

# Tracheal Hematoma after Orotracheal Intubation: A Case Report

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## ABSTRACT

Orotracheal intubation can lead to injury to the mucosa and to local structures and may progress with the presentation of mild symptoms even to death. Here the authors report a case report of a patient that developed tracheal hematoma after oro-tracheal intubation and was successfully treated.

## INTRODUCTION

Complications related to oro-tracheal intubation, although they have decreased, are still very common, with lesions of the mucosa and local structures.<sup>[1]</sup> Some may have mild, short-term symptoms, but others may get worse involving anatomical regions such as the larynx and the trachea, especially when the patient uses anticoagulants.<sup>[1,2]</sup>

Oral anticoagulants have hemorrhagic disorders as their main and most frequent outcome.<sup>[3]</sup> Although they are not an uncommon complication, there are few reports about the occurrence of this complication in the cervical region.<sup>[4]</sup>

The main symptoms of cervical hematomas are: dysphonia, dysphagia, cervical edema, hoarseness, dyspnoea and asphyxia. When the patient has aggravating conditions, cervical hematomas can lead to upper airway obstruction, leading to respiratory failure and even death.<sup>[5,6]</sup>

The treatment of cervical hematomas depend on their size, anatomical location and the patient's clinic. Usually, surgical exploration and evacuation of the hematoma are suggested, in order to facilitate extubation, as well as to reduce the period of hospital staying.<sup>[5]</sup> It is worth mentioning, that the conduct must prioritize the obtaining and permeability of the patient's airways.<sup>[7]</sup>

Due to the rarity of this condition in the cervical region, the report of the case of Hematoma of the Trachea becomes enlargement to the scientific environment, addressing the means of diagnosis to treatment.

## CASE REPORT

A 79-year-old woman with systemic arterial hypertension, dyslipidemia and chronic obstructive pulmonary disease, who has

been a smoker (20 packs/year), arrives at the emergency room in a condition of respiratory failure, unable to report her symptoms, with significant respiratory effort including using accessory muscles and presenting desaturation. At the time of the crisis, she had an increased in blood pressure.

She didn't respond to the initial measurements with morphine, furosemide and nitroglycerin, worsening saturation and level of consciousness, being submitted to oro-tracheal intubation (IOT) under sedation associated with mechanical ventilation and referred to the intensive care unit (ICU).

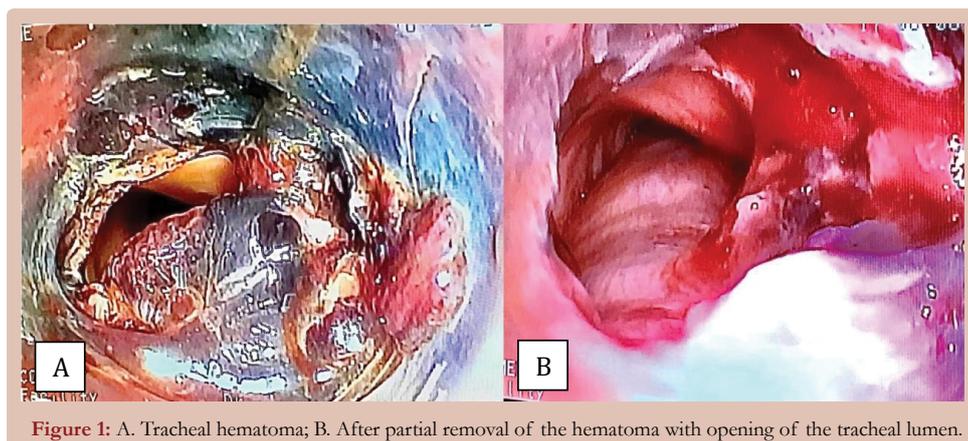
Her home medications before admission included atorvastatin, acetylsalicylic acid, enalapril, amlodipine, metoprolol and aerosol suspension of formoterol fumarate dihydrate associated with budesonide.

After evaluation with complementary exams and a report of the history of comorbidities and medications with family members, it was suggested to treat a probable condition of acute hypertensive pulmonary edema associated with congestive heart failure, high-response atrial fibrillation, ischemic heart disease and evolved during hospitalization with ischemia lower limb. Among other drugs, the use of clopidogrel and enoxaparin was introduced.

After a few days, showing improvement in the clinical picture, IOT was removed. However, the patient started with dysphonia and mild dyspnea.

Evaluation performed by the Otorhinolaryngology team through a flexible Nasofibrolaryngoscopy exam that showed bilateral vocal fold surface edema (likely Reinke's edema) and anterior bulging of the subglottic region. Low airway

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**Figure 1:** A. Tracheal hematoma; B. After partial removal of the hematoma with opening of the tracheal lumen.

assessment was suggested. Computed tomography scan of the chest suggested that it was a probable hematoma of the trachea.

A complementary evaluation with Fibrobronchoscopy was performed by the thoracic surgery team, which showed the presence of a hematoma in the trachea, about 4 cm from the vocal cords, generating a decrease in the tracheal lumen but allowing the passage of the device (Figure 1A). Hematoma areas were removed using biopsy forceps (Figure 1B) and the material was sent for anatomopathological study. Immediate improvement of the respiratory condition after the procedure was noted. The anatomopathological study showed that it was only a probable hematoma.

## DISCUSSION

At the orotracheal intubation, the presence of tubes in direct contact with airway structures can cause lesions of the larynx and trachea mucosa, with an increased risk for the formation of bruises when the patient uses anticoagulants,<sup>[1]</sup> as is the case of our patient. Sahu<sup>[8]</sup> studied 78 retroperitoneal hematoma cases, included including both the traumatic and spontaneous bleed. The most common setting was spontaneous bleeding with no concurrent use of anti-thrombotic agents. There was a significant association between the need for vasopressors (OR-5.65, P-value of 0.039), spontaneous bleed (P-value of 0.001), bleed without antithrombotic agents (P-value of 0.002) with prolonged hospital stay (> 5 days). Lian<sup>[9]</sup> report a case of an infectious pseudoaneurysm at the root of the innominate artery, compressing the trachea, that resulted in massive hemorrhage due to rupture of the innominate artery, that due the clinical characteristics, it could be used as diferencial diagnosis for our case report.

The most common complications of using oral anticoagulants are hemorrhages, and this spontaneous bleeding usually occurs in the gastrointestinal tract, genitourinary system or central nervous system.<sup>[10]</sup> But, in the case of our patient, different from what happens in these common areas, the probable severity of the situation does not result from the loss of blood volume or anemia, but from the compression of the upper airway.<sup>[4]</sup>

Because of that, cervical hemorrhagic complications are of great clinical importance. The disposition of the fascial plans may undergo volume expansion, allowing the development of the bruise, which has a potential risk for airway obstruction and consequent asphyxia.<sup>[4]</sup>

We reported the case of a patient medicated with oral anticoagulant, that after needing orotracheal intubation, had as complication the formation of dissecting hematoma of the trachea, presenting dysphonia and mild dyspnoea as symptoms. There were no additional traumatic findings that could justify the complication in question. Through flexible Nasofibrolaryngoscopy exam and complementary evaluation with Fibrobronchoscopy, the presence of dissecting hematoma of the trachea was evidenced.

Clinically, cervical hematomas can manifest with dysphonia, dysphagia, cervical edema, hoarseness, dyspnoea, ecchymosis and trismus,<sup>[6]</sup> symptoms that were partly present in the patient's report. In most reported cases, the clinical condition begins with pain in the neck consequent to the dissection of the region's tissues by extravasated blood,<sup>[4]</sup> a factor that was not reported by our patient. Sometimes the condition can be mistakenly diagnosed as a local infection - viral pharyngitis, for example, and because of this, in every patient who is using anticoagulant and who suddenly starts with cervical pain, medical suspicion for hemorrhagic complications in the region should be raised.<sup>[11]</sup>

The treatment of the hematoma of the trachea begins with the maintenance of the airways, since the natural course of this pathology usually triggers a respiratory obstruction.<sup>[12]</sup> As an option, there is observation, intubation and tracheostomy. In the case of our patient, who had mild dyspnea, we opted for the removal of hematoma areas during fibrobronchoscopy and sending the material for anatomopathological study. Once the airway is secured, reversal of anticoagulation is necessary, which aims to stop the bleeding and prevent hematoma expansion.<sup>[4]</sup>

Furthermore, it is necessary to evaluate each patient individually. While most authors defend the conservative conduct of observation,<sup>[10]</sup> due to the lower risk of infection, others suggest surgical exploration with hematoma drainage to facilitate extubation, as well as to reduce the period of hospital stayin, essential for large and rapidly expanding bruises.<sup>[5,10]</sup> Therefore, what will determine this follow-up will be the size of the hematoma, its location and the patient's clinical evolution.

## CONCLUSION

Tracheal hematoma is a rare complication of orotracheal intubation – although it has been facilitated by the use of oral anticoagulants – ranging from mild symptoms such as dysphonia to aggravating factors such as asphyxia, respiratory failure and death. Due to the infrequency and possible severity of this complication, the reported case aims to expose to the scientific environment the clinical characteristics by the patient, as well as the trajectory from diagnosis to treatment, so that in this way one can grant the best therapeutic approach and avoid further damage to patients.

## REFERENCES

- Martins RHG, Dias NH, Braz JRC, Castilho EC. Complicações das vias aéreas relacionadas à intubação endotraqueal. *Rev Bras Otorrinolaringol.* 2004;70(5):671- 7.
- Pons Y, Conessa C, Ouraini S, Clement P, Roguet E, Poncet JI. Complications laryngo-trachéales post-intubation atypiques: à propos de 3 cas. *Rev Laryngol Otol Rhinol.* 2009;130(2):129-32.
- Levine MN, Raskob G, Landefeld S, Kearon C. Hemorrhagic complications of anticoagulant treatment. *Chest.* 2001;119(1 Suppl):108S-21S.
- Escada P, Madeira da Silva J. Complicação cervical hemorrágica da terapêutica anticoagulante. *Revista Brasileira de Otorrinolaringologia.* 1999;65(3):228-33.

5. Stenner M, Helmstaedter V, Spuentrup E, Quante G, Huettenbrink KB. Cervical hemorrhage due to spontaneous rupture of the superior thyroid artery: case report and review of the literature. *Head Neck*. 2010;32:1277-81.
6. DiFrancesco RC, Escamilla JS, Sennes LU, Voegles RL, Tsuji DH. Spontaneous cervical hematoma: a report of two cases. *Ear Nose Throat J*. 1999;78:171-5.
7. Jang EW, Kim YB, Chung J, Suh SH, Hong CK, Joo JY. Clinical risk factors affecting procedure-related major neurological complications in unruptured intracranial aneurysms. *Yonsei Med J*. 2015;56: 987-92.
8. Sahu KK, Mishra AK, Lal A, George SV, Siddiqui AD. Clinical spectrum, risk factors, management and outcome of patients with retroperitoneal hematoma: a retrospective analysis of 3-year experience. *Expert Rev Hematol*. 2020;13(5):545-55.
9. Lian LS, Zhang Z, Feng H, Chen XM. Hybrid surgery for a severe infectious innominate artery pseudoaneurysm compressing the main trachea. *J Int Med Res*. 2020;48(10):300060520965843.
10. Girón MC, Orejas JIB, Calleja MAC, Martínez AS, Pérez DM. Hematoma espontáneo de faringolaringe y anticoagulación. Descripción de un caso. *Rev ORL*. 2016;7(1):35-8
11. Muñoz A, Fischbein NJ, Vergas J, Crespo J, Alvarez-Vincent J. Hematoma retrofaríngeo espontáneo: diagnóstico por imagen RM. *American Journal of Neuroradiology*. 2001;22(6):1209-11.
12. Yilbas AA, Kanburoglu C, Uzumcugil F, Cifci C, Saralp OO, Karagoz H, et al. Hematoma progressivo na região anterior do pescoço após tratamento endovascular de aneurisma da artéria cerebral média. *Revista Brasileira de Anestesiologia*. 2016;68(2):194-6.

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