Partial middle turbinate avulsion is a rare complication of nasotracheal intubation. Patients usually experience a brisk hemorrhage at the time of injury. Postoperatively, some patients develop unilateral nasal obstruction, while others are asymptomatic. We present an unusual case in which a patient became symptomatic many years after the incident. We hope to raise awareness that a traumatic disruption of the turbinates secondary to nasotracheal intubation might lead to the development of an abnormal nasopharyngeal mass.

Introduction
Nasotracheal intubation is commonly used during oropharyngeal procedures as an alternative to orotracheal intubation because it allows for better access to the surgical site. Some degree of nasal trauma is inevitable, even during “uneventful” nasal intubations. The most common complications are minor mucosal damage and epistaxis. In a series of 100 consecutively presenting patients, O’Connell et al reported that the incidence of bruising and epistaxis was 54% and 7%, respectively. Documented cases of major complications, such as partial and even complete avulsions of the middle and inferior turbinates, are rare. We present an unusual case in which a patient became symptomatic many years after intubation.

Case report
A 41-year-old, 94-kg (207-lb) woman presented with a globus sensation. She was otherwise fit and well and had no significant medical history. Fiberoptic nasal endoscopy revealed hypertrophy of the lingual tonsils; otherwise, the nasal cavities and postnasal space were normal, and there was no evidence of septal deviation or septal spur. She was taken to the operating room for pharyngoscopy and laser lingual tonsillectomy under general anesthesia. The airway was secured by nasotracheal intubation with a size 7.0 cuffed and preformed plastic tube. Advancement of the nasotracheal tube was documented as difficult despite the use of ephedrine drops, and bleeding was noted from both nares. Intraoperatively, the nasotracheal tube developed a leak in the cuff, and this required replacement with an orotracheal tube. The operation was otherwise uneventful, and the patient returned to the ward after extubation.

During transfer to the ward, the patient experienced an episode of brisk, self-limiting epistaxis. She again experienced mild epistaxis overnight, which required no intervention. She was discharged home on postoperative day 1. At outpatient follow-up 1 month later, her presenting symptoms had fully resolved.

Eight years later, the patient consulted the Department of Otolaryngology–Head and Neck Surgery again with a similar globus sensation. Findings on oral examination were unremarkable, but fiberoptic nasendoscopy revealed that a mass had arisen from the posterior lower lateral nasal wall and extended into the nasopharynx (figure 1). Computed tomography (CT) confirmed the presence of a bony mass in the nasopharynx and demonstrated a partially avulsed left middle turbinate (figure 2). A provisional diagnosis of a partially avulsed left middle turbinate displaced into the nasopharynx was made.

The patient was examined under general anesthesia. The lateral nasal wall adjacent to the mass appeared to be pulsatile, and it was not excised because a vascular process was suspected. However, subsequent magnetic resonance angiography showed that the vascular anatomy was normal. The patient was reassured by the diagnosis of a partially avulsed middle turbinate, and after a full discussion of the treatment options, she decided to undergo conservative management by outpatient follow-up.

Discussion
During nasal intubation, the inferior turbinate is at greater risk of trauma than is the middle turbinate because it is closer to the nasotracheal tube. Preexisting intranasal abnormalities, such as an enlarged inferior turbinate or a septal spur, increase the risk of middle turbinate trauma when they cause the nasotracheal tube to be redirected higher into the nasal cavity. Also, trauma to the middle
The body of the middle turbinate is integrated into the ethmoid air cell system. As it descends anteriorly, it attaches to the cribriform plate; posteriorly, it is anchored loosely into the ethmoid air cells. Applying excessive force to the middle turbinate can cause a fracture to the floor of the anterior cranial fossa and result in cerebrospinal fluid leak. Moore suggested a technique for nasotracheal intubation that prevents damage to the turbinates. The nose is adequately decongested prior to intubation, and lubrication is applied to the tube. Intubation is performed with cephalad traction on the tube and with the bevel directed laterally so that its leading edge is pointed away from the turbinates. As soon as the tip of the tube is visualized in the oropharynx, the part of the tube outside the nostril
turbinate can still occur in the presence of normal anatomy.

Figure 1. A: Endoscopy shows the pedunculated mass (1 = posterior choana; 2 = prolapsed middle turbinate; 3 = nasal septum). B: The middle turbinate is displaced into the nasopharynx (1 = nasal septum; 2 = lateral nasal wall with no anterior middle turbinate).

Figure 2. A: Sagittal CT shows the mass in the nasopharynx. B: Coronal CT reveals that the middle turbinate is displaced into the nasopharynx. C: Coronal CT demonstrates the partial avulsion of the left middle turbinate.
is returned to its normal curvature and advanced toward the larynx. The feeding vessels to the middle turbinate branch originate in the proximal portion of the posterior lateral nasal artery just after it exits the sphenopalatine foramen. We postulate that the middle turbinate remnant in our patient survived on this branch of the sphenopalatine artery via a pedunculated stalk. This case serves as a reminder of the hazards of nasotracheal intubation.

References