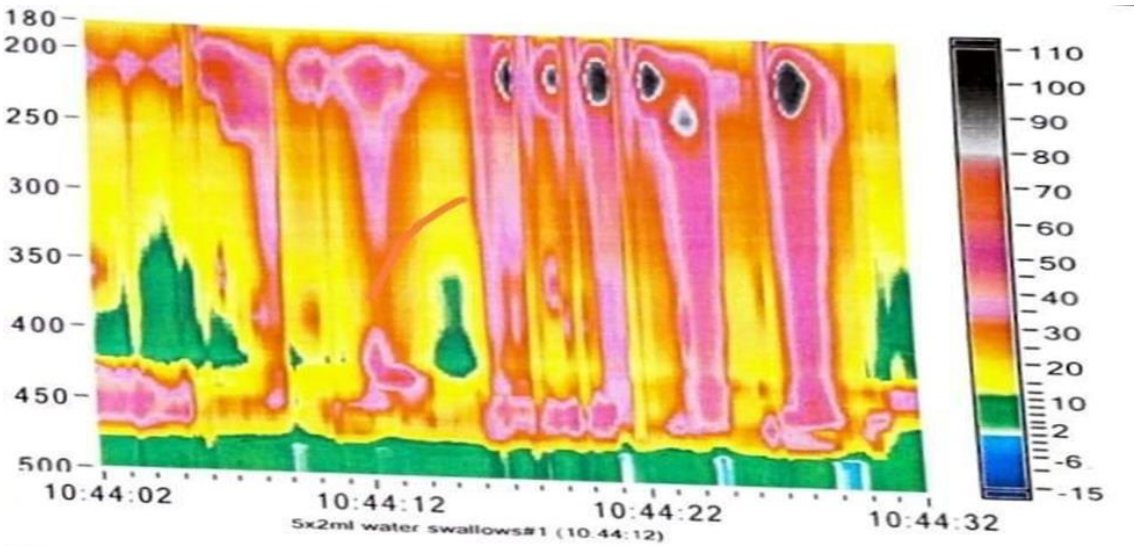

Figure 3: HRM report showing pan esophageal pressurization

EGD was performed to rule out mechanical obstruction or pseudo achalasia. The patient had a tight esophageal sphincter and the scope entered with difficulty, revealing the presence of Achalasia Cardia (*Figure 2*). HRM was planned for the patient to assess the esophageal pressurization and motility to diagnose the specific type of Achalasia. It exhibited a normal upper sphincter. The body evidenced the absence of peristalsis with pan-pressurization in 90% of swallows. The LES shows normal basal pressure, raised IRP of 18.7mmHg (normal: <15mmHg) and incomplete LES relaxation on water swallow. Raised IRP, absent peristalsis and intermittent periods of pan-pressurization indicates that the patient is suffering from Achalasia Cardia type II, according to Chicago classification (CC) of Esophageal Motility Disorders. He was scheduled for the POEM procedure. ECG examination revealed NSR. 2DEcho showed 60% EF with normal valves and chambers.

LVEF measures the amount of blood that LV pumps out during each contraction thus, determining normal LV systolic function. His CBG was 141 mg/dL. Therefore, it was determined that he had a low risk of experiencing a cardiovascular event during non-cardiac surgery. The patient was listed as NPO. NPO means 'nothing by mouth' before surgery and alternatively he was started with IV fluids and IV Antibiotics, advised for BP monitoring Q2hrs. He underwent POEM procedure for Achalasia. Myotomy started at 34 cm and was completed at 42 cm. There were no periprocedural complications. The patient was advised to have sips of water Q2 to 3 hours, if tolerating clear juices can be consumed. Later, he was instructed to consume blended thick liquids for one week. He was prescribed oral antibiotics, PPI and pain killers for 1 week. He was advised to follow up after 1 month with EGD scopy / Timed Barium Swallow / HRM. His 1-month follow-up report of HRM *(Figure 3)* revealed no pan pressurization and good LES relaxation on water swallows with the body showing absent peristalsis on all swallows. He was asymptomatic with 0/12 ESS, but developed reflux esophagitis grade B according to Los Angeles (LA) classification which is mild stage and pan gastritis in EGD within 1 month of POEM procedure.

DISCUSSION

Achalasia is a condition affecting the esophageal muscles, and its exact cause is not yet known. Infections, genetics, auto-immune factors may trigger the degeneration of ganglionic cells of myenteric plexus in esophagus and LES. This results in loss of balance between inhibitory and excitatory neurons, leading to unopposed cholinergic activity and incomplete relaxation of LES. This case study emphasizes the importance of a multidisciplinary approach in diagnosis and treatment of this condition. The use of barium swallowing in diagnosis of achalasia and treatment outcome with POEM compared to other interventions, are discussed in further part. The introduction of HRM helps in differentiating the type of Achalasia Cardia with high sensitivity[6]. Recent evidence supports that different manometric patterns of achalasia represent different stages of disease evolution, specifically type III is early stage, type II is intermediate stage and type I is end stage[7]. However, based on esophageal diameter and shape in barium swallowing, achalasia is categorized into 4 stages[7]. In a case report by Trabelsi et al.[8] the patient underwent barium swallowing after HRM, to differentiate the stage of achalasia. In 2007, Tassi V et al. [9] concluded that Heller-Dor plus a pull-down technique (PD-HD) technique to obtain vertical position of the esophagus as first choice for end stage achalasia as well as to treat dysphagia relapse due to insufficient myotomy. In this case, the patient was treated based on type from a manometric pattern instead of stages from barium swallowing. Achalasia is an incurable disease. No interventions were sufficient to achieve the goal of reducing LES hypertonicity, resulting in return of LES hypertonicity[6].

Masrur M et al.[10] in 2016, reported a case of achalasia with consistent pressure in a 52-year-old female who is extremely obese with a past history of LRYGB (Laparoscopic Roux-en-Y gastric bypass), with 3 years of achalasia symptoms. Botox injection and Balloon dilation showed

partial improvement. Then she underwent Robotic Heller Myotomy (RHM). The procedure involved shorter duration and shorter length of hospital stay. Her 5-month follow-up revealed complete resolution of symptoms. RHM is often accompanied by partial fundoplication to prevent GERD[11]. But POEM was observed to cause increased incidence of GERD due to lack of anti-reflux procedure [11-12]. In this case, the patient developed reflux esophagitis after POEM in 1-month follow-up. Yuan X et al. [13] investigated Per Oral Endoscopic Dual Myotomy (dual-POEM) in patients with risk of developing treatment failure due to insufficient myotomy with POEM. In case of POEM failure, to avoid repeated interventions and in turn increased health care costs and delayed remission, patients with 1) preoperative Eckardt score ≥9, 2) longer disease duration of ≥ 10 years, 3) prior interventions except myotomy can be considered with dual-POEM[13]. In this case scenario, the patient did not meet the criteria outlined for dual-POEM and was solely identified as a candidate for POEM and achieved clinical treatment success. It has been reported that esophageal body peristalsis partially recovers in about 54.5% of type II achalasia patients[14]. But in the follow-up done after 1 month, the patient was presented with absent peristalsis.

Golioto M et al. [15] reported a case of achalasia with esophageal contractions in amplitudes exceeding by 400mmHg in a 75-year-old-male with a history of significant vascular disease and symptoms of achalasia over 15 years. Considering his severe comorbidity, he was suggested with botulinum toxin injection into LES which showed immediate improvement. His follow up evidence is not available as he died because of his comorbidity. Botulinum toxins are reserved only for people who are not fit for definitive therapies. In this case, the patient had no comorbidities and was fit for direct POEM recommendation. The patient was prescribed PPI for 1 week but still developed reflux esophagitis. Evidence suggests that extending PPI therapy until a post-operative examination confirms the absence of reflux esophagitis or considering anti-reflux measures like Transoral Incisional Fundoplication (TIF) along with POEM can prevent or reduce the development of the same [16-17]. In this case, the patient might have not developed esophagitis if he was given PPI therapy for a longer period until post-op exams revealed normal.

CONCLUSION

This case study presented a patient with a rare case of Achalasia Cardia. POEM has been found to be more effective and less invasive in treating achalasia over years. It has become a standard therapy in recent years but has the disadvantage of developing reflux esophagitis in a major proportion of patients undergoing it. Using PPI therapy rationally until post-op exams shows no signs of reflux esophagitis, has been found to reduce the incidence of complications related to reflux disorders. Anti-reflux procedures when combined with POEM like fundoplication following LHM/RHM may help in reducing long term requirement of PPI therapy and also prevent reflux esophagitis.

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Author's contribution:

PB and HR collected the full details of the case. VV and SR wrote and prepared the final draft of the manuscript. SK performed a critical review of the manuscript. PB and HR helped to draft the manuscript. All authors contributed to the article and approved the submitted version.

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