

Introduction

- Retropharyngeal hematoma (RPH) is a rare cause of upper airway obstruction and most often associated with trauma, surgery, or infection (1).
- Spontaneous RPH in patients on warfarin has been described and is often attributed to higher therapeutic goal international normalized ratio (INR) (2).
- As an alternative to warfarin, non-vitamin K antagonist oral anticoagulant (NOACs) agents which do not require INR monitoring are becoming more widespread,
- We report the first case of a spontaneous RPH requiring emergent intubation and coil embolization in a patient on rivaroxaban.

Case Report

A 49-year-old male with a history of non-valvular atrial fibrillation on rivaroxaban presented to an outside ER with sudden-onset progressive right ear pain. On examination, he was noted to have mild to moderate labored breathing and hoarseness, but was otherwise normal. Workup revealed normal labs and INR of 1.1.

Given concerns for obstruction, a CT scan of the neck was obtained and demonstrated a 4.6x4.4x3.3cm retropharyngeal mass displacing the supraglottic airway, with repeat scan 2 hours afterward demonstrating a 9.2x4.0x3.8cm with active extravasation from a branch of the right external carotid artery (Figure 1A).

Flexible laryngoscopy revealed an expanding submucosal mass consistent with a hematoma, resulting in distortion and obstruction of the glottic airway. The airway was secured with nasotracheal intubation. Given continued increase in size of the mass, the patient was transferred to the interventional radiology where extravasation from 2 branches beyond the origin of the superior thyroid and lingual artery was noted medial to the right carotid artery bifurcation and posterior to the superior horn of the thyroid cartilage (Figure 1B). There was no extravasation of the superior thyroid, lingual or facial arteries. The vessels were coil embolized and the patient transferred to University of California, Irvine Medical Center for continued care.

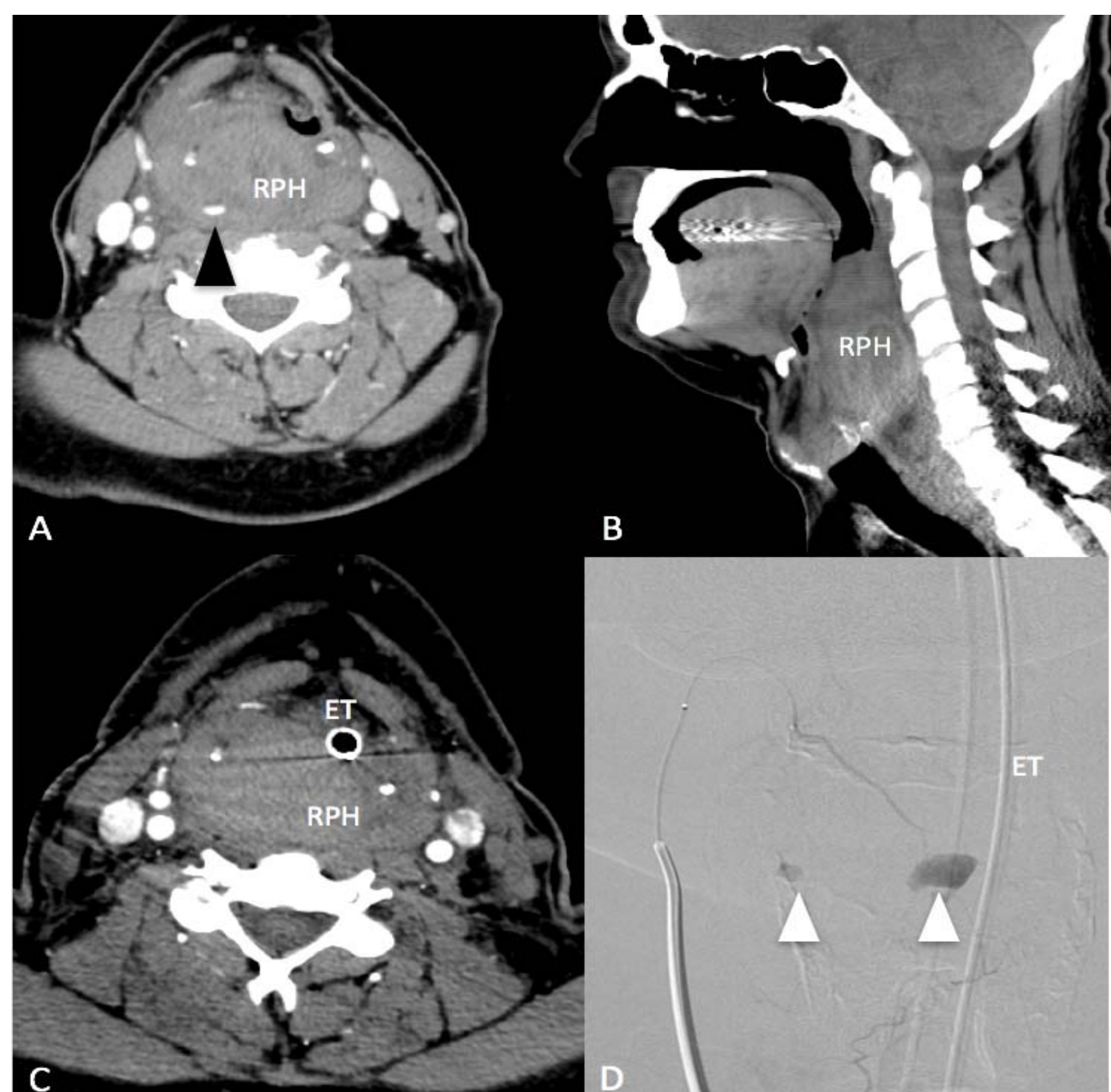


Figure 1. A) Axial CT demonstrating active extravasation into the retropharynx (black arrowhead). B) Sagittal view demonstrates near total airway compromise due to the RPH. C) Post-embolization axial contrast enhanced CT demonstrates continued RPH without continued extravasation. D) Angiography of the right common carotid artery demonstrating active extravasation from 2 branches of the external carotid artery (white arrow head). ET endotracheal tube.

(cont)

The patient did well post-operatively without recurrent hemorrhage, however he remained in atrial fibrillation. He was decannulated and discharged from the hospital 10 days after his initial presentation. The patient has since discontinued rivaroxaban and is doing well with no further retropharyngeal bleeding.

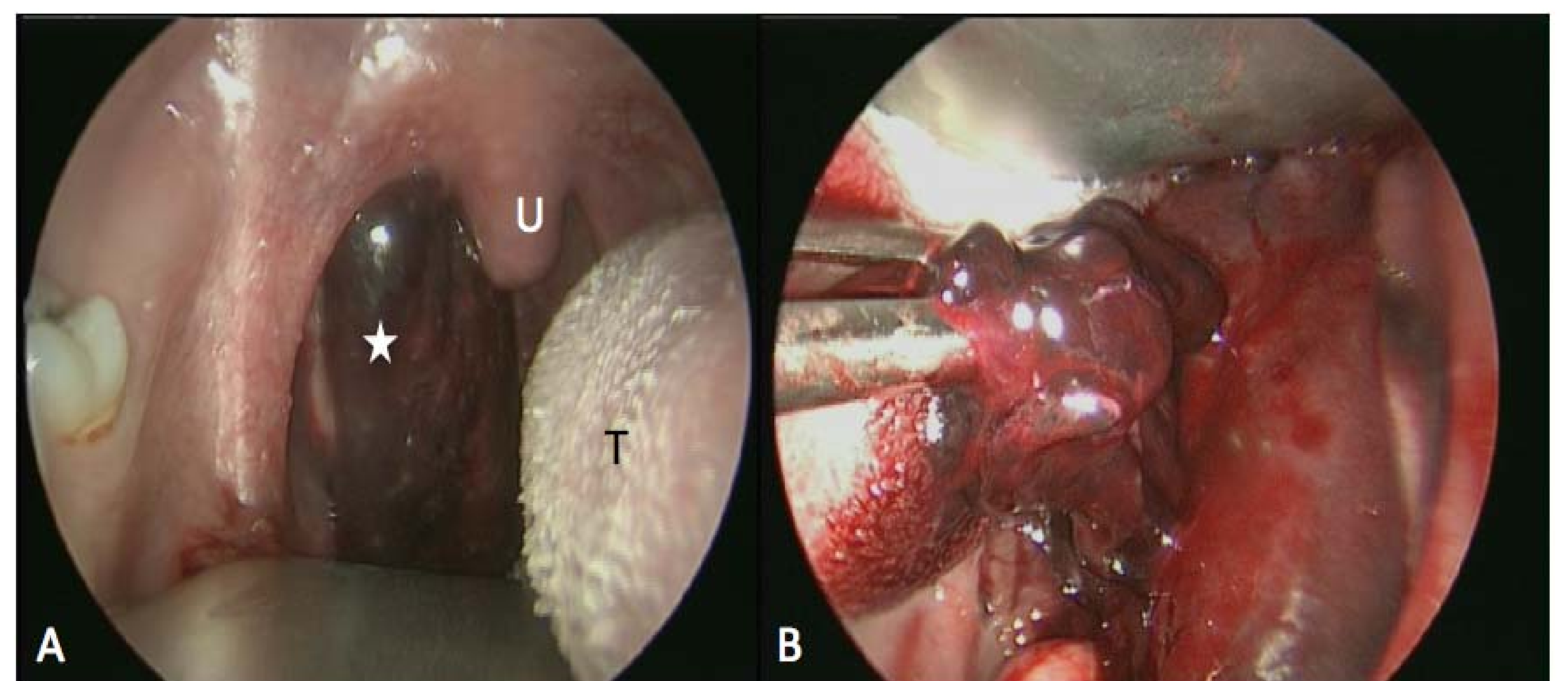


Figure 2. A) Direct laryngoscopy demonstrates a large violaceous mass emanating from the right parapharyngeal/retropharyngeal space (star; T tongue, U uvula). B) Incision through the mass confirms presence of hematoma, which was stable at the time of evacuation.

Discussion

Rivaroxaban, approved in 2011 for the prevention of cardioembolic stroke in patients with non-valvular atrial fibrillation, has been shown to have similar rates of both major and non-major bleeding events as compared to warfarin. To date, there is no consensus on management of patients with RPH and include:

- Observation without tracheostomy
- Tracheostomy without drainage, and
- Tracheotomy with transcervical hematoma evacuation (7,8)

What is agreed is the importance of prompt recognition of the underlying disease process and expedient evaluation for potential airway compromise, with overall management evaluated on a case-by-case basis (2, 8). While we understood the risk of intraoperative hemorrhage in a patient who was previously on rivaroxaban, we elected for open tracheostomy because 1) the airway was secured via nasotracheal approach, a suboptimal approach for potential long-term ventilation; 2) the magnitude of the coagulated hematoma would have precluded safe orotracheal intubation; and 3) the patient had last taken rivaroxaban, which has a half life of 5-9 hours, approximately 72 hours prior to transfer.

Conclusions

- We report the only case of a spontaneous retropharyngeal hematoma in a patient on rivaroxaban.
- Management required emergent intubation and, given continued hematoma expansion, eventual coil embolization.
- We opted to definitively secure an airway by means of an open tracheostomy and transoral incision and drainage of the hematoma which was successful.

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