INTRODUCTION
A Zenker’s diverticulum (ZD) is a pulsion diverticulum of the hypopharyngeal wall. It most commonly occurs on the left posterolateral aspect of the hypopharynx, interdigitating between the cricopharyngeus muscle and the inferior pharyngeal constrictor.

The estimated frequency of this disorder is 2 per 100,000 [1]. Modern treatment options are commonly endoscopic staple diverticulectomy versus laser myotomy. Open transcervical approaches are usually reserved for cases where endoscopic management has failed.

Among working-age adults, the prevalence of obstructive sleep apnea (OSA) is approximately 2-4% [2]. The most common form of therapy for OSA is continuous positive airway pressure (CPAP). Patients with OSA are frequently evaluated by Otolaryngologists, either for diagnosis or surgical management of their OSA.

The following case study reveals a complication of early postoperative CPAP use following endoscopic ZD repair.

Methods
• Single patient case report with literature review
• Pubmed literature search

Case Information
Patient underwent uneventful repair of a left-sided Zenker’s diverticulum. A Weerda scope was used for exposure. The procedure was performed with a gastrointestinal anastomosis (GIA) stapler. Additional residual cricopharyngeus musculature was ablated with a CO2 laser under direct visualization with an operating microscope. The CO2 laser was used on a 3 Watts continuous pulse mode. The patient was discharged on postoperative day 1 on a clear liquid diet, with instructions to slowly advance to a normal diet. The patient inadvertently resumed CPAP use in the early postoperative period.

Case Information (continued)
The patient presented to the Emergency Department with worsening dysphagia and neck fullness on postoperative day 5, and was found to have extravasation of contrast as well as extraluminal air (see below). A nasogastric tube was inserted under direct visualization with a fiberoptic nasolaryngoscope. The patient was admitted for observation and treated with antibiotics and NPO. After 48 hours, the patient’s symptoms greatly improved. At follow up on postoperative day 15, the patient had no further dysphagia and oral feeding was restarted uneventfully. His CPAP was resumed one month after surgery without incident.

Radiographs
Preoperative barium swallow demonstrating a moderate sized diverticulum from region of cricopharyngeus and cervical esophagus

Postoperative barium swallow demonstrating contrast material infiltrating into the retropharyngeal space with extensive air accumulation in this space as well (arrow).

Discussion
Given the frequency with which Otolaryngologists are called upon to treat patients with ZD and OSA, it is informative to consider the impact that CPAP therapy may have on recovery from endoscopic Zenker’s repair.

Endoscopic repair of ZD results in lower complication rates, shorter hospital stay, and lower mortality rates when compared with open transcervical approaches [3]. Prior retrospective analyses of patients undergoing Zenker’s treatment have shown that extraesophageal air may be detectable in up to 34% of patients after CO2 laser treatment [4]. Use of the GIA, by comparison, was associated with postoperative free air in 9% of patients. Another study revealed lower complication rates altogether in the GIA stapler group versus the CO2 laser cohort, 11% versus 31%, respectively, with 19% of patients in the CO2 laser group experiencing subcutaneous emphysema postoperatively compared with 0% in the GIA stapler group [5]. Patients who require both GIA stapling and laser myotomy are presumably at an increased risk of free air accumulation. The use of CPAP can be reasonably presumed to increase this risk due to increased intraluminal pressure.

Thus, it is reasonable to screen all surgical candidates for CPAP use and ensure they understand instructions regarding recommendations for safe postoperative use. The ideal time period of CPAP avoidance is unknown.

REFERENCES