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## Retropharyngeal hematoma in a patient with chronic alcoholism

Kosuke Shoji, MD<sup>a,\*</sup>, Noriko Miyagawa, MD<sup>a</sup>, Atsushi Tanikawa, MD<sup>b</sup>, Michio Kobayashi, MD<sup>a</sup>

<sup>a</sup> Department of Emergency Medicine, Japanese Red Cross Ishinomaki Hospital, Miyagi, Japan

<sup>b</sup> Department of Emergency Medicine, Tohoku University Hospital, Miyagi, Japan

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### ABSTRACT

Retropharyngeal hematoma is a potentially life-threatening condition because it can easily lead to airway obstruction. Most of the previously reported cases of retropharyngeal hematoma are caused by predisposing factors such as head and neck trauma, the use of anticoagulants, or the presence of underlying bleeding diathesis. Herein, we report a case of retropharyngeal hematoma in a patient with chronic alcoholism, where we could not confirm any predisposing factors at the time of examination.

A 61-year-old man with chronic alcoholism presented to our emergency department with convulsive seizures. He was diagnosed with alcohol withdrawal and transferred to a secondary hospital after the seizure resolved. However, a few hours later, he returned to our department with a persistent cough and complained of pain and swelling in the neck. One hour later, he suddenly developed dyspnea; therefore, emergency intubation was performed. Although initially computed tomography (CT) showed normal findings, contrast-enhanced CT revealed a retropharyngeal hematoma. He was managed conservatively and transferred to a specialty hospital for intensive care.

Chronic alcoholism may be a predisposing factor for retropharyngeal hematoma due to the high incidence of head trauma, neck hyperextension by convulsion, and hemostatic disorders. However, taking an accurate patient history is sometimes difficult because of the effects of intoxication or alcohol withdrawal. If a patient with chronic alcoholism presents with symptoms of airway compression, then a retropharyngeal hematoma should be suspected, and emergency intubation should be considered.

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### 1. Introduction

Retropharyngeal hematoma is a potentially life-threatening condition due to the risk of airway obstruction. Previous reports have suggested causative factors, such as head and neck trauma, the use of anticoagulants, or an underlying bleeding diathesis [1–3]. Herein, we report a case of retropharyngeal hematoma in a patient with chronic alcoholism for whom we could not confirm any predisposing factors at the time of examination.

### 2. Case presentation

A 61-year-old man with chronic alcoholism presented to our emergency department with convulsive seizures. Initially, the patient was administered 10 mg of midazolam with resolution of seizures. Seizures

recurred after a few minutes requiring two more serial 10 mg doses. Computed tomography (CT) findings of the whole body, including the head and neck, were normal. Laboratory results were unremarkable, except for elevated liver enzyme levels. He was diagnosed with alcohol withdrawal and, therefore, transferred to a secondary hospital for follow-up. A few hours later, the patient developed persistent cough and neck pain and was subsequently returned to our department for further investigation. Physical examination revealed swelling of the neck, which was not present during the first examination. No physical signs of trauma were observed, and he was not on anticoagulants. Within 1 h, the neck swelling had progressed remarkably, and he developed dyspnea and stridor; therefore, emergency intubation was performed. Contrast-enhanced CT of the neck revealed a retropharyngeal hematoma and extravasation of the contrast agent from the anterior ligaments of the vertebral column at the C5/C6 level (Fig. 1). Laboratory results included a hemoglobin level of 10.4 g/dL, platelet count of 113,000 cells/ $\mu$ L, prothrombin time of 77%, international normalized time of 1.15, and activated partial thromboplastin time of 28.5 s. The follow-up CT performed within 3 h showed no extension of the hematoma; therefore, we managed him conservatively. The next day, he was

\* Corresponding author at: Department of Emergency Medicine, Japanese Red Cross Ishinomaki Hospital, 71 Nishimichishita, Hebita, Ishinomaki-city, Miyagi-Prefecture, Japan.

E-mail address: [kosuke.shoji.0308@gmail.com](mailto:kosuke.shoji.0308@gmail.com) (K. Shoji).



**Fig. 1.** Computed tomography images in the sagittal view show a retropharyngeal hematoma expanding anteriorly from the C1 to T9 vertebrae, with contrast extravasation at the C5/C6 level (white arrow).

transferred to a specialty hospital for intensive care. Later, it was revealed that he had fallen and hit his head prior to the first transport.

### 3. Discussion

The retropharyngeal space extends from the skull base to the upper mediastinum, and it is located anterior to the prevertebral muscles and posterior to the pharynx and esophagus. Bleeding in this space is rare; however, it may cause airway obstruction and sometimes requires emergency intubation. Most reported cases have been related to head and neck trauma, use of anticoagulants, or underlying bleeding diathesis [1-3]. In our case, two mechanisms of injury were suspected.

One of the possible mechanisms was blunt head trauma. It is known that alcohol intoxication is related to a higher incidence of head and neck injury after a fall. In such cases, the incidence is reported to be approximately five times higher [4]. At the second presentation, the patient was confused due to alcohol withdrawal, and we could not take a detailed history. Moreover, there were no physical signs or CT findings of trauma. However, it was later revealed that he had fallen prior to the first presentation. Considering his drinking history, we should have suspected head and neck trauma earlier despite the lack of physical signs or CT findings.

The other possible mechanism was neck hyperextension due to tonic-clonic convulsions. In head and neck trauma without cervical spine fractures, neck hyperextension is presumably the cause of extensive damage to the muscles and ligaments, which cover the anterior aspect of the vertebral bodies, and subsequently form a retropharyngeal hematoma [1]. Tonic-clonic convulsion, which involves neck hyperextension, can cause the same condition. Regarding our case, the CT at the first presentation showed no cervical lesions. This may suggest

that head trauma before the first presentation was not associated with hematoma formation, reinforcing the possibility that convulsion was the cause. However, delays have been described between the patient's initial injury and the development of respiratory distress [5]. It is uncertain which factor was responsible for the hematoma.

Additionally, hemostatic disorders caused by alcohol intoxication may have contributed to the hematoma. Chronic alcohol consumption and subsequent liver disease both affect hemostatic conditions. Ethanol or its metabolites inhibit platelet activation, generate poorly functioning platelets, decrease levels of fibrinogen and other coagulation factors, and increase fibrinolysis [6]. Liver disease causes thrombocytopenia, increased levels of von Willebrand factor, and decreased levels of pro- and anticoagulants [7]. Overall, hemostatic balance is normally restored; however, it is so unstable that even a minor event can cause hemorrhage. Similar to our case, Tsui et al. also reported a case of spontaneous retropharyngeal hematoma in a patient with alcoholic liver disease [8].

### 4. Conclusion

Chronic alcoholism may be a predisposing factor for retropharyngeal hematoma. However, we often cannot take detailed history in patients with chronic alcoholism due to intoxication or alcohol withdrawal. If a patient with chronic alcoholism presents with symptoms of airway compression, then a retropharyngeal hematoma should be suspected, and emergency intubation should be considered.

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### Declaration of Competing Interest

The authors have no competing interests to declare.

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