

Retropharyngeal hematoma as a complication of anticoagulation therapy

Ertap Akoğlu, MD; Ergün Seyfeli, MD; Sebahat Akoğlu, MD; Sinem Karazincir, MD; Şemsettin Okuyucu, MD; Ali Şafak Dağlı, MD

Abstract

Reports in the literature of retropharyngeal hematoma as a complication of anticoagulation therapy are rare. When this complication does occur, it can become life-threatening if the airway is compromised. However, no consensus exists as to which approach—intubation, tracheotomy, or conservative therapy—is best for managing the airway in these cases. We report a case of retropharyngeal hematoma that occurred as a sequela to a trivial blunt trauma in a 48-year-old man who had been undergoing anticoagulation therapy with warfarin. The hematoma had caused airway obstruction, and the patient was hospitalized. He was treated conservatively, and the hematoma slowly resolved over the course of 2 weeks. On the basis of our experience and the findings of our literature review, we suggest that conservative management can be initiated for small nonexpanding hematomas that do not seriously compromise the airway. Securing the airway with intubation or tracheotomy should be reserved for patients who are in serious respiratory distress; the choice between intubation and tracheotomy should be made on an individual basis.

Introduction

Retropharyngeal hematoma is an uncommon but potentially life-threatening condition if it progresses to

airway obstruction. This rare entity may occur as a result of different causes, including cervical spine trauma,¹ intrathyroid bleeding,² rheumatoid arthritis,³ Epstein-Barr virus infection,⁴ surgery,⁵ great vessel trauma,⁶ violent head movements,⁶ internal jugular vein puncture,⁶ parathyroid adenoma hemorrhage,⁶ and foreign body ingestion.⁶ It may also occur spontaneously in patients with bleeding diatheses and in patients who are taking anticoagulation therapy.⁷

The management of such a condition is a challenge because no consensus has been reached on how best to manage the airway in these cases. Therefore, awareness of the natural course of this entity can make it easier for the clinician to select the most appropriate treatment from among the available options—intubation, tracheotomy, or conservative management.

We report a case of retropharyngeal hematoma that occurred secondary to a trivial trauma in a patient with a mechanical aortic valve who was taking anticoagulation therapy. We also review the literature on retropharyngeal hematoma.

Case report

A 48-year-old man with a mechanical aortic valve who was taking warfarin anticoagulation therapy presented to the Department of Cardiology complaining of ecchymosis over his left shoulder. He reported that 3 days earlier, he had received a massage to relieve pain in his back. Physical examination revealed widespread bruising of the skin over the patient's left shoulder and the back of his neck. Laboratory testing revealed that his international normalized ratio (INR) was high (5.9), his prothrombin time (PT) was prolonged (63.2 sec), his hemoglobin level was low (10.4 g/dl), and his hematocrit value was low (31.2%).

The patient was admitted to the hospital, and the

From the Department of Oto-Rhino-Laryngology–Head and Neck Surgery (Dr. E. Akoğlu, Dr. Okuyucu, and Dr. Dağlı), the Department of Cardiology (Dr. Seyfeli), the Department of Pulmonary Medicine (Dr. S. Akoğlu), and the Department of Radiology (Dr. Karazincir), Mustafa Kemal University Faculty of Medicine, Antakya, Hatay, Turkey.

Corresponding author: Ertap Akoğlu, MD, Assistant Professor, Department of Oto-Rhino-Laryngology–Head and Neck Surgery, Mustafa Kemal University Faculty of Medicine, 31040 Antakya, Hatay, Turkey. Phone: 90-326-214-1649 or 90-326-214-6028; fax: 90-326-214-4977; e-mail: ertapakoglu@yahoo.com



Figure 1. Prior to treatment, this lateral soft-tissue x-ray shows the marked widening of the retropharyngeal space (arrowheads).

warfarin was stopped. Correction of the clotting abnormality was achieved with fresh frozen plasma and vitamin K. By the next day, his hemoglobin level (7.3 g/dl) and hematocrit value (20.7%) had declined, and his arterial oxygen saturation level was slightly low (95%). The patient began to complain of dyspnea when his head was turned toward the left side and mild dysphagia. Two units of packed red blood cells were transfused, and he was examined by a pulmonologist. No pulmonary disease was found, and the patient was referred to an otolaryngologist with a suspected upper respiratory tract obstruction.

Neck examination revealed diffuse swelling in the left side of the neck. Indirect laryngoscopy showed a bulging mass in the posterior pharyngeal wall; the appearance and mobility of the vocal folds were normal. A lateral neck x-ray showed a marked widening of the retropharyngeal space (figure 1); an anteroposterior view showed that the trachea had been displaced to the right. Computed tomography (CT) identified a large retropharyngeal hematoma that displaced and



Figure 2. Axial CT shows that the retropharyngeal hematoma has displaced and compressed the pharynx.

compressed the pharynx (figure 2). The hematoma extended from the C2 to C7 vertebrae, but there was no evidence of mediastinal extension. Prophylactic antibiotic therapy with 2 g/day of amoxicillin/clavulanate was prescribed as a precaution in case the patient had a retropharyngeal abscess.

During the ensuing days, the patient's INR and PT declined to 1.8 and 22.5 sec, respectively. His hematocrit remained stable, and the retropharyngeal hematoma slowly resolved (figure 3). No further specific treatment was required, and 2 weeks after admission, the patient was discharged from the hospital with a complete resolution of symptoms.

Discussion

Anticoagulation is routinely used to prevent thromboembolism in patients with atrial fibrillation and patients who undergo some cardiac surgical procedures, such as mechanical valve replacement. The agent most commonly used for this purpose is warfarin. Warfarin inhibits the vitamin-K-dependent enzymes needed for activation of coagulation factors II, VII, IX, and X. The half-life of warfarin is 35 hours, and its anticoagulant effect lasts 3 to 5 days.⁸ Bleeding, the major complication of anticoagulation therapy, can occur spontaneously or after a trivial trauma.⁷ An elevated INR (>4.5) is associated with a higher risk of bleeding.⁷ Overanticoagulation can occur as a result of intercurrent medical conditions

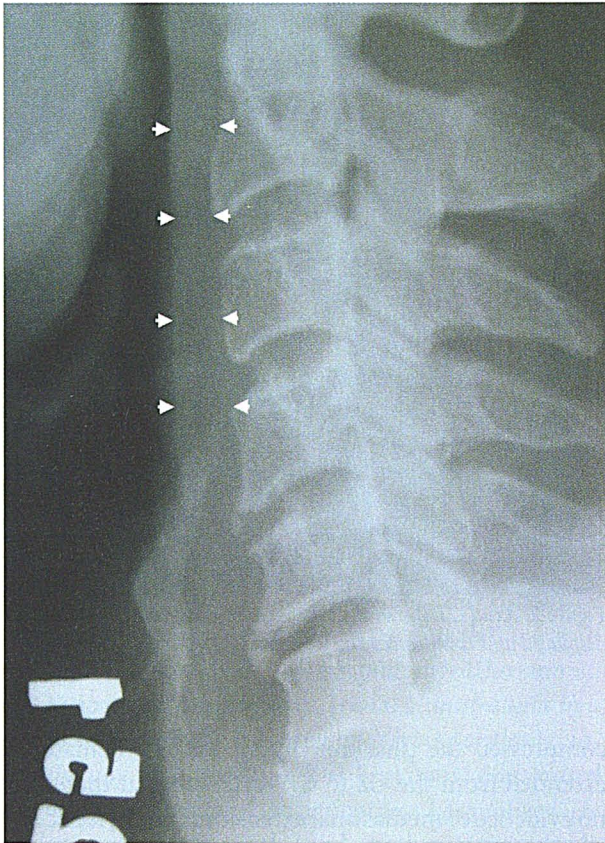


Figure 3. Post-treatment x-ray shows significant resolution of the hematoma (arrowheads).

or interactions with some medications. However, our patient had not been taking any drug that augments warfarin's effect, and he had no concomitant medical condition.

The retropharyngeal space is the area of loose connective tissue that lies between the middle (buccopharyngeal) and the alar layers of the deep cervical fascia.^{8,9} It extends from the base of the skull to the place where the two layers fuse at a variable level between the C7 and T4 vertebrae.⁹ As a result, bleeding into the retropharyngeal space can extend from the skull base to the mediastinum. In addition, because the pretracheal, parapharyngeal, and retropharyngeal spaces are in communication with each other, a hematoma or an infection in one of these spaces can easily spread to the others. In our patient, the hematoma spread from the parapharyngeal space to the retropharyngeal space.

Regardless of their cause, individual retropharyngeal hematomas exhibit similar manifestations, including superior mediastinal obstruction (tracheal and esophageal compression), ventral tracheal displacement on lateral

cervical x-rays, and the subsequent appearance of subcutaneous bruising over the anterior neck and upper chest wall.^{4,6} However, because the clinical picture is often obscure at the outset, a high level of suspicion is essential for a diagnosis of retropharyngeal hematoma.

Airway management. Because the retropharyngeal space is located close to the pharyngeal airway, any swelling of this space may quickly threaten airway patency. In such cases, airway management is urgently required. For serious cases, the physician must perform either intubation or tracheotomy. However, for patients with mild or moderate respiratory distress, there is an ongoing debate on the best approach to airway management. Some mild or moderate obstructions are self-limiting, and therefore conservative treatment may be the safest alternative because intubation and tracheotomy pose certain risks of their own:

- Prophylactic intubation or tracheotomy may be hazardous and difficult. Endotracheal intubation may result in rupture of the hematoma and subsequent bleeding that further compromises the airway.¹⁰ Moreover, an intubated patient must be anesthetized and ventilated mechanically in the intensive care unit.

- Tracheotomy in a patient on anticoagulation therapy can also be dangerous because it may cause further bleeding. It may also be difficult to achieve if the anatomy has been altered by the hematoma.

Because our patient had only mild dyspnea and showed no progression of airway compromise, we decided to manage the airway conservatively. Rapid reversal of the coagulopathy was accomplished with the cessation of warfarin and the administration of fresh frozen plasma and vitamin K. We did not prescribe systemic steroids because no proven beneficial effect of their use has been reported. We did prescribe amoxicillin/clavulanate as a prophylaxis against a possible retropharyngeal abscess.

Regardless of which decision is made, it should be made quickly because a delay in the initiation of airway management can increase the difficulty of intubation or tracheotomy and thereby magnify the chances of a poor outcome, including death.¹¹

Hematoma management. After the airway has been stabilized, attention can be turned to hematoma control. In most cases, observation and supportive treatment are adequate and suitable. Surgical exploration and evacuation of the hematoma are usually recommended for

cases of expansile hematoma.¹⁰ Transoral aspiration of a hematoma can give rise to bacterial infection, so it is not recommended as a routine procedure.¹⁰

Literature review. In 1993, Hefer et al reviewed the literature on all cases of retropharyngeal hematomas reported up until then and found no difference in outcomes between patients who were treated with aggressive early airway management and those who were only observed.¹² Rosenbaum et al recommended a rapid cessation of anticoagulation therapy and observation in the intensive care unit; they suggested that airway intervention be undertaken only when necessary.¹³ Cohen and Warman favored early tracheotomy with rapid correction of the coagulopathy in all patients except for the mildest cases, for which observation might suffice.¹⁴

Twelve cases^{6-8,15} of retropharyngeal hematomas secondary to warfarin therapy have been previously reported:

- Sinert and Scalea reported the results of 9 cases.⁸ In their review, 1 patient had presented with acute respiratory distress and 8 had presented with mild dysphagia, odynophagia, and hoarseness. Three of these patients progressed to respiratory compromise that required emergent tracheotomy within the first 2 hours after presentation, and 1 of them died as a result of airway obstruction.

- Bloom et al reported 1 case of retropharyngeal hematoma secondary to warfarin therapy; this patient was treated conservatively.⁶

- Bapat et al reported a case of retropharyngeal hematoma in a patient receiving anticoagulation treatment who required tracheotomy and evacuation of the hematoma.⁷

- Hamasni reported a patient who was treated with antibiotics and steroids under endotracheal intubation.¹⁵

In conclusion, there is no consensus on the management of a compromised airway caused by a retropharyngeal hematoma. On the basis of our experience and the findings of our literature review, we suggest that a small nonexpanding hematoma that does not seriously compromise the airway can be managed conservatively. Securing the airway with intubation or tracheotomy should be reserved for patients who are in serious respiratory distress; the choice between intubation and tracheotomy should be made on an individual basis.

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