

## Case Report

# An Old Complication Welcomes Us in the Modern Era: Lingual Hematoma During Thrombolytic Therapy

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**ABSTRACT**

Lingual hematoma is a rare but potentially life-threatening clinical condition. Securing the airway and urgent treatment for underlying reasons are key management steps. We reported a case to illustrate the management of a lingual hematoma after rescue thrombolysis for a ST-segment elevation myocardial infarction (STEMI) patient.

**Keywords:** lingual hematoma, rescue thrombolysis, complication

**INTRODUCTION**

Thrombolytic therapy is not a priority in the modern era of ST-segment elevation myocardial infarction (STEMI) treatment and primary percutaneous coronary intervention (PCI). In the late 1990s, studies demonstrated that PCI is associated with lower mortality and complications and is superior to thrombolytic therapy [1]. Alteplase (tPA) is the most commonly used thrombolytic agent and requires close monitoring and regular physical examinations during treatment for early detection of complications. Due to the non-selective lytic activity of tPA, the lytic state occurs, which can manifest as bleeding in various organs [2].

Lingual hematoma is a rare entity, but multiple cases have been reported about various causes of lingual hematoma. Trauma, vascular anomaly, or coagulation disorders come forward as the three main causes [3-5]. According to pathophysiology, different treatment modalities are used, such as surgery or angiographic embolization of the lingual artery for traumatic hematomas and

discontinuation and reversal of anticoagulants for coagulation problems [6]. Although it's rare, it is important to distinguish because of its rapidly progressive nature. Airway management and maintenance of sufficient passage could be troublesome and urgent advanced assistance can be required [7]. Herein, we reported a patient with STEMI in whom lingual hematoma has been developed during rescue thrombolytic infusion.

We obtained both verbal and written informed consent from the patient for the submission of this manuscript.

**CASE**

An 80-year-old male patient presented to the emergency department (ED) with chest pain that radiated from the left arm. ECG was performed on arrival and showed inferoposterolateral STEMI. The heart rate was between 56 and 72 bpm, and blood pressure was 93/61 mmHg. The results of serum blood chemistry studies, blood cell counts, and other coagulation studies were within the respective normal limits. Aspirin (300 mg),

clopidogrel (600 mg), atorvastatin (80 mg), and unfractionated heparin (UFH) (4000 IU intravenous bolus) were administered at the ED. The patient was transferred for emergent coronary angiography, but a failure occurred while the guidewire entered the distal lumen. An additional 1000 IU intravenous UFH (a total of 70 IU/kg) has been administered before percutaneous coronary intervention. Then, it is decided to give a fibrinolytic agent to achieve myocardial perfusion. After the admission of the patient to our coronary intensive care unit (CCU), a bolus of recombinant tPA was administered (15 mg) in 1 minute, and infusion was started (50 mg over 30 minutes and 35 mg over 1 hour). The UFH infusion rate was decreased at 500 IU/h while tPA was administered. Several ECGs were taken for monitoring ST-segment resolution and myocardial reperfusion. After thrombolytic therapy, the patient complained of glossal swelling and difficulty in speech within 45 minutes. There had been no trauma or instrumentation in the mouth. Physical examination

revealed significant swelling and purple-black discolorization of the tongue (Figure 1). There was no dyspnea, stridor, or neurological symptom additionally. He has been consulted to the otorhinolaryngology (ENT) department and a fiber optic transnasal endoscopic examination was performed. On exam, no interruption of the airway was detected and due to enough passage of the upper airway, intubation or tracheostomy were not required. Lingual hematoma due to thrombolysis and anticoagulation therapy was considered as the initial diagnosis. Infusion of UFH was stopped, and protamine was administered for the reversal of anticoagulant effect of UFH. The repeated physical examinations revealed that lingual hematoma was completely resolved spontaneously (Figure 2). The patient did not have any other complaints during the in-patient follow-up. During observation and treatment for acute coronary syndrome, acute kidney injury was observed, and the patient has transferred to another in-patient clinic of the internal medicine department.



**Figure 1.** View of the lingual hematoma during alteplase (t-PA) infusion.



**Figure 2.** Spontaneous resolution of hematoma and normal appearance of the tongue after discontinuation of tPA and heparin infusion.

## DISCUSSION

Fibrinolytic therapy is often used as a first-line treatment for STEMI when PCI is not available, but it can also be used as a rescue treatment in patients who have undergone unsuccessful PCI, just as in our case [8]. It is important to note that the use of fibrinolytic therapy to treat STEMI can increase the risk of bleeding complications, including lingual hematoma. Periprocedural use of UFH (both during primary PCI and tPA infusion) may also increase the risk of bleeding because of additive anticoagulant effect. Therefore, patients receiving fibrinolytic therapy should be closely monitored for signs of bleeding, and the medical team should be notified immediately if any bleeding complications occur. The risk of bleeding can be minimized by ensuring that patients are appropriately selected for fibrinolytic therapy based on their clinical characteristics and by using appropriate dosages of fibrinolytic agents [9]. Furthermore, the dosage of the UFH should be modified

according to the bleeding risk of the patients appropriately and reversed in case of life-threatening bleeding complications.

Lingual hematoma is an infrequent but potentially serious complication that can occur after fibrinolytic therapy for STEMI. The severity of the hematoma can vary depending on the size and location of the hematoma and the patient's overall health status. The management of lingual hematoma after fibrinolytic therapy for STEMI requires a multidisciplinary approach. The first step in the management of lingual hematoma is to ensure that the patient's airway is secure, as large hematomas can cause airway obstruction and respiratory distress [10]. The medical team should closely monitor the patient's vital signs and oxygen saturation levels to ensure that they are stable. In cases where the hematoma is small and not causing any significant symptoms, the medical team may choose to observe the patient closely and monitor the hematoma's progression. Larger hematomas that cause airway obstruction may require surgical intervention. The surgical approach may involve draining the hematoma by making an incision in the floor of the mouth. This procedure is typically performed under local anesthesia, and the patient should be consulted by an ENT specialist in case of surgical intervention. Another approach to airway management in lingual hematoma is to perform a tracheostomy [11]. While this is an effective method of securing the airway in cases of severe obstruction, it is an invasive procedure and carries a risk of complications.

In this case, we preferred thrombolytic therapy after ineffective PCI as a rescue approach for myocardial perfusion. Although lingual hematoma is a rare complication of tPA therapy, clinical condition varies according to the severity of airway obstruction and requires prompt recognition and management. A multidisciplinary approach is necessary to ensure the best possible outcomes for patients. In our case, after the cessation of therapy, a regression was detected and no further approach was performed.

In conclusion, our case report illustrates the importance of the management of lingual hematoma and underlines that physicians should also be vigilant for signs of bleeding complications associated with fibrinolytic therapy and take appropriate steps to minimize the risk of these complications.

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