CAIR Case of the Month

Case Courtesy of Drs. E. Tai and E. Shlomovitz

University of Toronto

TORONTO JDMI

University of Toronto
Sinai Health System
University Health Network
Women's College Hospital

Case Presentation

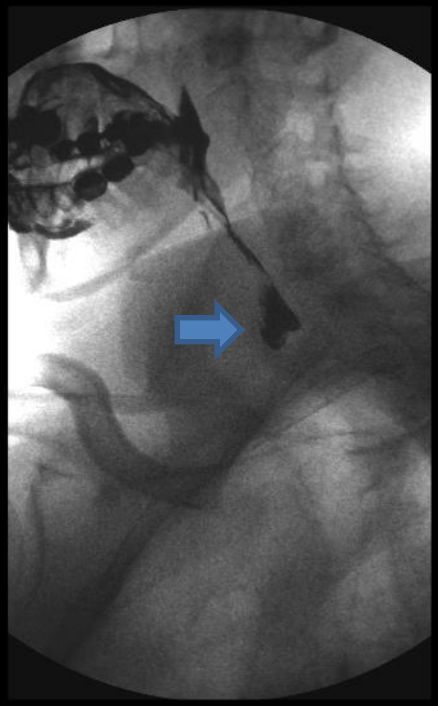
- 66 year old male with base of tongue squamous cell carcinoma
- Treated with chemoradiation
- Presents with severe dysphagia 3 months post treatment

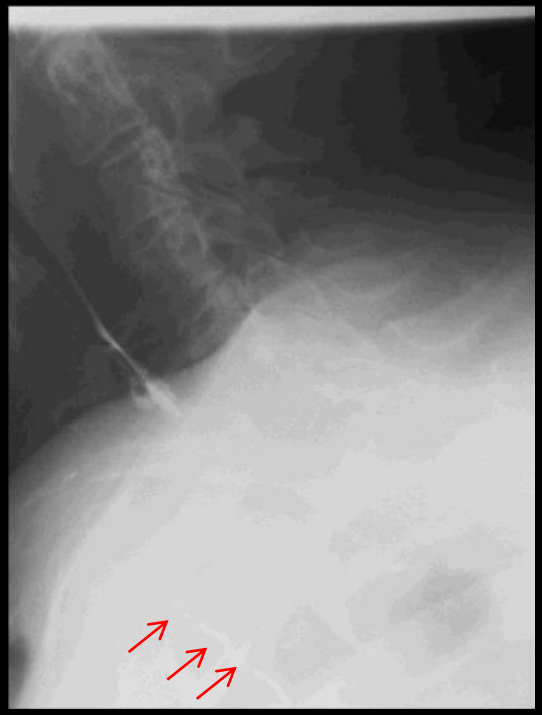
TORONTO JDMI
University of Toronto
Sinai Health System
University Health Network
Women's College Hospital

Swallowing Study

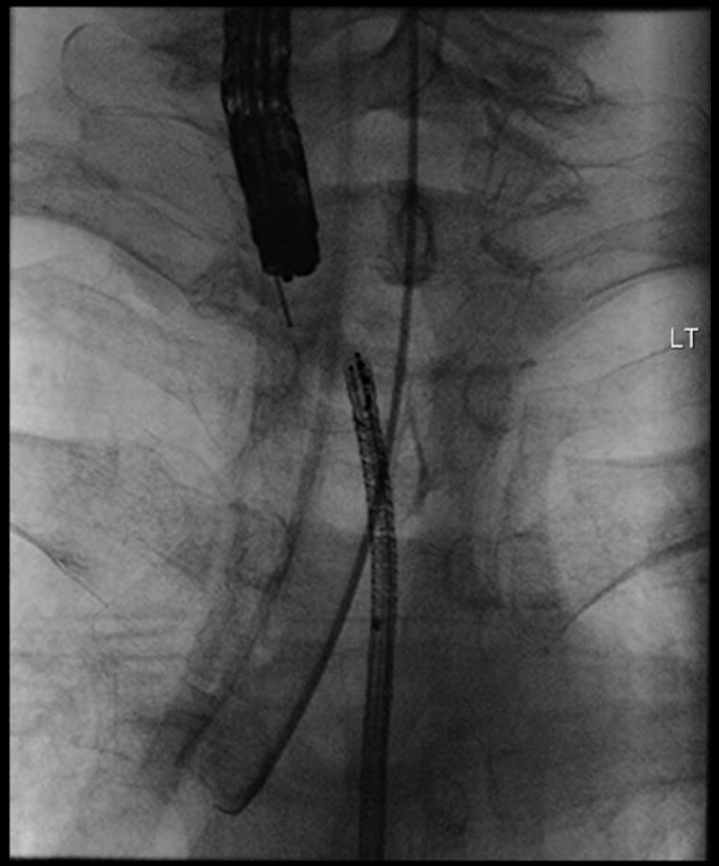
Swallowing Study Findings

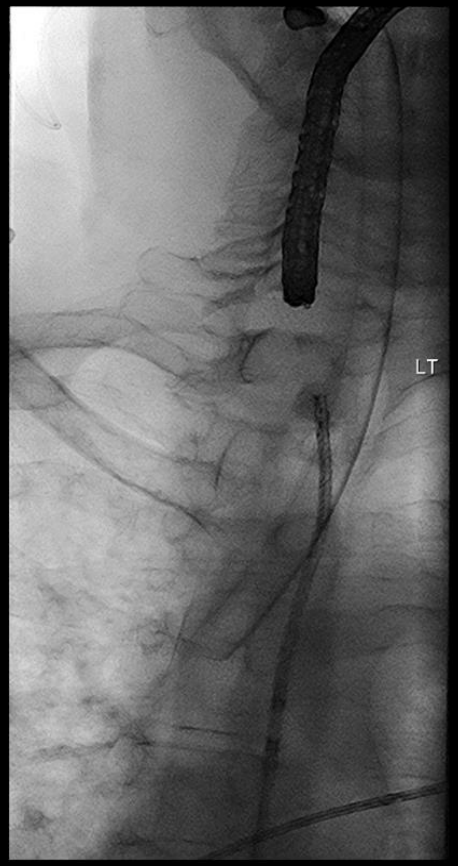
- Swallowing study demonstrating complete occlusion of the cervical esophagus (➡) and evidence of aspiration (→)





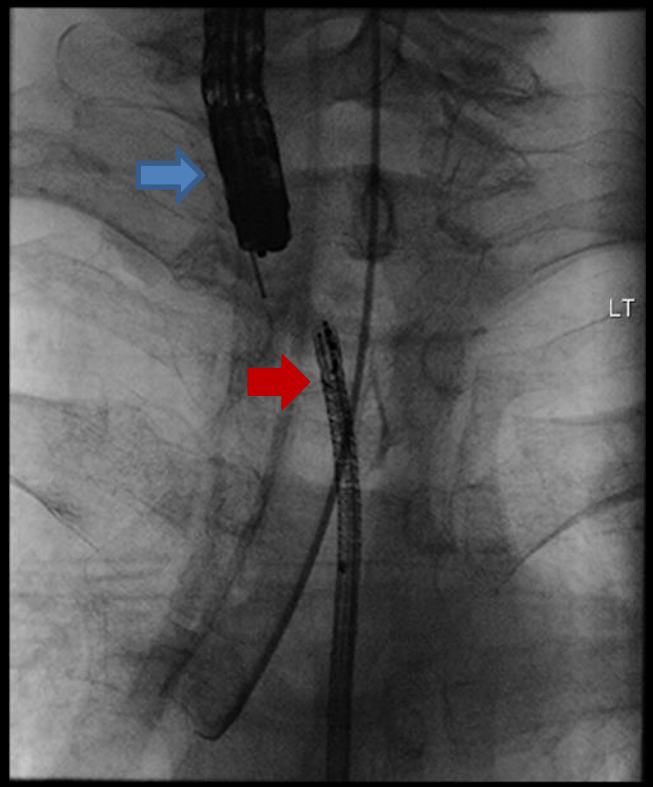
Endoscopy

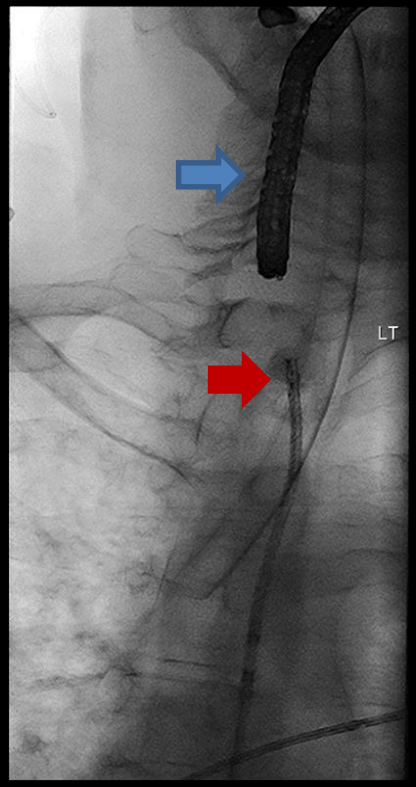




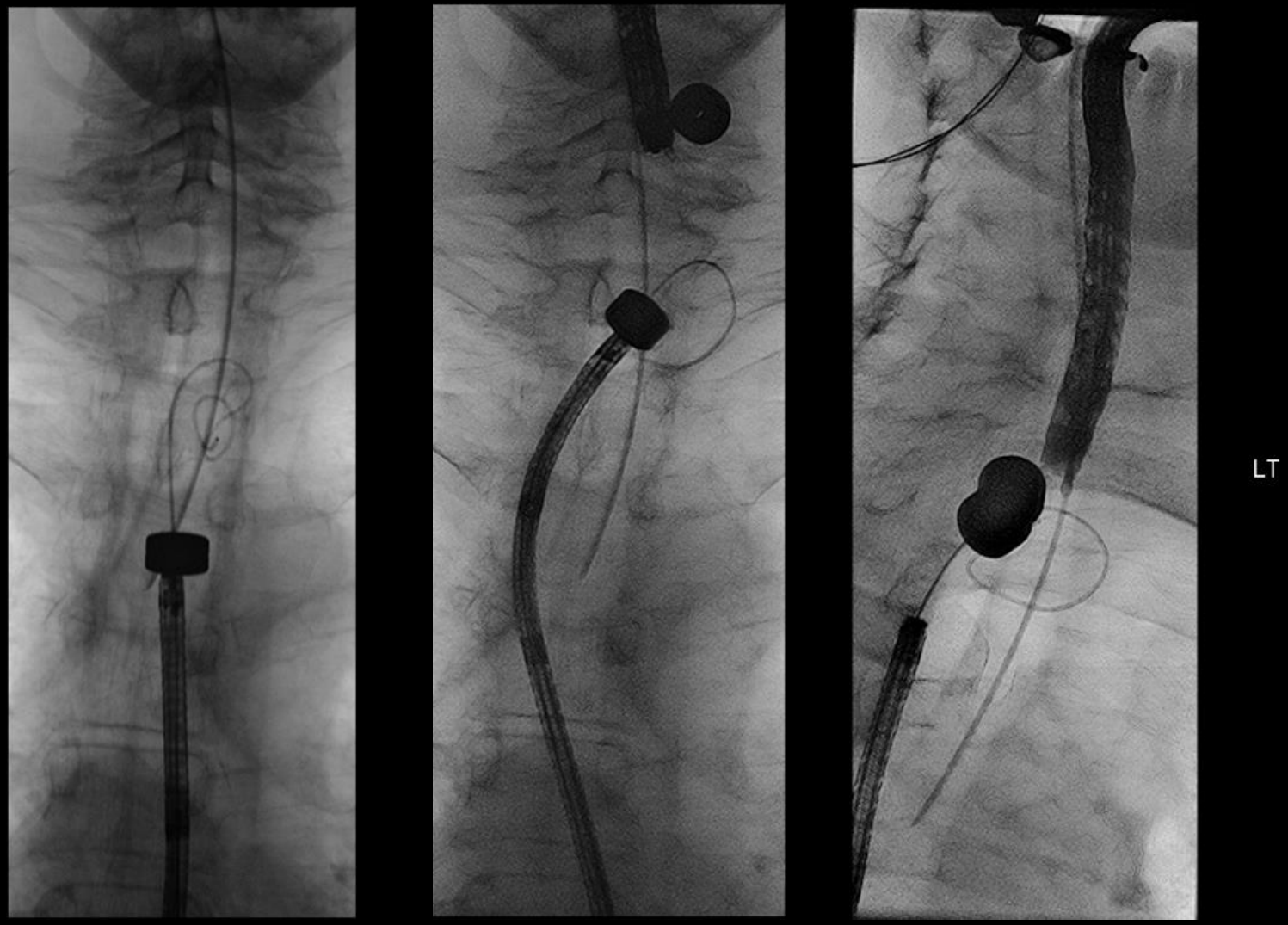
Endoscopy Findings

- Intubated patient. AP and oblique projections
- Access from above with endoscope (➡).
- Access from below through G-tube with ureteroscope (➡) demonstrating complete occlusion over approximately 1.5 – 2 cm length



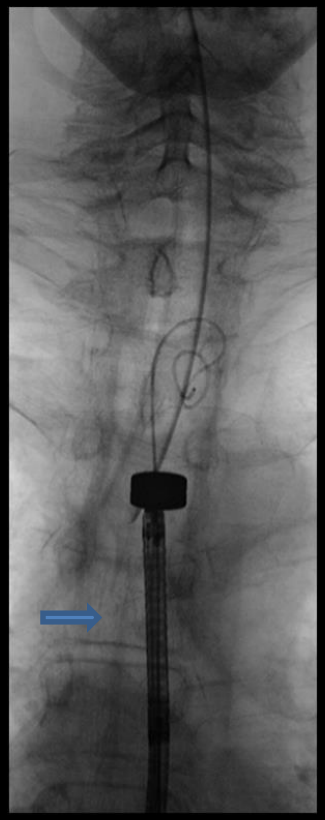


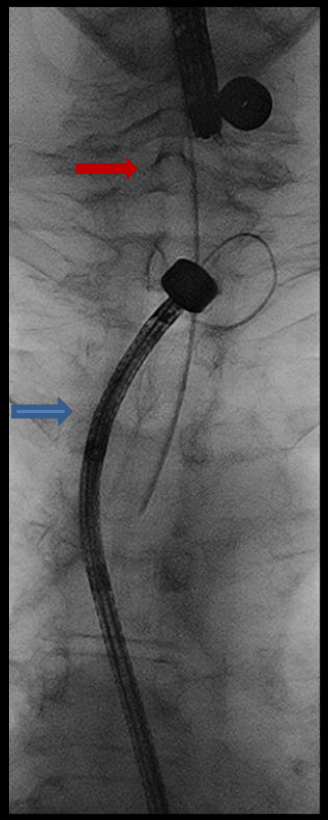
Magnetic Compression Anastomosis (MCA)

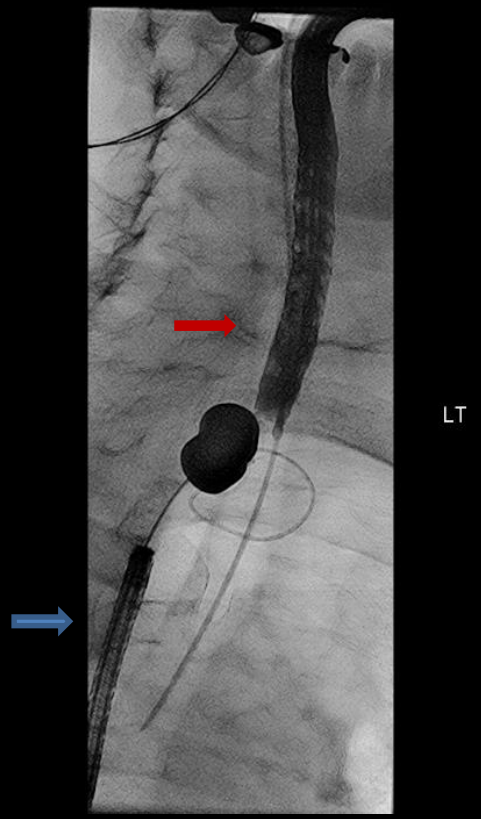


MCA Procedure

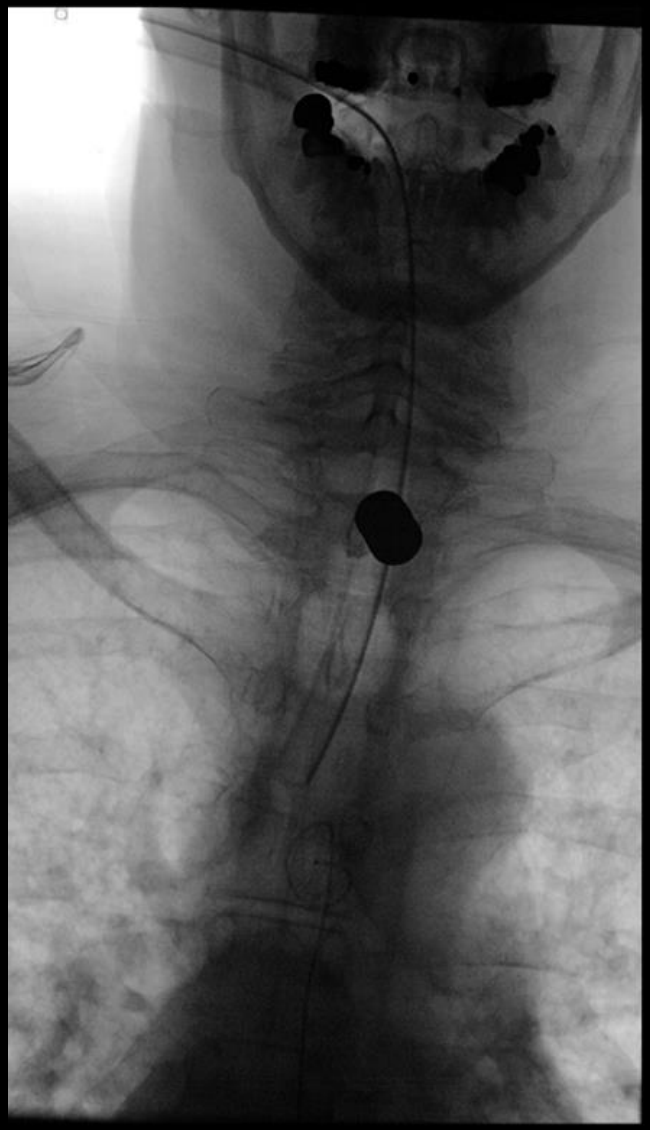
- Procedure performed under general anesthesia with endotracheal tube in situ
- Placement of the inferior neodymium iron boron magnet through the G tube with aid of cholangioscope (⟹) over an Amplatz wire
- Placement of the superior magnet using a gastroscope (➞)with magnets attached to the scope using forceps
- Oblique lateral projection confirms positioning of the magnets with gastroscope and cholangioscope in situ



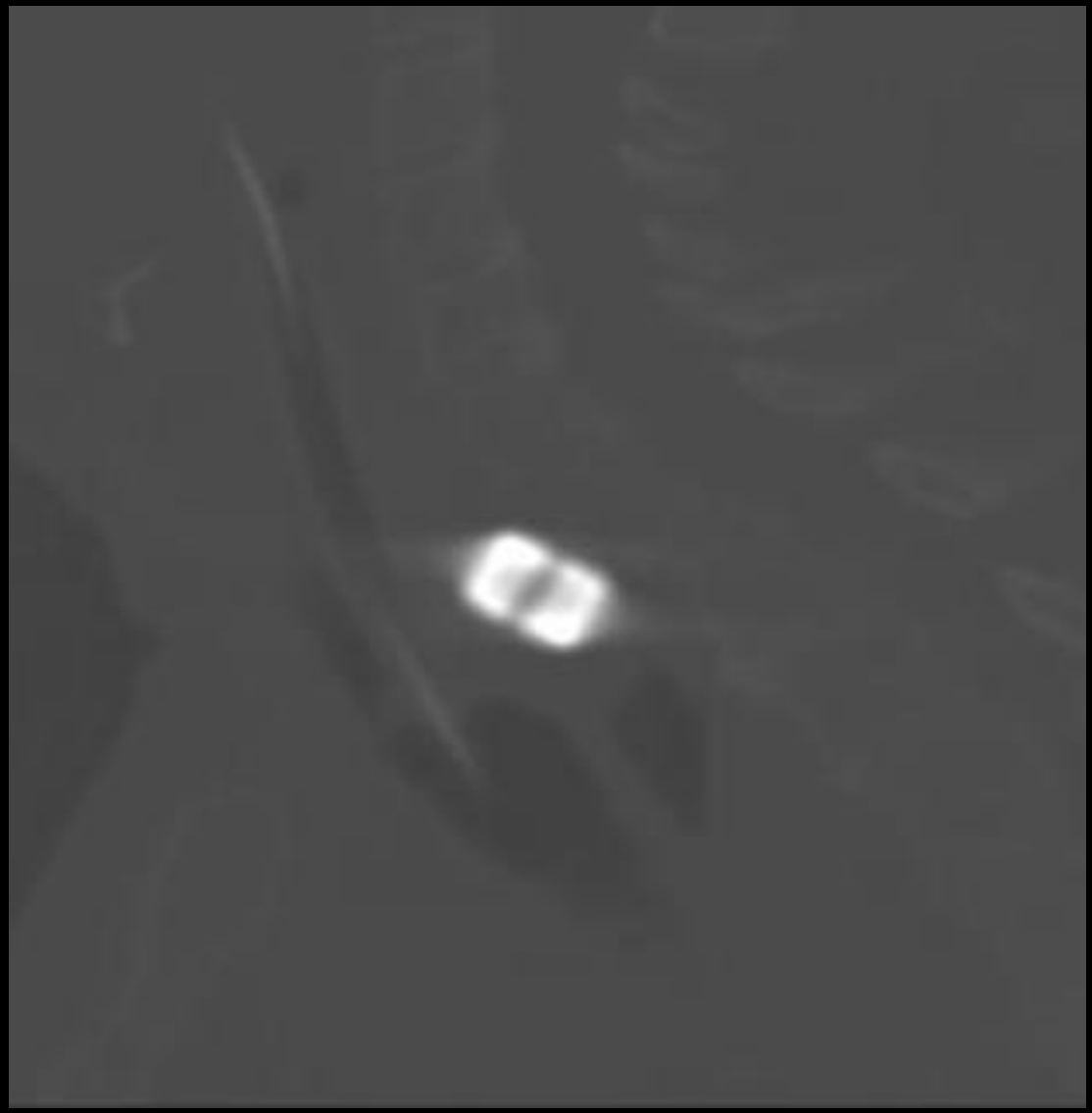




Magnetic Compression Anastomosis

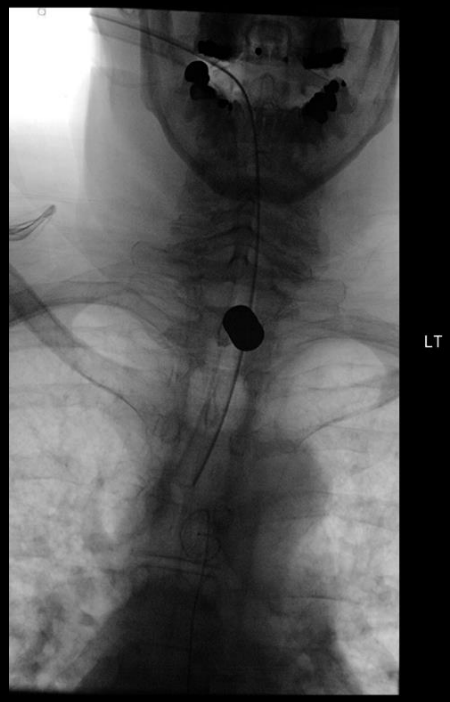


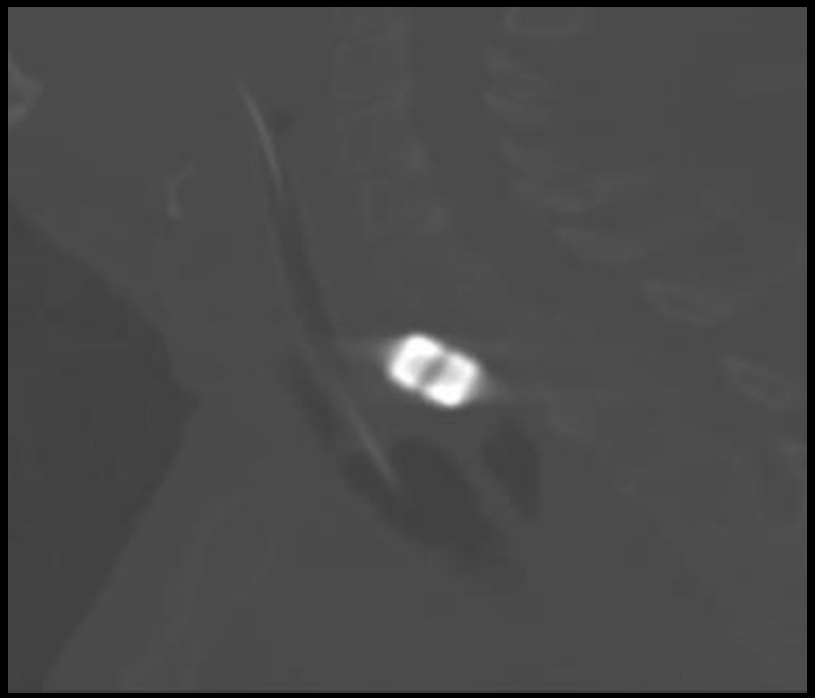
LT



MCA Procedure

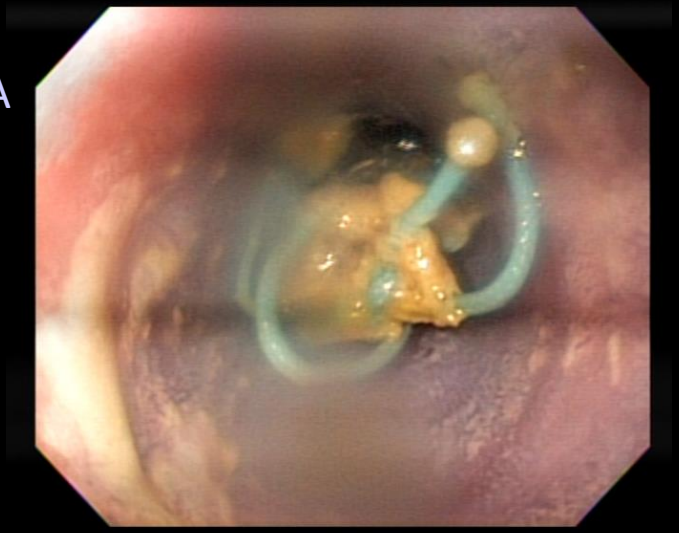
- AP radiograph confirms positioning of the magnets at the occlusion of the cervical esophagus
- Sagittal CT confirms positioning and apposition of the magnets in the occluded cervical esophagus



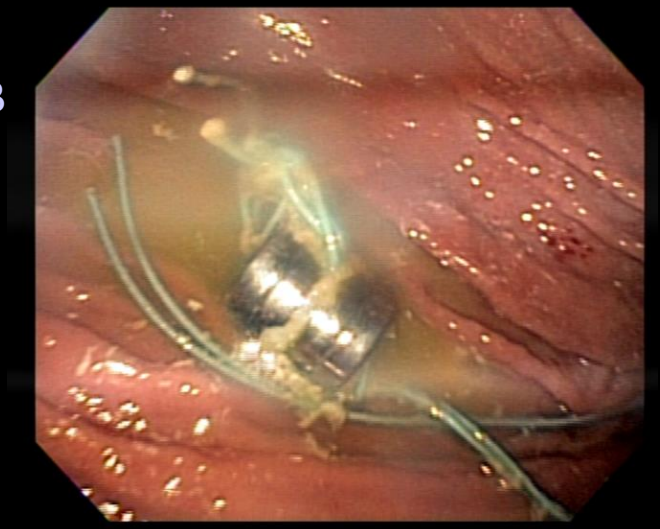


Post Procedure Endoscopy

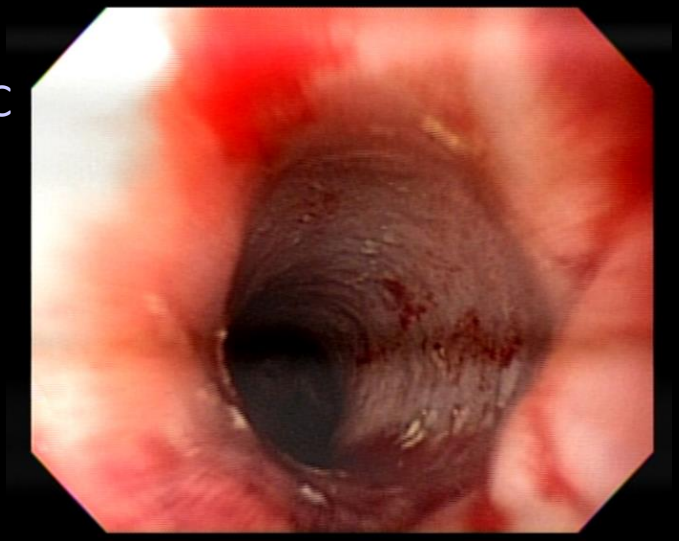
A



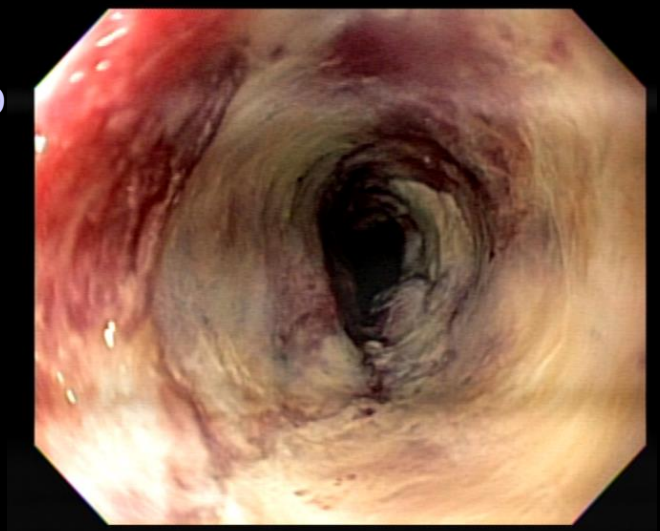
B



C



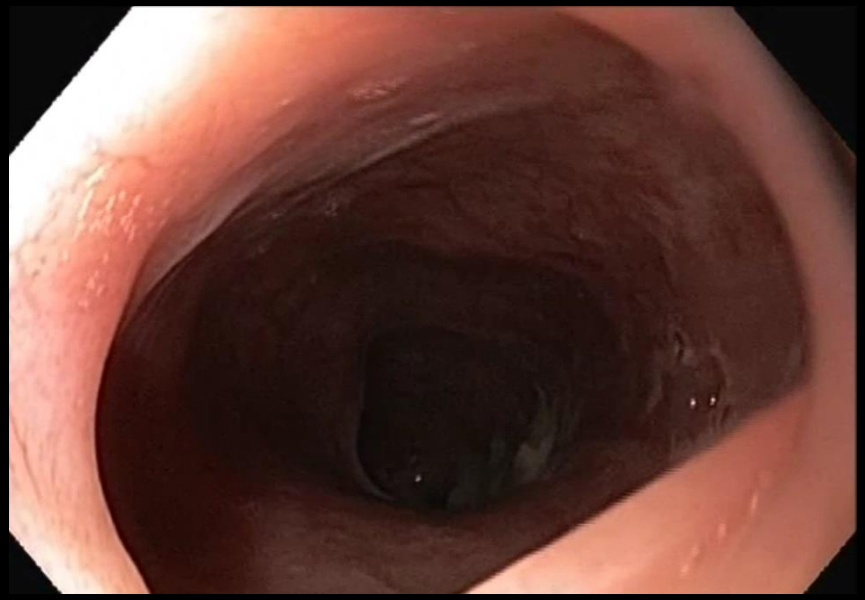
D

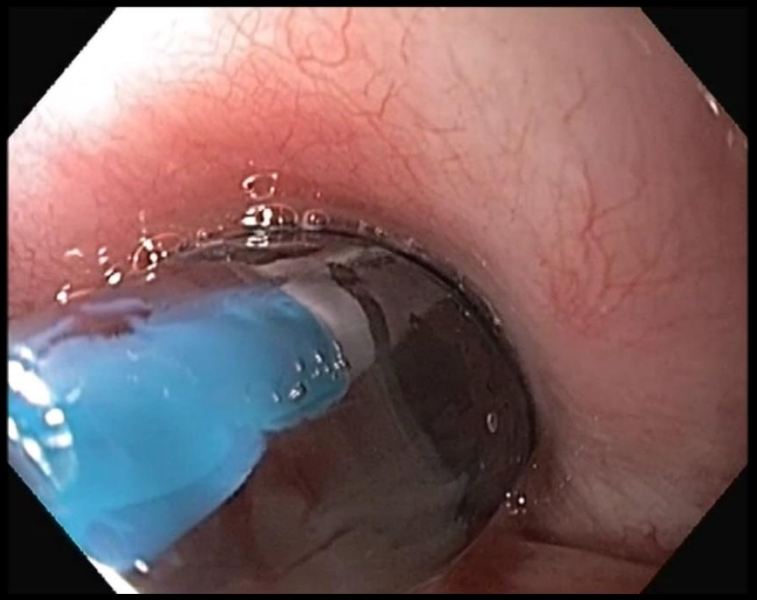


Post Procedure Endoscopy

- Performed 18 days after the magnet compression anastomosis procedure
- Superior view of the magnets in the distal esophagus below the level of the stricture
- Magnets pushed into the stomach against the gastric rugal folds.
- There are blue strings surrounding the magnets placed for safety retrieval
- Mild ulceration is noted at the site of the esophageal stricture in the now patent esophagus
- Close-up view of the esophageal ulceration

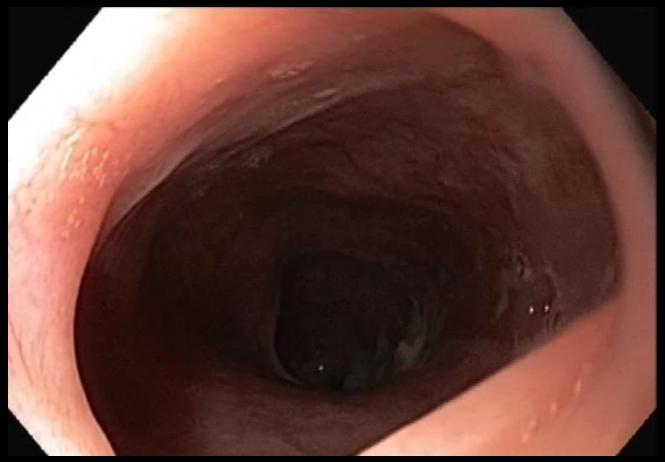
Endoscopy 10 Months Post Recanalization

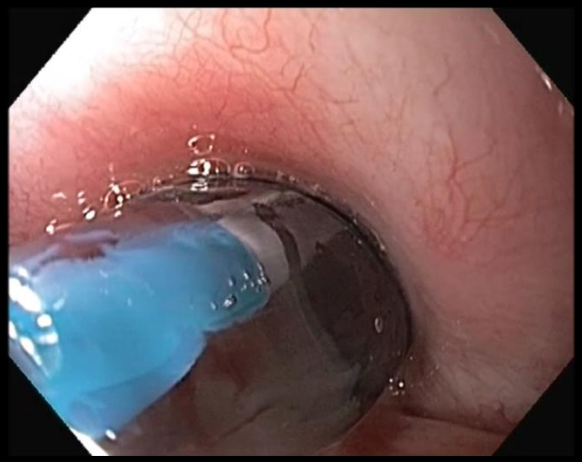




Endoscopy 10 Months Post Recanalization

- Endoscopy 10 months post recanalization confirms patency of the esophagus with healing of the mild superficial ulceration
- The patient had a mild recurrent stricture that was treated with ballooning
- Esophagus remained patent at least 15 months post recanalization





Discussion

- Radiation induced cervical esophageal strictures are a common late complication of radiation therapy for head and neck cancers
- Radiation induced strictures are often refractory to treatment with high risk of recurrence
- Complete esophageal occlusions are not amenable to standard endoscopic therapies

Discussion

- Magnetic compression anastomosis has been described in pediatric patients for successful recanalization in patients with a Type A tracheoesophageal fistula, Type C tracheoesophageal fistula with surgical correction of the fistula and post-surgical tracheoesophageal fistula patients
- In total, 16 pediatric patients have been published with the most severe complication early sepsis
- Patency in pediatric patients has been reported up to 11 years post procedure

References

- Agarwalla A, Small AJ, Mendelson AH, Scott FI, Kochman ML. Risk of recurrent or refractory strictures and outcome of endoscopic dilation for radiation-induced esophageal strictures. Surg Endosc. 2015 Jul;29(7):1903-12.
- Amateau SK, Khashab MA. Successful blunt recanalization of an obliterated long esophageal stricture by endoscopic rendezvous. Endoscopy. 2013;45 Suppl 2 UCTN:E49-50.
- Küper MA, Stüker D, Königsrainer A, Kratt T. Esophageal recanalization by combined antegrade/retrograde esophagoscopy for radiotherapy-induced complete esophageal occlusion. Endoscopy. 2014;46 Suppl 1 UCTN:E510-1.
- Maple JT, Petersen BT, Baron TH, Kasperbauer JL, Wong Kee Song LM, Larson MV. Endoscopic management of radiation-induced complete upper esophageal obstruction with an antegrade-retrograde rendezvous technique. Gastrointest Endosc. 2006 Nov;64(5):822-8.
- Moss WJ, Pang J, Orosco RK, Weissbrod PA, Brumund KT, Weisman RA, Brigger MT, Coffey CS. Esophageal dilation in head and neck cancer patients: A systematic review and meta-analysis. Laryngoscope. 2018 Jan;128(1):111-117.
- Park JH, Kim KY, Song HY, Cho YC, Kim PH, Tsauo J, Kim MT, Jun EJ, Jung HY, Kim SB, Kim JH. Radiation-induced esophageal strictures treated with fluoroscopic balloon dilation: clinical outcomes and factors influencing recurrence in 62 patients. Acta Radiol. 2018 Mar;59(3):313-321.
- Woo R, Wong CM, Trimble Z, Puapong D, Koehler S, Miller S, Johnson S. Magnetic Compression Stricturoplasty For Treatment of Refractory Esophageal Strictures in Children: Technique and Lessons Learned. Surg Innov. 2017 Oct;24(5):432-439.
- Zaritzky M, Ben R, Johnston K. Magnetic gastrointestinal anastomosis in pediatric patients. J Pediatr Surg. 2014 Jul;49(7):1131-7.
- Zaritzky M, Ben R, Zylberg GI, Yampolsky B. Magnetic compression anastomosis as a nonsurgical treatment for esophageal atresia. Pediatr Radiol. 2009 Sep;39(9):945-9.