Stent Repair of Esophageal Perforation at the Upper Esophageal Sphincter Following Transesophageal Echocardiography

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Introduction:

Transesophageal echocardiography (TEE) is a diagnostic tool that is widely used in clinical cardiology. However, the introduction of a probe into the esophagus can cause iatrogenic esophageal perforation and fistula formation with an estimated incidence of 0.03 – 0.09%.1,2 Here, we describe a case of echocardiography-induced perforation at the upper esophageal sphincter that was treated endoscopically with stent placement.

Case Report:

An 82-year-old female with a history of coronary artery disease, mitral valve regurgitation, and chronic obstructive pulmonary disease was transferred from an outside hospital to our institution's intensive care unit after an upper esophageal perforation following TEE. The defect was located 15 cm distal to the incisors and ended in a blind pouch at 40 cm distally. Initial upper GI study did not show any passage of contrast through the distal lower esophageal sphincter.

Esophagogastroduodenoscopy was used to cannulate the native esophagus, and a fully covered stent was placed over the perforation while placing radial pressure, reapproximating the mucosa back onto the muscle over the length of the blind pouch. Patency of the esophagus and seal of the defect was checked, and the scope was withdrawn. Of note, this was a high esophageal stent with a distal landing zone at roughly 15 cm from the incisors. While this location is thought not to be tolerated well, our patient was able to be extubated. She was kept on aspiration precautions. The stent was in place for five days, and the patient endorsed neck and chest spasmodic pain. At post-operative day 5 the stent was removed, and the perforation was sealed with no ability to enter the false passage with a patent esophagus. Barium swallow confirmed closure of the false passage. The patient completed an antibiotic course, consumed food at discharge, and improved over several weeks.

Figures

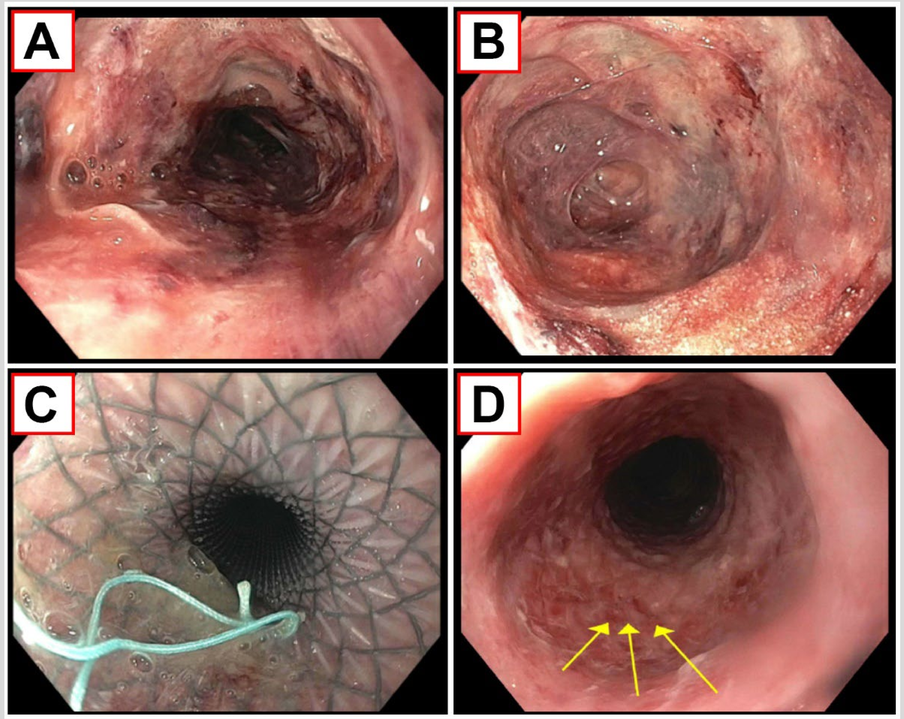


Figure: ***A and B***. Endoscopy showing blind pouch diverticulum that measured 25 cm in length. ***C***. Placement of sent in esophagus. ***D.*** After removal of stent, arrows pointing to the original area of perforation

Discussion:

Current approaches to esophageal perforation are non-operative, endoscopic, or primary surgical repair. Recent studies have shown the safety and efficacy of endoscopic repair for esophageal perforation with self-expandable metallic stents (SEMS).3,4 Various case reports tout positive outcomes in managing TEE-induced perforations with endoscopic stenting.5,6 We show high esophageal stent placement can be tolerated from a pain and airway perspective, even though it was previously thought there was aspiration risk since the upper esophageal sphincter is held open. This location was tolerated, yet aspiration precautions must be observed.

Conclusion:

This case report lends additional evidence to the successful use of endoscopic stent repair for TEE-induced upper esophageal perforations.

References:

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