



Background

- Pharyngocutaneous fistulae (PCF) complicate 14-23% of total laryngectomies.
- Risk factors: diabetes, prior tracheotomy, preoperative radiotherapy, positive surgical margins, and concurrent neck dissection
- Conservative management with local wound care and compression achieves resolution in 65-94% of cases.
- Larger, complex fistula management historically involve tissue transfer techniques, including pedicled or free flaps.
- More recently, rigid endoscopic techniques have been introduced including autologous fat graft injection and endoscopic-assisted suturing techniques.
- Objective: to demonstrate our novel flexible endoscopic management techniques for PCF using over-the-scope-clips (OTSCs) and vicryl mesh plugs.

Case 1

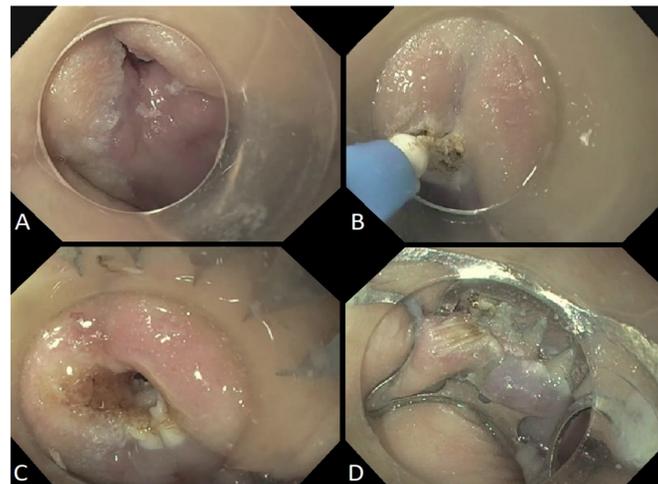
- 71 y/o male with squamous cell carcinoma (SCC) of the hypopharynx
- Underwent total laryngopharyngectomy, right hemithyroidectomy, lymph node dissection of levels 2a-4, and anterolateral thigh free flap (ALTFF) reconstruction.
- Complicated by PCF resistant to conservative measures
- Underwent anterior cervical turn-in flap and salivary stent, further complicated by fistula recurrence 6 weeks later. He was referred for endoscopic management

Case 2

- 73 y/o male with SCC of the oropharynx s/p chemoradiation who developed recurrence
- Underwent salvage total laryngectomy, partial pharyngectomy, right hemithyroidectomy, bilateral neck dissections levels 2a-4, and ALTFF reconstruction.
- Developed a neck abscess one month postoperatively and was diagnosed with a PCF.
- Referred for endoscopic repair after failing conservative measures

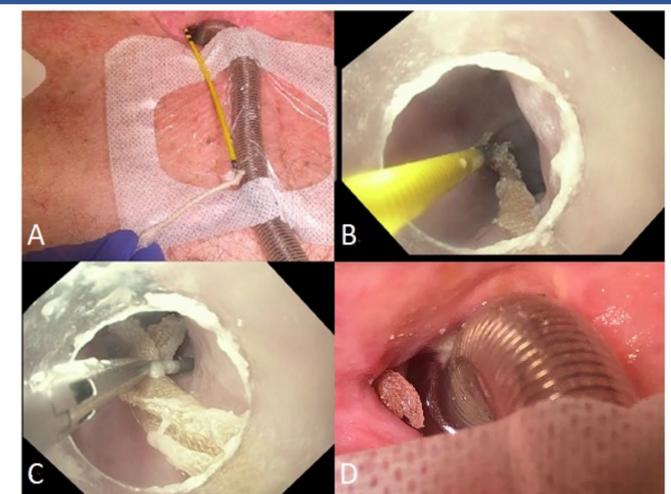
Surgical Technique

Case 1



- Patient taken to OR for attempted endoscopic management of the persistent PCF.
- A pinpoint fistula (3 mm diameter) was identified between the neopharynx and esophageal introitus (Figure 1A).
- The fistula was first addressed with an argon plasma coagulation (APC) catheter (Figure 1B).
- Next, a therapeutic scope was advanced with a 12/6 GC-type OTSC (Ovesco Endoscopy, Tübingen, Germany) affixed to the end (Figure 1C) and the clip was fired successfully (Figure 1D).
 - Procedure time = 60 minutes
- 4 days of complete symptomatic resolution, then noted recurrence.
 - Neck X-ray did not visualize clip, indicating that it was dislodged.
- Taken for repeat upper endoscopy 27 days after initial endoscopic case.
 - A markedly smaller fistula defect was identified
 - An OTSC was positioned over the defect and an OTSC anchor grasper was utilized to pull tissue into the scope cap.
 - The clip was then fired and felt to be in satisfactory position
 - Operative time = 22 minutes
- Follow-up: 102 days after intervention, patient endorsed complete symptomatic resolution.

Case 2



- A diagnostic EGD was performed and a 3mm fistula opening was noted at the anterior aspect of the distal anastomosis of the neopharynx.
- Following the same techniques as in case 1, a 12/6 T-type OTSC was fired over the defect.
 - A small air leak was noted around the tracheostomy, suggesting only partial closure of the fistula tract.
 - Patient was coagulopathic at the time and procedure was ended
 - Patient had partial symptomatic resolution, but fistula persisted.
- Patient underwent repeat therapeutic endoscopy on post-procedural day 51 where the prior OTSC was noted to be free-floating in-situ.
 - Tissue was noted to be fibrotic (OTSC could not adequately grasp the tissue) → intervention was terminated.
- The patient had continued, though decreased, fistula output and was taken back 47 days after last intervention for the possible use of a vicryl mesh plug.
 - A 5 cm x 2 mm thick piece of vicryl mesh was then tubularized
 - An endoscopic grasper was then passed through the fistula tract, and the mesh tube was grasped and pulled into the lumen (Figure 2A,B)
 - It was then secured with a through-the-scope clip (Figure 2C).
 - Mesh was cut to the level of the external opening of the fistula (Figure 2D).
- Follow-up: 224 days after intervention, patient endorsed complete symptomatic resolution.

Discussion and Conclusions

- Flexible endoscopic techniques can be used successfully for PCF management by limiting procedural morbidity and providing definitive closure.
- Over-the-scope clips:
 - Short procedural time, minimally invasive, and can be performed serially if initial success is not achieved.
 - Does not jeopardize tissue plans that might be utilized for more definitive operative repairs.
 - Drawback: difficult application on fibrotic tissue (history of radiation).
- Vicryl mesh plug:
 - The slow, absorptive capacity of the vicryl mesh Allows for gradual definitive fistula closure over time, while providing short-term symptomatic relief through fistula occlusion.
 - This method may be preferable to OTSC placement for patients with very high risk of fistula recurrence, such as those with fibrotic tissue from prior radiation.

Contact

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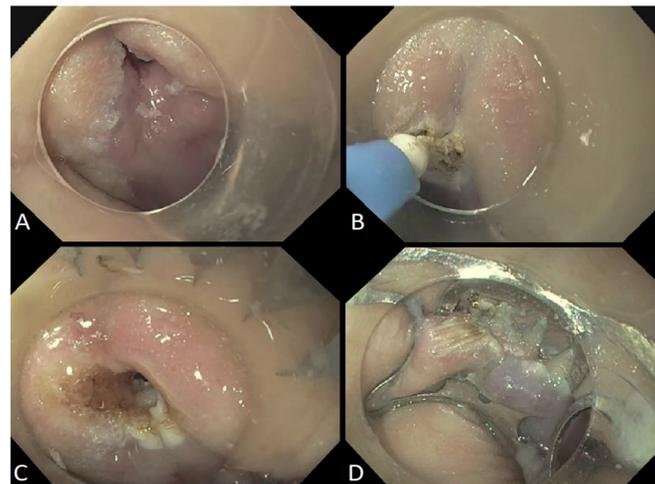
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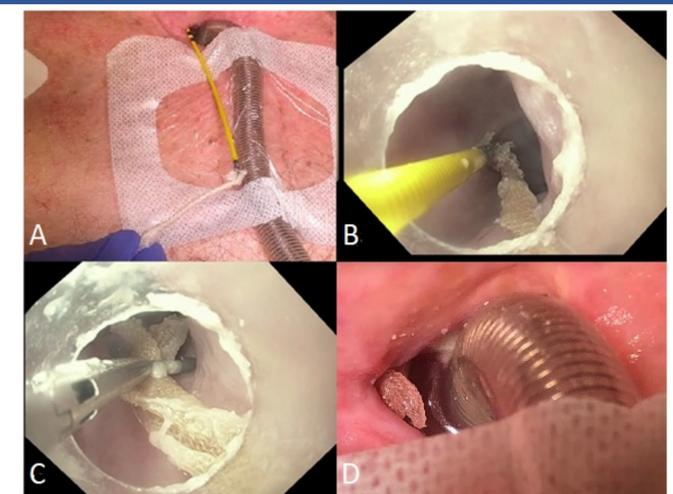
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