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Case report on thoracoscopic esophagectomy for long segment resistant oesophageal stricture in HIV infected patient

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ABSTRACT

INTRODUCTION: The incidence of Esophageal strictures following esophagitis in human immunodeficiency virus (HIV)-infected patients is profound in majority of cases. Although endoscopic dilatation remains the first line of treatment, surgery is needed for non-dilatable strictures. Sparse literature is available on clinical management for surgical intervention.

PRESENTATION OF THE CASE: A 30 years old HIV positive male, taking ART for 10 years, presented with grade V dysphagia over long standing non-specific ulcerative esophagitis. Upper GI endoscopy revealed a long stricture starting 18 cm from the incisors. The patient underwent multiple endoscopic dilatation along with twice endoscopic stent placements over period of 2 years. As CD4 count was low associated with poor nutritional status a feeding jejunostomy was constructed. With improvement in CD4 count and nutritional status within 3 months; thoracoscopic esophagectomy, laparotomy and formation of gastric conduit and cervical anastomosis was performed. There were no intraoperative or postoperative adverse events with complete improvement in dysphagia. During follow up, 24 months after surgery the patient was on full oral diet with a total weight gain of 15 kg.

DISCUSSION: Long term solution to dysphagia due to long esophageal stricture merits a surgery in form of a replacement conduit by either stomach tube or a segment of colon. Experience and literature guiding surgical decision making are limited. Retaining or excision of the native oesophagus is still a matter of discussion.

CONCLUSION: Thoracoscopic esophagectomy with gastric tube conduit for reconstruction is a feasible and safe surgical option for esophageal stricture in a HIV infected patient.

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1. Introduction

Symptoms of esophageal disease are not very uncommon in patients with HIV infection. The most common cause of esophagitis in patients with AIDS is candida infection. The other causes include Cytomegalovirus or Herpes simplex infection, GERD, non-specific or idiopathic inflammation and Kaposi's sarcoma [1,2]. Esophageal strictures have been reported to complicate ulcerative esophagitis in human immunodeficiency virus (HIV)-infected patients. Although endoscopic dilatation remains the first line of treatment, surgery is needed for strictures resistant to dilatation. Literature is sparse on the surgical approach to treat esophageal stricture in AIDS patient. Although there are a few case reports on transhiatal esophagectomy for esophageal stricture in adult and paediatric patients, thoracoscopic esophagectomy in this setting is not reported. Our intention is to share our thought process in

making the surgical decision and our experience in managing this case.

2. Presentation of case

This is presented as per the SCARE criteria [3]. A 30 years old HIV positive male patient, taking anti-Retroviral therapy (ART) for 10 years was presented with a grade V dysphagia over long standing ulcerative esophagitis. Upper GI endoscopy revealed a resistant long segment esophageal stricture starting 18 cm from incisors (Fig. 1). Multiple endoscopic dilatations and twice endoscopic stent placements were conducted over period of 2 years (Fig. 2). Furthermore a lack of clarity regarding pathology of disease was observed from the review of past reports. One endoscopic biopsy report suggested non-specific inflammation. Other endoscopic biopsy report showed a doubtful presence of vacuolar changes suggesting HPV infection while another report suggested possible eosinophilic herpetic inclusions suggesting HSV infection, Varicella-zoster or CMV infection. At presentation the CD4 count of patient was low with a poor nutritional status. Hence a feeding jejunostomy was carried out and ART was adjusted based on infectious disease specialist's opinion. On improvement in CD4 count and nutritional status after

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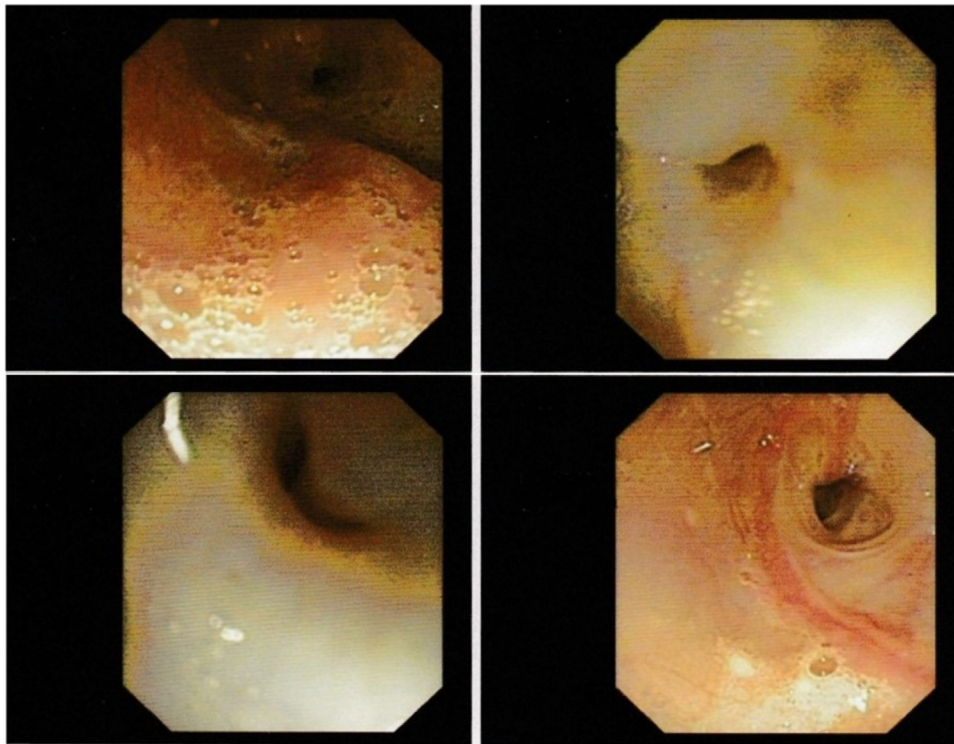


Fig. 1. Endoscopic image of stricture at 18 cm from incisors.

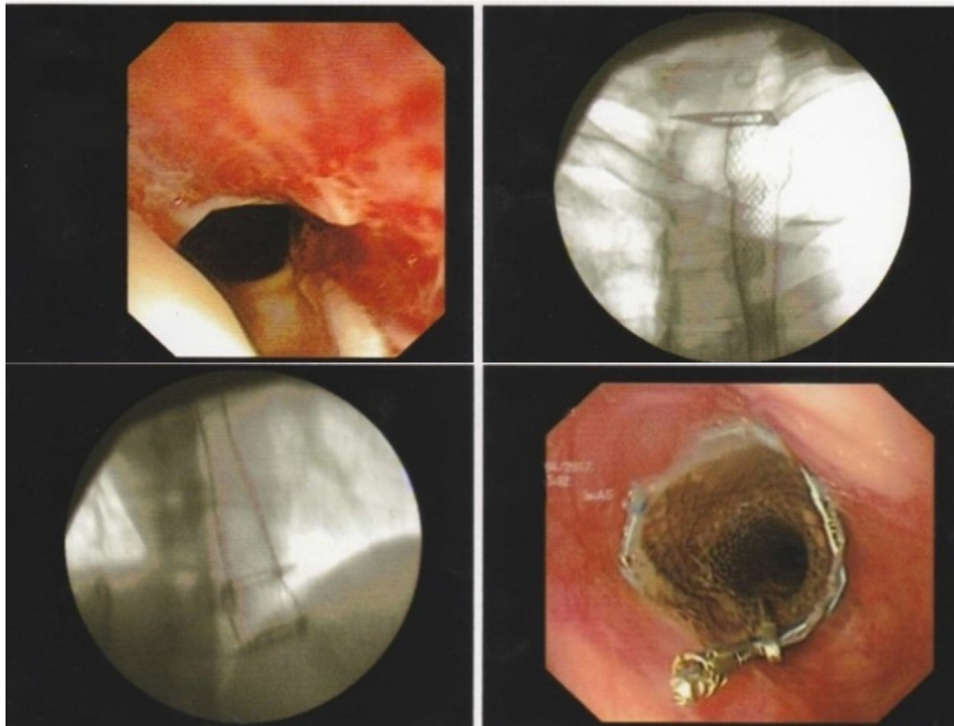


Fig. 2. Endoscopic image of metal stent placement.

three months, definitive surgery was performed. Considering the resistant nature of esophageal stricture with most forms of therapy, thoracoscopic esophagectomy was chosen as appropriate therapy modality for this case.

Thoracoscopic esophagectomy, laparotomy and formation of gastric conduit and cervical anastomosis were performed. The

surgery was performed by the trained gastric surgeon with required experience for the surgery. Thoracoscopic part of the surgery was done in prone position. Endotracheal intubation was done with double lumen endotracheal tube (DLT) to facilitate single lung ventilation if needed intraoperatively. Total four ports were inserted in the right thoracic cavity. First a 10mm port was inserted in

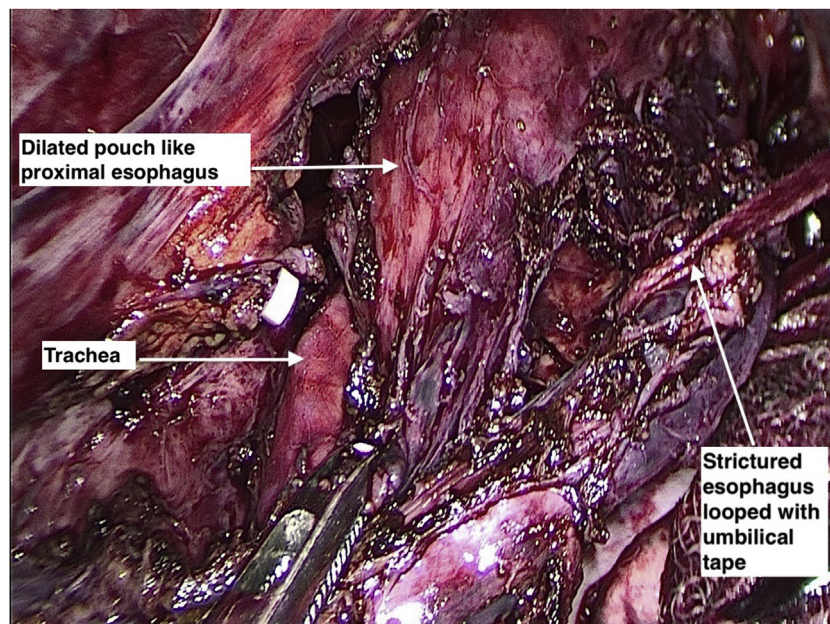


Fig. 3. Upper end of stricture and dilated pouch proximal to it.

6th intercostal space, 8–9 cm lateral to the spinous process used as camera port. Two 5 mm ports were inserted in 4th and 8th intercostal space each 5–6 cm lateral to spinous process, used as working ports. Fourth 10 mm port was inserted in the most dependent part of pleural cavity used for retraction and to place ICD at the end of procedure. CO₂ pneumothorax was maintained at 8–10 mm Hg. Gross adhesion was observed between the visceral and parietal pleura, which were divided by sharp dissection. Azygous vein was dissected, doubly ligated and divided. The most challenging task was dissection and mobilization of the thoracic esophagus particularly in the upper part, at and above the carina. Mobilization of thoracic esophagus was done by sharp dissection using hook electrocautery and ultrasonic energy scalpel. The esophagus at the proximal most part of the stricture was very narrow and friable, with a dilated pouch like esophagus just proximal to stricture (Fig. 3). At the end of thoracic esophageal mobilisation, ICD was placed in most dependent part of pleural cavity. Abdominal and cervical part of surgery was done in supine position. Upper midline laparotomy was done to prepare the gastric conduit. Stomach and GEJ was mobilised by dividing greater and lesser omentum, ligating and dividing left gastric, left gastroepiploic and short gastric vessels. Gastroepiploic arcade and right gastric and gastroepiploic arteries were preserved and a 5–6 cm wide gastric tube was created from the greater curvature and fundus of stomach using linear staplers. Cervical part was done with a hockey stick incision along the anterior border of left sternomastoid. Cervical esophagus was fully mobilised, and divided 1–2 cm proximal to the stricture and the specimen was retrieved through the abdomen. The stomach conduit was pulled through the posterior mediastinum to the neck and end to end hand sewn anastomosis with a single layer interrupted with PDS 4-0 sutures was done.

Surgery was overall uneventful, the duration was 7 h and blood loss was 200 ml. The patient was extubated in the operation theatre itself and then observed overnight in an ICU. Feeding through jejunostomy tube was started on day 2 while oral feeds were started on day 4. The ICD was removed on day 5 and patient was discharged on day 7. Feeding tube was removed at a follow up of one month after surgery. Furthermore, histopathology of the resected specimen showed non-specific inflammatory changes.

The patient has not faced any symptoms like dysphagia, post prandial pain or regurgitation during first 2 years post-surgery. Patient was satisfied with the surgery, post-operative care and follow up outcome. Resumption of normal diet and ability to take ART without any interruption has improved the overall health and body weight. The patient is doing well with a weight gain of 15 kg after 2 years of surgery.

3. Discussion

Long term solution to dysphagia due to chronic inflammatory long esophageal stricture merits a surgery in form of a replacement conduit by either stomach tube or a segment of colon. Retaining or excision of the native esophagus is still a matter of detailed discussion.

On one hand, leaving a diseased esophagus with an unclear pathology in situ can have long term adverse consequences. Patients with HIV are associated with higher risk of developing esophageal cancer both squamous cell and adenocarcinoma, as well as NHL. Although the risk of developing NHL has significantly reduced with improved treatment of AIDS, patients still face continued high risk of developing esophageal cancers [4]. In view of inability to do follow up endoscopic surveillance due to stricture, leaving the esophagus in situ should be weighted carefully against the morbidity of esophagectomy.

On the other hand, Esophagectomy is likely to increase the morbidity of the procedure, especially in an immunocompromised patient. Michael Mwachiro has published a series of 9 HIV infected patients who underwent esophagectomy among which 7 were for esophageal cancer and 2 for stricture, and showed the feasibility of this procedure in aforesaid set of patients with good outcomes [5]. Case reports of HIV positive kids who underwent Transhiatal esophagectomy and esophageal replacement with a gastric tube and laparoscopic transgastric resection with stapled anastomosis for esophageal stricture have been reported earlier with positive outcomes [6,7]. There are also reported single cases of transhiatal esophagectomy for CMV infection induced esophageal stricture and malignancy each in HIV positive adults [8,9]. Even though the detailed literature pertaining to this matter is still scant, after proper optimization of patient's nutritional status and AIDS treatment, esophagectomy seemed a feasible option.

Though thoracoscopic esophagectomy in prone position is not reported for esophageal stricture in HIV infected patients, literature reveals it as a well-established procedure for esophageal cancer [10,11]. Thoracoscopic esophagectomy has the advantage of controlled sharp dissection that can be done under vision, and should be considered when technical expertise is available and when the surgery is performed in prone position it has an advantage of better post-surgery respiratory recovery with a lesser morbidity [12,13]. With good nutritional status and appropriate HIV treatment leading to optimum CD4 counts in this case, it was decided to perform thoracoscopic esophagectomy with gastric tube replacement. Due to high possibility of dense periesophageal adhesions, transhiatal approach was avoided and thoracoscopic approach was considered. Our experience reconfirmed the conclusion of previous reported articles indicating feasibility of esophagectomy for oesophageal stricture in patient with AIDS. It was also observed that esophageal mobilisation in the thoracic part was most challenging due to long term inflammation, repeated dilatation and stent placement. Subjectively concluding, blunt dissection as done in a trans-hiatal esophagectomy would increase the chances of injury to the membranous trachea. Doing the thoracic part by a thoracoscopic approach had the advantage of controlled under vision dissection. Additionally, excision of the diseased esophagus and replacement with gastric conduit in the posterior mediastinum had given very good functional outcome.

4. Conclusion

Esophageal stricture complicating ulcerative esophagitis in HIV patient is relatively an uncommon situation, and it being resistant to endoscopic dilatation is still rarer. Thoracoscopic esophagectomy with gastric tube conduit for reconstruction is a feasible and safe surgical option with good long-term result.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

The present case study is approved by institutional ethics committee.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy

of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Dr. Chirag Thakkar has designed the concept of the study, literature review, Data Collection and analysis. Dr. Vismith Joshipura has contribution in study concept design, treatment of the patient and manuscript writing.

Registration of research studies

Not Applicable.

Guarantor

Dr. Chirag Thakkar.

Provenance and peer review

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