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ENDOSCOPIC ESOPHAGEAL STENT A NON – SURGICAL TREATMENT OPTION FOR ACUTE ESOPHAGEAL PERFORMATION

Gastroenterology

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ABSTRACT

Esophageal perforation is potentially life-threatening condition which carries high morbidity and mortality if it is not treated aggressively. Early identification of clinical symptoms and imaging plays an important role in the management of the perforations. There are three approaches for the treatment of esophageal perforation that are: conservative, endotherapy, and surgery. With the advent of the fully covered metallic stents there is paradigm shift from surgery to conservative treatment with the esophageal stents. With conservative or endotherapy, simultaneous drainage of any mediastinal or pleural collection of fluid or pus should be carried out and patients are put on intravenous antibiotics. Here we are presenting 4 cases of benign esophageal perforations and how they are successfully managed conservatively.

KEYWORDS

INTRODUCTION

Esophageal leakage can be subdivided into three forms, benign esophageal perforations (iatrogenic and spontaneous), anastomotic leakage after reconstructive esophageal surgery, and fistula.[1] Esophageal leakage often results in life-threatening situations due to contamination of the mediastinum and sometimes it leads to septic shock. In these situations, the esophageal covered stent is a treatment option in which it is primarily placed at perforation site to seal the leakage. It helps in preventing further mediastinal contamination.[2] Esophageal perforation is a surgical emergency because it carry's high morbidity and mortality. Timely primary repair of esophageal perforation within 24-hour after the onset of symptoms carries good prognosis. Three approaches are available for the treatment of esophageal perforation: conservative, endotherapy, and surgery.[3] Esophageal stenting can provide therapeutic benefits in the management of benign and malignant esophageal diseases. Fully covered self-expanding metal stents (FCSEMS) are preferable for benign esophageal perforation over partially covered self-expanding metal stents (PCSEMS) because of less complications from tissue ingrowth and better coverage of the perforated area.[3] In this section we will be presenting four case reports of benign esophageal perforations of different etiologies and their management who presented to our Medical Institution.

CASE REPORT

CASE – 1

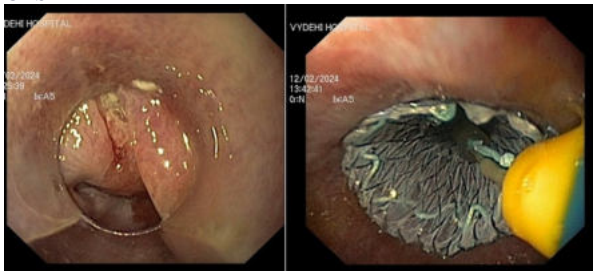

Fig 1: Showing esophageal perforation **Fig 2:** Showing stent insitu

A 63 yrs male patient presented to the hospital after a binge of alcohol with complaints of vomiting followed by hematemesis associated with blood and abdominal pain. CT scan is suggestive of: Irregular enhancing soft tissue density lesion around gastro esophageal junction partly encasing distal thoracic aorta, distortion of anatomy of thoracic oesophagus - suggestive of Intramural rupture of esophagus with secondary mediastinal abscess formation – Boerhaave Syndrome. An upper GI gastroscopy showed a perforation in the lower esophagus (2 cms) just above the GE junction, patient was kept nil per oral (NPO), started on broad spectrum antibiotics and placed a 12 cms wide flanged (32 mm) fully covered metal stent (Niti S Esophageal Covered Stent-Beta 2) within the esophagus - upper end at 27 cms and placed across the perforation site.

Post procedure patient was kept on NPO for 48 hrs, following which patient was started on liquids then later on followed by oral soft diet. Patient tolerated feeds well and he was discharged with stent in situ with an advised for stent removal after 4 weeks.

Repeat endoscopy - Lower esophagus showed stent to have migrated distally. Stent identified- Lasso Held and removed in toto. After stent removal, endoscopy showed- an ulcerated lesion with bleeding was noted near the upper end of the stent and no defect seen which was present earlier and was managed conservatively by iv fluids and proton pump inhibitors and kept on npo for 48 hrs.

Repeat endoscopy after 4 days showed healing of the ulcerated esophageal mucosa and patient was observed for 1 week, he tolerated oral diet and developed no complications and was discharged.

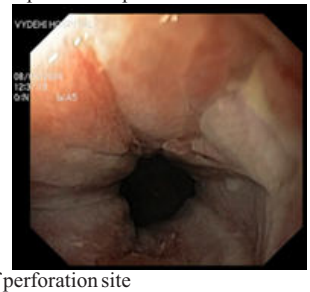

Fig 3: Healed of perforation site

CASE – 2

A 66 years female patient who is a known case of achalasia cardia Type II presented with complaints of dysphagia, with history of treatment for the same with botulinum injection in outside hospital. In view of repeat of symptoms at 6 months patient was given the option of POEM

Vs pneumatic dilation. Patient opted for pneumatic dilation and underwent pneumatic dilation with rigiflex achalasia cardia ballon upto 30 mm in first session. In view of recurrence of same complaints of dysphagia, second session of pneumatic ballon dilation was done with Rigiflex achalasia cardia ballon until 35 mm. post dilation patient developed shortness of breath and pain in the epigastrium with desaturation and tachycardia. Repeat endoscopy was done which revealed a lower esophageal perforation defect of size 2.5 cms. She was posted immediately for esophageal metallic stenting, under direct vision and fluoroscopy. Fully covered self expandable metallic stent (Niti S Esophageal Covered Stent- Beta 2) placed across the perforation into stomach. A 16 Fr ryles tube was placed into the stomach under the endoscopy guidance. Elective intubation was done to prevent aspiration and was shifted to ICU for further care. Emergency Cect thorax showed esophageal stent , with mild free fluid in the bilateral pleural cavities with subsegmental collapse of the right lung basal segments and complete collapse/ consolidation of left lower lobe with minimal left sided pneumothorax , in view of pleural effusion and pneumothorax ICD drain was placed and patient was kept on npo, iv fluids, higher antibiotics. She was extubated on the 2nd day and RT feeds was started on 4th day, followed by oral liquid diet on 7th day, later on solid diet. ICD was removed after 1 week and RT was removed after 2 weeks . Patient was doing well and advised to remove the stent after 4 weeks.

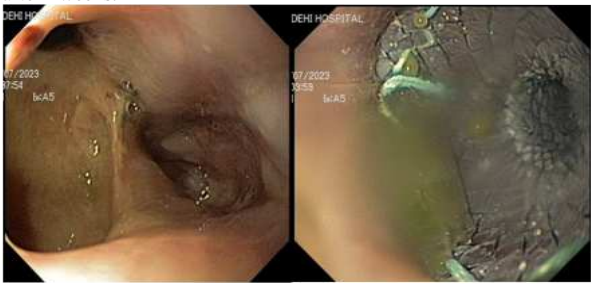

Fig 4 : Picture showing esophageal perforation

Fig 5 : Picture showing stent in situ

Patient came for follow up after 4 weeks and stent was removed showing an healed scar at the defect site. Patient was kept on observation for 2 days during which patient tolerated feeds well and discharged home.

Fig 6: Picture showing healed of perforation

CASE – 3

A 27year old male presented to the hospital with h/o alcohol binge followed by c/o pain abdomen and chest pain and c/o vomiting's since 1 hour, 4-5 episodes, containing food particles, non bilious, non blood tinged. Per abdomen examination revealed tenderness and guarding over right hypochondrium and epigastric region. CT Thorax and Abdomen showed Bilateral pleural effusion (R>L) with subsegmental atelectatic changes, pneumomediastinum predominately in lower posterior mediastinum with suspicious focal rent in the lower thoracic esophagus proximal to the hiatus as described- likely esophageal perforation – Boerhavve syndrome. Gastroscopy showed a large perforation in the lower esophagus approximately 1.5 cm in size and patient was immediately planned for esophageal metallic stenting , A Nit S esophageal covered stent (Beta2) 24mmx120mm, placed with fluoroscopic guidance, position confirmed by endoscopy. Post procedure patient developed bilateral pleural effusion, moderate on right side and mild on left side, for which ICD was placed on right side. Patient was started on iv antibiotics, iv fluids and RT tube was inserted. Patient was kept NPO for 5days, then started on RT feeds followed by oral diet. Patient was discharged to review after 4 weeks for stent removal

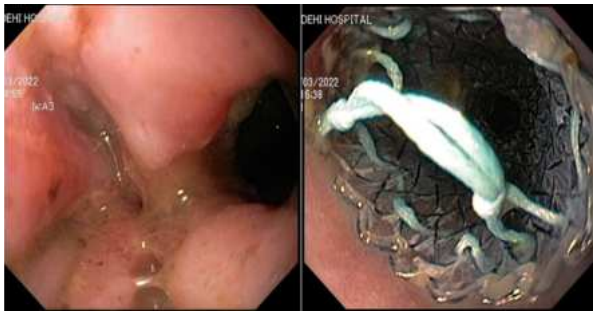

Fig 7: Picture showing esophageal perforation

Fig 8: Stent in situ

After 4 weeks – Stent removal was done and showed healed esophageal mucosa with scar at defect site.

Fig 9: Healed of perforation

CASE :4

A 26 years male presented to hospital with complaints of fever and headache since 2 months, altered sensorium since 10 days, cough since 5 days. In view of clinical features suggestive of meningitis, CSF analysis was done it is suggestive of TB meningitis, Patient remained in altered sensorium, orally not taking feeds, RT tube insertion was done and started on RT feeds. Patient was shifted to the ICU in view of desaturation and was intubated immediately. Injectable ATT was started. CT scan showed evidence of a focal fistulous communication between the esophagus and right bronchus in subcarinal region approximately measuring for a length of 20 mm and width of 7 mm at the level of T5 vertebra noted with adjacent fat inflammation. Patient underwent endoscopy which showed a mid esophageal opening suggestive of fistula. Esophageal covered self-expandable metal stent (SEMS) was placed in view of broncho esophageal fistula and clipping was done at the upper end to prevent migration. Feeding jejunostomy done in view of altered sensorium and difficulty in maintaining oral feeds. Patient improved symptomatically, tolerating FJ feeds, Patient discharged with antibiotics, ATT drugs. Patient came for follow up. Patient was symptomatically better and weight gain was noted. Esophageal SEMS was removed and normal mucosa was noted.

Fig 10: Healed of perforation

DISCUSSION

Endoscopic therapy for esophageal perforations helps in restoration of continuity with the mucosa of the esophagus for early feeding of the patient, preventing contamination of the mediastinum, and helps in re-epithelialization of the mucosal defect.[4] The most common site of spontaneous esophageal perforation is the left aspect of the distal esophagus near the GEJ.[5] During the esophageal stenting the stent should be placed at least 2–4 cm proximal and distal to the perforation site of esophagus for adequate coverage.[5] For distal esophageal

perforations, the stent must be extended across the gastro esophageal junction for adequate coverage and healing of the perforations. The principles of managing an acute esophageal perforation are controlling the ongoing spillage from the esophagus, draining pleural and/or mediastinal cavities, administering intravenous broad-spectrum antibiotics, performing gastric decompression, and providing enteral or parenteral nutritional support.[6] Frequent complication of fully covered self-expanding metallic stents are Stent migration and others like stent retrieval complications : bleeding, stent fractures and impaction were seen most commonly for stents which are kept beyond 6 weeks. [7] In the present study stent migration was noted in one of the patient, ulceration of mucosa related to flank impaction is seen in one patient. In a pooled meta-analysis of several case series investigating stent placement for Benign Esophageal Perforations, stent migration was reported in around 20% of patients.[8] This common problem of stent migration can prevented by endoscopic clip placement, by fixing a clip to esophageal stent at the proximal end of its wall and it can also be prevented by another novel technique like endoscopic suturing.[9] Overall survival rate of the patients can be improved by aggressive treatment of underlying sepsis and pleural fluid collection and early placement of stent, avoids the need for major surgery in majority of the cases. In the present study all patients were managed conservatively with esophgaeal stent placement, supportive management, broad spectrum antibiotics, all the 4 patients responded well to conservative treatment and no mortality was seen. Ideal time of stent removal for acute perforations is 4 weeks and for anastomotic leaks it is 2 weeks. In present study stent was removed at 4 weeks for all the four patients and it shows healed of mucosa at perforated site.

CONCLUSION:

Esophageal perforation is a life-threatening condition that must be recognized early and treated aggressively. In these cases of acute esophageal perforation early endoscopic placement of covered stent helps in the resolution of the defect and can avoid major surgery in most of the cases. In the present study all stents were successfully removed with in time frame of 4 weeks stent related complications are see in two patients, like stent migration in one and flanks impaction in one and with complete healing of the esophageal perforation.

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