

## Case Report

# Endoscopic Management of Esophageal Leak Post-Heller Myotomy for Achalasia Cardia in Children

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### ABSTRACT

A 9-year-old male child diagnosed to have achalasia cardia when he presented with a history of vomiting of undigested food particles with poor weight gain. He underwent lap Heller myotomy and Dor fundoplication. The immediate postoperative period was uneventful. After discharge, he presented with peritonitis and septic shock. On contrast-enhanced computed tomography abdomen, leak at the lower end of esophagus with intra-abdominal pus collection was identified. After intra-abdominal pus drainage and stabilizing the child, endoscopic covered stent was placed. He recovered well. Endoscopic esophageal covered stent placement is a viable and best option for a sick child with esophageal leak post-Heller myotomy.

**KEYWORDS:** Endoscopy, esophageal achalasia, esophageal leak, Heller myotomy, stent

## INTRODUCTION

Achalasia is a rare esophageal neurodegenerative disorder in the pediatric population. The incidence of achalasia in childhood is 0.11/100,000 children annually.<sup>[1,2]</sup> Children present with progressive dysphagia, vomiting, and weight loss. Contrast study demonstrates a dilated esophagus with “bird’s-beak”-like tapering. Lap Heller myotomy in children as in adults is the surgical treatment of choice.<sup>[3,4]</sup> The complications of surgical management of achalasia cardia are esophageal perforation and recurrent dysphagia. Perforation rates occur from 0% to 15% in larger series but rarely require reoperation.<sup>[5-7]</sup> Implantation of self-expandable metallic stent in patients with esophageal leak or perforation in adults is a safe and feasible alternative to operative treatment and can lower the interventional morbidity rate.<sup>[8]</sup> We present a usage of endoscopic self-expandable metallic stent in a child with post-cardiomyotomy esophageal leak for achalasia cardia.

## CASE REPORT

A 9-year-old male child presented with a history of vomiting undigested food particles since early childhood with poor weight gain. He was evaluated with barium swallow and diagnosed to have achalasia cardia. After

preoperative workup, he was subjected to lap Heller myotomy and Dor fundoplication. He had mucosal perforation while doing myotomy, which was identified and sutured securely. His immediate postoperative period was uneventful. On a postoperative day (POD) 4, upper gastrointestinal (GI) dye study done under C-Arm which showed no leak; hence, he was started on feeds which he had coped well. On POD 6, he was discharged home.

He presented to the emergency room on POD 10 with severe abdominal pain, altered sensorium, and septic shock. He was resuscitated and stabilized. He underwent contrast-enhanced computed tomography (CECT) abdomen, which revealed leak at the lower end of esophagus [Figure 1a] with intra-abdominal pus collection [Figure 1b]. CT-guided abdominal drains were placed, and further management was done in pediatric intensive care unit (PICU). Once general condition stabilized on POD 13, upper GI endoscopy performed and perforation noted above the gastroesophageal (GE) junction [Figure 2]. Self-expandable metallic covered

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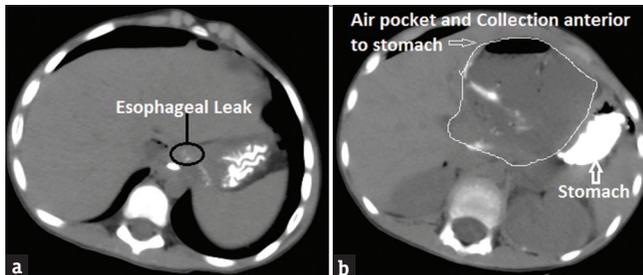
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stent (23 mm × 10 cm) [Figure 3] was placed under general anesthesia (GA) [Figure 4a]. Correct position and expansion of the stent was confirmed on X-ray [Figure 4b]. Ryle's tube feeding had been administered to him the next day for which he had coped with the treatment satisfactorily. Daily drain wash was given, and collection clearance was monitored under CT. On POD 33, CECT abdomen revealed no evidence of esophageal leak and intra-abdominal collection. On POD 34, esophageal stent was removed under GA by upper GI endoscopy. Perforation was healed completely [Figure 5]. Ryle's tube was removed; he was started on liquids on the same day and later upgraded to normal food which he had coped well. He was discharged home on POD 36. On 18-month follow-up, the child has gained a considerable weight and had taken food without any recurrence of symptoms.

## DISCUSSION

Achalasia cardia is a rare condition in children.<sup>[1,2]</sup> Lap Heller myotomy and fundoplication are well-accepted methods of treatment.<sup>[3,4]</sup> Even though complications are rare but still a possibility. Esophageal perforations may occur at the time of Heller myotomy but do not seem to impact the surgical outcomes by ensuring an adequate myotomy distal to the injury, accompanied with primary suture repair of the perforation and fundoplication.<sup>[9]</sup> Literature search did not yield much about the managing a child with late presentation of esophageal leak with sepsis.



**Figure 1:** (a) Contrast-enhanced computed tomography showing leak at lower esophagus (oval marking). (b) Multiple air pockets and collection anterior to stomach (collection marked with white liner)



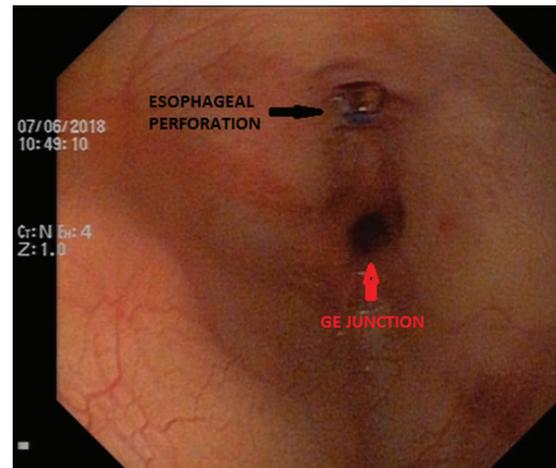
**Figure 3:** Boston metallic covered expandable esophageal stent

We had three options for managing this particular complication:

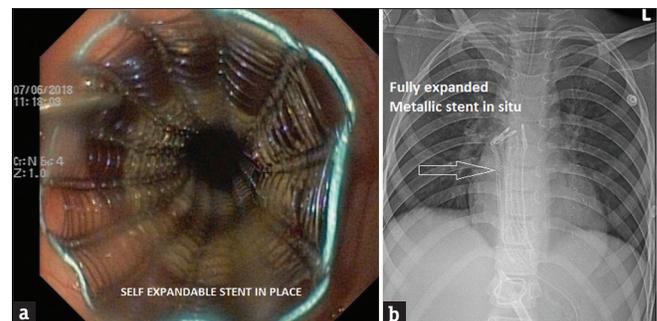
- Option 1 – drain the pus + intravenous antibiotics + nasogastric/nasojejunal feeds – *would have taken long time.*
- Option 2 – drain the pus + primary repair (redo laparoscopic repair ± feeding jejunostomy) – *too risky because of child critical condition.*
- Option 3 – drain the pus + endoscopic intervention – *we opted.*

In view of his critical condition, we opted for draining the pus and endoscopic intervention. Endoscopic intervention for esophageal leak is well known in adults. The methods of intervention include (1) placing the covered esophageal stent and (2) closing the perforation using over-the-scope clip.<sup>[10]</sup>

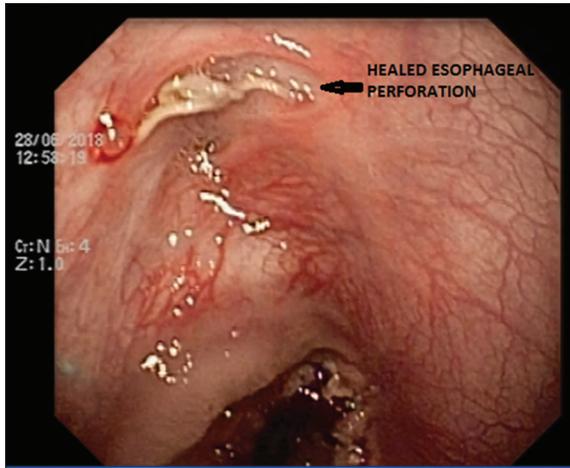
We extrapolated this technique used in adults in our case. We have preferred stent over clip as it was more time tested in adults. Under GA, upper GI scope is done and 23 mm × 10 cm covered esophageal expandable metallic stent placed under C-arm guidance. We calculated the length of the stent based on the guide wire placed in the esophagus under C-Arm, to cover from just



**Figure 2:** Endoscopic view showing perforation at lower esophagus (marked with black arrow)



**Figure 4:** (a) Expanded esophageal stent *in situ*. (b) Chest X-ray with a stent in place (white arrow)



**Figure 5:** Healed perforation/fistula site (black arrow)

distal to the GE junction to proximally well above the perforation. Selecting the size of the stent and placing appropriately is a very crucial step to prevent migration of the stent. Stent was removed 3 weeks later after confirming no further leak on CECT abdomen. Fistula was healed completely. The child recovered well, and he had coped with the normal food. On 18-month follow-up, the child is doing well and putting on good weight. There was no recurrence of dysphagia symptoms.

## CONCLUSION

Esophageal perforations may occur at the time of Heller myotomy but do not seem to impact the surgical outcomes. In a child with late presentation of esophageal leak with associated sepsis, endoscopic esophageal covered metallic stent placement is a viable and best option. It decreases the morbidity related to leak and enhances early recovery. Institutional studies are required to validate our statement.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the parents have given their consent for their child's images and other clinical information to be reported in the

journal. The parents understand that their child's name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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