

A Tough Pill to Swallow- Spontaneous Retropharyngeal Hematoma: A Rare and Unusual Complication of Rivaroxaban Therapy

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Authors' contributions

This work was carried out in collaboration between all authors. Author AN managed the literature search and manuscript preparation. Author DH assisted in data collection. Author AS edited and revised the manuscript. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aims: We present the first case of a patient that developed a spontaneous retropharyngeal hematoma as a complication of rivaroxaban therapy.

Case Presentation: A 49-year-old Caucasian male with chronic atrial fibrillation on rivaroxaban presented to the hospital with a rapidly expanding spontaneous retropharyngeal hematoma. He required emergent intubation for airway protection and subsequently was treated with catheter-directed embolization and surgical evacuation.

Discussion: Our report presents a case of a spontaneous retropharyngeal hematoma on rivaroxaban therapy. Unfortunately, most patients with this complication typically present with insidious symptoms including mild neck pain and ear ache, and as a result the diagnosis can easily be overlooked. Therefore, it is of utmost importance that physicians maintain a high index of suspicion, as early recognition and appropriate therapy can reduce morbidity and mortality.

Conclusion: This case highlights a rare but life-threatening hemorrhagic complication of rivaroxaban therapy.

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ABBREVIATIONS

INR- international normalized ratio, *PT*- prothrombin time, *GFR*- glomerular filtration rate, *BMI*- Body Mass Index, *mmHg* – millimeter of mercury

1. INTRODUCTION

Multiple new agents have recently become available for anticoagulation and stroke prevention in patients with atrial fibrillation. These novel medications have alleviated significant burdens associated with standard warfarin therapy by providing predictable anticoagulation without the need for frequent dose adjustments or routine laboratory monitoring. Rivaroxaban (Xarelto, Janssen Pharmaceuticals) has gained tremendous popularity as a result of its once a day dosing and minimal drug-to-drug interactions. Rivaroxaban is an oxazolidinone derivative optimized to inhibit Factor Xa bound to prothrombinase complex, and ultimately functions to disrupt both the extrinsic and intrinsic pathway of the coagulation cascade [1]. As clinical indications for rivaroxaban continue to expand, complications such as major bleeding events will also rise. We describe a case of spontaneous retropharyngeal hematoma as a complication of rivaroxaban therapy.

2. PRESENTATION OF CASE

A 49-year-old male with permanent atrial fibrillation with a CHADS₂-VASc score of 1 for hypertension and multiple failed attempts at cardioversion presented to an urgent care clinic with right-sided otalgia. The patient received otic drops and was discharged home but returned the following day with progressively worsened ear pain, dysphagia, and severe hoarseness that was quickly evolving. No notable abnormalities were seen on physical examination. Given the severity and progression of symptoms, urgent imaging was performed. Computed tomography with contrast of the neck revealed a 4x3x3 cm right-sided hypopharyngeal hematoma. There was no history of any preceding trauma. The patient was sent directly to the emergency department. On initial evaluation, patient's vitals were heart rate of 98 beats per minute, blood pressure of 108/74 mmHg, respiratory rate of 22 breaths per minute, and oxygen saturation of 95% on room air. BMI notable for 27 kg/m². Laboratory studies revealed hemoglobin of 11.9 g/dL, platelets of 186 x 10³/μL, INR 1.0, PTT 28.5 sec, creatinine of 0.9 mg/dL, estimated GFR 100 mL/min/1.73 m² and normal liver function testing.

His home medications were reviewed and included the following: Lisinopril 40mg daily, hydrochlorothiazide 25 mg daily, and rivaroxaban 20 mg daily. All medications were last taken one-day prior to his arrival. Interval imaging was performed and confirmed a rapidly enlarging retropharyngeal hematoma measuring 9x3x3 cm. The hematoma extended from the right lateral oropharynx and expanded anteriorly into the nasopharyngeal region with evidence of submucosal bleed involving the uvula and soft palate, concerning for impending airway compromise. He underwent emergent nasal fiberoptic intubation that was challenging requiring nearly 2 hours. Diagnostic angiography was subsequently performed, which demonstrated active extravasation from multiple branches of the right external carotid artery for which patient underwent fibered coil embolization of unspecified vessels.

A multi-disciplinary approach was taken to manage the patient including the assistance of otolaryngology, interventional radiology, cardiology, and the critical care team. Given the patient's severe presentation and clinical status, the patient was transferred to our facility for higher level of care. He was evaluated by otolaryngology and underwent an open tracheostomy with transoral incision, drainage, and evacuation of the hematoma under laryngoscopic guidance. Patient's post-operative course was complicated by atrial fibrillation with rapid ventricular response, which was controlled with intravenous rate-control agents. He improved clinically and his tracheostomy was downsized, capped, and decannulated. After eleven days of hospitalization, the patient was discharged home without any further complications. The decision was made to hold anticoagulation following his recent bleed with close outpatient follow-up with cardiology.

3. DISCUSSION

This is the first documented case report of a spontaneous retropharyngeal bleed associated with rivaroxaban therapy. A report published earlier this year presented a case of a ruptured parathyroid adenoma leading to anterior neck



Fig. 1. (Left) Sagittal view on computed tomography of the neck revealing a retropharyngeal hematoma partially compressing the nasopharyngeal tube

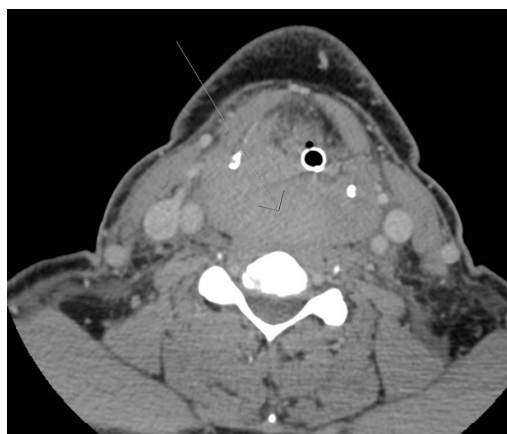


Fig. 2. (Right) Cross-sectional view of the enlarging hematoma with evidence of left-sided tracheal deviation

hematoma on rivaroxaban [2]. As previously mentioned, rivaroxaban has many benefits in comparison to warfarin including rapid onset of action, less drug-to-drug interactions, wider therapeutic window, and fewer serious bleeding events. Reported complications of rivaroxaban include intracranial, retroperitoneal, and gastrointestinal bleeds, but the case documented here highlights an extremely rare but life-threatening complication that can occur in patients on chronic anticoagulation [3]. Retropharyngeal hematomas typically occur in the setting of cervical trauma, infection, surgery, carotid aneurysm, or internal jugular vein rupture, but can also occur spontaneously. Majority of medication-associated cases of retropharyngeal hematomas are as a result of warfarin therapy, but we present a case herein of a young otherwise healthy male that experienced a spontaneous retropharyngeal hematoma as a complication of rivaroxaban [4].

Clinical diagnosis of a retropharyngeal bleed can be challenging. Patients may present with nonspecific symptoms of dyspnea and cough that can prematurely be attributed to other causes. Thus, providers caring for patients on anticoagulants including rivaroxaban should have a high index of suspicion for diagnosis for a retropharyngeal hematoma, and any patient with stridor, dysphonia, and dysphagia should invariably have an urgent airway evaluation as these are ominous signs for impending airway obstruction. Prompt imaging should include lateral soft tissue radiograph of the neck which can reveal widening of the retropharyngeal or

prevertebral space or computed tomography studies as described above. Health-care providers need to be judicious about starting these novel anticoagulation agents and understand that they are not without risk. Unfortunately, in contrast to bleeding with warfarin, which has a clear protocol for reversal with Vitamin K and fresh-frozen plasma [5], rivaroxaban lacks any guidelines regarding direct reversal. Interventions such as fresh-frozen plasma (FFP) and recombinant activated factor VII have been studied and so far been ineffective. Additionally, the use of recombinant factor Xa and prothrombin complex concentrates (PCC) as reversal agents lack proper prospective trials and are currently not widely available [6]. Thus, any hemorrhagic complication as a result of rivaroxaban will require supportive care and urgent surgical intervention on a case-by-case basis. This report draws attention to an unusual complication of rivaroxaban therapy and brings awareness to the community, as early recognition and appropriate therapy can reduce morbidity and mortality.

4. CONCLUSION

This case highlights a rare but life-threatening complication of rivaroxaban therapy that physicians should consider when prescribing rivaroxaban or other novel anticoagulants.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved

parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors AN and DH have no disclosures. Author AS is a speaker for Janssen Pharmaceuticals.

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