

OLGU SUNUMU CASE REPORT

DOI: 10.24179/kbbbbc.2021-84594

# Laryngeal and Sublingual Hematoma Causing Upper Airway Obstruction Due to the Use of Warfarin

## Warfarin Kullanımına Bağlı Üst Havayolu Obstrüksiyonuna Neden Olan Laryngeal ve Sublingual Hematom

<sup>1</sup> Kübra TOPAL<sup>a</sup>, <sup>2</sup> Ayhan KARS<sup>a</sup>, <sup>3</sup> Fatma ATALAY<sup>a</sup>

<sup>a</sup>Department of Otorhinolaryngology, Kastamonu University Faculty of Medicine, Kastamonu, TURKEY

**ABSTRACT** Warfarin is commonly used for the treatment and prophylaxis of thromboembolic diseases. Spontaneous bleeding and hematoma are complications that can occur in warfarin use. When patients will be initiated on warfarin therapy, a careful physical examination should be performed to eliminate the risk of bleeding and additional diseases and other medications used should be evaluated. The patient should be informed about the risks and followed up with regular International Normalized Ratio tests. Although rare, spontaneous laryngeal hematoma must be rapidly diagnosed and treated because it can cause to airway obstruction and be life-threatening. In our case, a 61-year-old male patient developed spontaneous sublingual, epiglottic, and arytenoid hematoma due to warfarin use. The patient was monitored and initiated on conservative treatment. In the following days, the patient was discharged with recovery.

**Keywords:** Airway obstruction; dyspnea; laryngoscopy; warfarin

**ÖZET** Warfarin, tromboembolik hastalıkların tedavisi ve profilaksisinde yaygın olarak kullanılmaktadır. Spontan kanama ve hematoma, warfarin kullanımında ortaya çıkabilecek komplikasyonlardır. Kanama riskini ortadan kaldırmak için warfarin tedavisine başlanmadan önce dikkatli bir fizik muayene yapılmalı ve ek hastalıklar ve kullanılan diğer ilaçlar değerlendirilmelidir. Hasta riskler hakkında bilgilendirilmeli ve düzenli "International Normalized Ratio" testleri ile takip edilmelidir. Nadir olmakla birlikte, spontan laryngeal hematoma, havayolu obstrüksiyonuna neden olabileceği ve yaşamı tehdit edebileceği için hızla teşhis edilmeli ve tedavi edilmelidir. Olgumuzda 61 yaşında erkek hastada warfarin kullanımına bağlı spontan sublingual, epiglottik ve aritenoid hematoma gelişti. Hasta monitörize edildi ve konservatif tedaviye başlandı. Takip eden günlerde hasta iyileşerek taburcu edildi.

**Anahtar Kelimeler:** Havayolu tıkanıklığı; dispne; laringoskopi; warfarin

Warfarin is a commonly used anticoagulant agent. Spontaneous bleeding and hematoma are complications that may be encountered during warfarin use. Gastrointestinal and genitourinary bleedings, intracranial hemorrhages, and nasal and submucosal hemorrhages may also occur along warfarin use. Upper airway hematoma is a rare complication but must be rapidly diagnosed as it can cause airway obstruction.<sup>1,2</sup>

It is important to recognize this life-threatening emergency, to differentiate it from other pathologies such as anaphylaxis, and to treat it quickly and ef-

fectively. We report the case of laryngeal and sublingual hematoma causing airway obstruction due to the use of warfarin.

### CASE REPORT

Written informed consent was obtained from the patient who participated in this case. A 61-year-old male patient presented with hoarseness, dyspnea, and sorethroat, odynophagia for 4 to 5 days. The saturation of the patient with breathing difficulties without oxygen support was measured as 94%. His physical examination revealed sublingual edema and ecchy-

**Correspondence:** Fatma ATALAY

Department of Otorhinolaryngology, Kastamonu University Faculty of Medicine, Kastamonu, TURKEY/TÜRKİYE

**E-mail:** fatmatalay\_88@hotmail.com



Peer review under responsibility of Journal of Ear Nose Throat and Head Neck Surgery.

**Received:** 22 May 2021

**Received in revised form:** 15 Jul 2021

**Accepted:** 29 Jul 2021

**Available online:** 13 Aug 2021

1307-7384 / Copyright © 2020 Turkey Association of Society of Ear Nose Throat and Head Neck Surgery. Production and hosting by Türkiye Klinikleri.

This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

mosis (Figure 1A). Flexible nasal endoscopy was performed, epiglottic and arytenoid hematoma and edema detected (Figure 1B). The patient was using 5 mg/day warfarin due to previous bypass operation and he was using antihypertensive for hypertension. Complete blood count and the International Normalized Ratio (INR) test were studied. The haemoglobin values were reported as 15 and INR as 11.2.

The patient was initiated on high dose IV dexamethasone, nebulized epinephrine. Two units of Fresh Frozen Plasma (FFP) were given. At the recommendation of cardiology, warfarin was stopped and 2x0.6 Clexane was started. The patient was closely monitored. There was no improvement in the symptoms in the first 12 hours of follow-up. Second day of treatment ecchymosis appeared on the neck (Figure 1C).

In the following days, the endoscopic examination revealed a progressive resolution of the hematoma and edema (Figure 2). The INR value returned to the normal range and was measured as 2. On the 5<sup>th</sup> day of treatment, hoarseness and breathing difficulties completely disappeared. Oral intake returned to normal. After the consultation with cardiology, the patient's anticoagulant treatment was arranged and the patient was discharged.

## DISCUSSION

Warfarin is commonly used for the treatment and prophylaxis of thromboembolic diseases.<sup>3</sup> Intracranial hemorrhage, gastrointestinal, genitourinary bleeding, nasal and mucosal and hematoma formation are potential complications in warfarin use. The most common hemorrhage fatal complications of warfarin use are gastrointestinal and intracranial bleedings. Rarely, spontaneous upper airway hematoma may develop due to warfarin. Although upper airway hematoma, sublingual hematoma, and laryngeal hematoma are rare in warfarin use, they should not be overlooked as they can be life-threatening.<sup>4</sup>

In some cases, spontaneous hemorrhage has been reported to occur after minor traumas such as coughing, sneezing, crying, and yelling. Upper airway hematoma can occur in congenital or acquired

coagulopathies, anticoagulant therapy, or after general anesthesia.<sup>4</sup> Gooder et al. reported associated spontaneous upper respiratory tract hemorrhages that

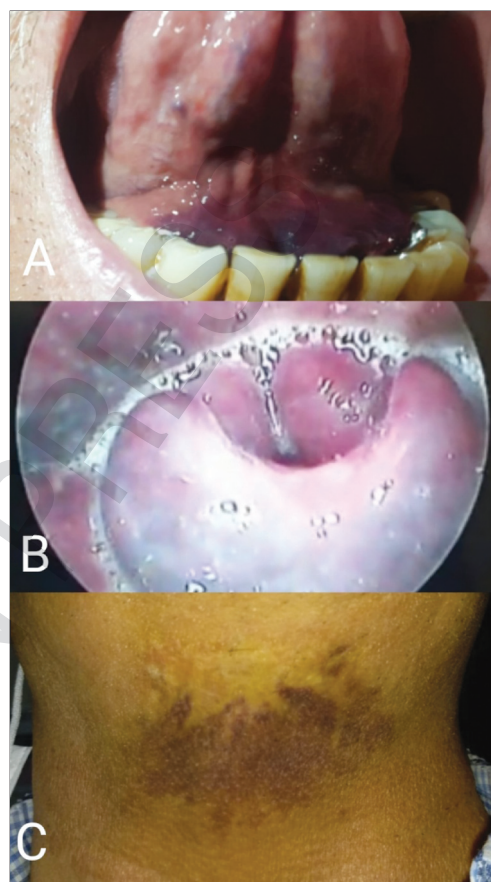


FIGURE 1: A) Sublingual edema and ecchymosis. B) Epiglottic and arytenoid hematoma and edema. C) Ecchymosis on the neck on the 2<sup>nd</sup> day of treatment.

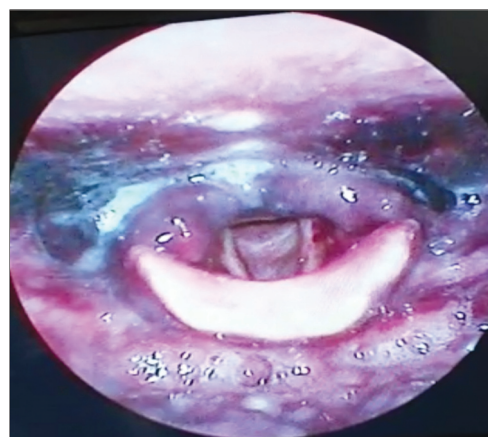


FIGURE 2: Progressive resolution of the hematoma and edema on the 5<sup>th</sup> day of treatment.

occur in anticoagulant use with local infection and vasodilation in depends on infection.<sup>5</sup> When patients will be initiated on warfarin therapy, a careful physical examination should be performed to eliminate the risk of bleeding and additional diseases and other medications used should be evaluated. The patient should be informed about the risks and followed up with regular INR tests.<sup>6</sup>

In the literature, epiglottic hematoma and arytenoid hematoma are reported to be much rarer than lingual, sublingual, retropharyngeal, and submucosal hematomas.<sup>7</sup>

Dyspnea, hoarseness, odynophagia and stridor may occur in upper airway hematoma. Flexible endoscopic evaluation is diagnostic. Care should be exerted in these cases as airway obstruction may occur and respiratory arrest may develop. Patients should be placed in an appropriate position, the airway should be secured, and conservative medical treatment should be initiated immediately. Possible requirements for endotracheal intubation and tracheotomy should also be considered.<sup>8</sup>

Prothrombin Complex Concentrate (PCC) and FFP are effective agents used to rapidly reverse the effects of warfarin. Both PCC and FFP contain factors II, VII, IX, X and proteins C and S. However, PCC is a faster-acting therapeutic agent than FFP for reversing warfarinization. Also, Vitamin K is used to maintain the effects of reversal.<sup>9</sup> In nonbleeding patients, if INR is between 3-4.5, warfarin is discontinued or the dose is adjusted. 0.5 mg iv vitamin K is administered. If INR is between 4.5-10 and above 10, patient is monitored closely for bleeding and 1 mg iv Vitamin K is administered. In bleeding patients, INR must be controlled by factor replacement with FFP or

PCC, and iv high dose Vitamin K (10 mg slow infusion).<sup>10</sup>

### Main Points

1. Warfarin is a commonly used anticoagulant agent.
2. Spontaneous upper airway hematoma may develop due to warfarin.
3. Care should be exerted in these cases as airway obstruction may occur and respiratory arrest may develop.

### Acknowledgements

*We want to thank to Mr. Carl Austin Nino Rossini for his precious contribution.*

### Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Fatma Atalay; **Design:** Ayhan Kars; **Control/Supervision:** Fatma Atalay; **Data Collection and/or Processing:** Ayhan Kars; **Analysis and/or Interpretation:** Kübra Topal; **Literature Review:** Kübra Topal; **Writing the Article:** Kübra Topal; **Critical Review:** Fatma Atalay; **References and Fundings:** Ayhan Kars; **Materials:** Ayhan Kars.

## REFERENCES

1. González-García R, Schoendorff G, Muñoz-Guerra MF, Rodríguez-Campo FJ, Naval-Gías L, Sastre-Pérez J. Upper airway obstruction by sublingual hematoma: a complication of anticoagulation therapy with acenocoumarol. *Am J Otolaryngol.* 2006;27(2):129-32. PMID: 16500477.
2. Lee M, Berger HW, Granada MG. Acute upper airway obstruction. Sodium warfarin-induced hemorrhage into the base of the tongue and epiglottis. *Chest.* 1980;77(3):454-5. PMID: 6965638.
3. Baglin TP, Keeling DM, Watson HG; British Committee for Standards in Haematology. Guidelines on oral anticoagulation (warfarin): third edition--2005 update. *Br J Haematol.* 2006;132(3):277-85. PMID: 16409292.
4. Buyuklu M, Bakirci EM, Topal E, Ceyhan G. Spontaneous lingual and sublingual haematoma: a rare complication of warfarin use. *BMJ Case Rep.* 2014;2014:bcr2014204168. PMID: 25008335; PMCID: PMC4091403.
5. Goeder P, Henry R. Impending asphyxia induced by anticoagulant therapy. *J Laryngol Otol.* 1980;94(3):347-52. PMID: 6966306.

- 
6. Jandreau SW, Mayer D. Spontaneous bilateral arytenoid hematoma in a patient on warfarin. *Am J Emerg Med.* 1998;16(7):674-6. PMID: 9827746.
  7. Shaw RJ, McNaughton GW. Emergency airway management in a case of lingual haematoma. *Emerg Med J.* 2001;18(5):408-9. PMID: 11559625; PMCID: PMC1725685.
  8. Eidesheim M, Bouaziz H, François T, Herbain D, Baka NE, Vial F. Spontaneous laryngeal haematoma leading to airway obstruction after vaginal delivery. *Int J Obstet Anesth.* 2018; 36:137-8. PMID: 29914786.
  9. Parvizi S, Mackeith S, Draper M. A rare cause of upper airway obstruction: spontaneous synchronous sublingual and laryngeal haematomas. *BMJ Case Rep.* 2011;2011: bcr0320113930. PMID: 22696692; PMCID: PMC3089834.
  10. Patriquin C, Crowther M. Treatment of warfarin-associated coagulopathy with vitamin K. *Expert Rev Hematol.* 2011;4(6):657-65; quiz 666-7. PMID: 22077529.

ARTICLE IN PRESS