# Lingual and Sublingual Haematoma in a Patient Following Streptokinase Administration in Acute Myocardial Infarction- A Case Report

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**Abstract:**

*The value of thrombolysis by Streptokinase administration in the treatment of acute myocardial infarction is well established. Haemorrhage is a common complication of fibrinolytic therapy. Here, we report an unusual case of spontaneous lingual and sublingual haematoma following streptokinase therapy after acute myocardial infarction. A 57-year-old man with a diagnosis of acute ST elevated myocardial infarction treated with streptokinase developed a large lingual and sublingual haematoma. Though his airway was not compromised, he had difficulty in swallowing. A conservative approach was made by starting parenteral nutrition, preventing rethrombosis by not reversing the action of streptokinase as his coagulation profile was within normal limits and maintaining optimum blood pressure, blood glucose level and urine output. His tongue swelling subsided after four days and oral medication and feeding was started. No complication occurred during this period. Though there is no adequate information regarding the management of the patient, a vigilant monitoring of the patency of the airway with a conservative approach by not reversing the effect of streptokinase and preventing coronary rethrombosis may produce a better outcome in such cases.*

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**Introduction:**

Thrombolysis with Streptokinase is used for the treatment of acute ST elevated myocardial infarction.[1] It is a 1st generation fibrin non-specific thrombolytic and biochemically is a serine protease enzyme derived from certain strains of beta haemolytic streptococci.[2] It consists of a single polypeptide chain containing 414 amino acids.[3] It was first used in acute myocardial infarction in 1958 and since then it has revolutionized the management of acute myocardial infarction.[3] Apart from acute myocardial infarction it is also administered for pulmonary thromboembolism, acute arterial occlusion and deep venous thrombosis.

As a result of its nonselective ability to lyse clots throughout the vascular system, complications caused by bleeding involving various organs and organ systems have been reported.[4] Bleeding is the most common complication occurring in 5% to 7% cases.[5] It occurs mainly from vascular access sites but can be from other more serious sites such as the gastrointestinal tract, genitourinary tract, retroperitoneum, and brain in 1%to 2% of cases.[6] The addition of heparin to thrombolytic regimens may well increase the incidence of haemorrhagic complications. Complications such as haematoma of tongue, uvula, vocal cord and haemorrhage from oropharynx have been reported.[7] However haematoma of the tongue has been a rare complication.[8] Here we present a case of lingual and sublingual haematoma following administration of Streptokinase in acute myocardial infarction.

**Case Report:**

A 57 year old, hypertensive, diabetic gentleman was admitted in the Department of Cardiology of Bangabandhu Sheikh Mujib Medical University presented with painless swelling and discoloration of the tongue for one day following Streptokinase administration which was given in a hospital for the management of acute ST elevated inferior myocardial infarction with posterior extension with right ventricular infarction. One day prior to admission in BSMMU, he had a sudden, severe, retrosternal, compressive non radiating chest pain associated with profuse sweating which was not relieved by taking rest and sublingual GTN spray. Three hours after these symptoms, he was taken to

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a hospital where he was diagnosed as case of acute ST elevated inferior myocardial infarction with posterior extension with right ventricular infarction. After checking for any contraindications, he was treated with Streptokinase for thrombolysis. About one hour after giving Streptokinase, he developed painless swelling of the tongue with discoloration. The swelling was increasing gradually which was potentially threatening to compromise the airway. He was then referred to BSMMU for better management. He is a known case of chronic kidney disease and benign enlargement of prostate. His past medical history revealed that he had a history of non ST elevated acute myocardial infarction 2 years back for which coronary angiogram was done which revealed triple vessel disease. Coronary artery bypass grafting was recommended but it was not followed by the patient. The patient did not give any history of coagulopathy or bleeding disorder. He was on oral medications for his cardiac problems which included antiplatelet drugs, lipid lowering agents, nitrates, beta-blockers, ACE inhibitors and proton pump inhibitors.

On physical examination, the patient was mildly anaemic, pulse -100/min, BP-140/80 mmHg, Temperature- *98°F,* respiratory rate-14/min, SpO2-98% in room air, JVP-not raised. Systemic examination including cardiovascular system and respiratory system revealed unremarkable findings. Examination of the oral cavity showed a large haematoma involving the whole tongue and floor of the mouth. The tongue was enlarged to such an extent that the mouth could not be closed properly and the patient had difficulties in talking, swallowing and drinking. But there were no features of airway obstruction like stridor, respiratory distress, cyanosis and the patient was able to maintain normal arterial oxygen saturation level. The uvula and oropharynx were normal. The patient did not have a history of tongue bite, instrumentation, trauma to the oral cavity or any bleeding disorder (Fig-1).

His ECG revealed ST elevation in lead III and aVF and ST depression in lead V2 to V6. Right sided ECG showed ST elevation in lead V3R and V4R.High sensitive troponin I was raised (147.9pg/ml).Echocardiography showed basal inferior wall akinesia and mid posterior wall hypokinesia, LVEF was 60%.His Hb level was 9.2 g/dl. His serum creatinine was 2.2mg/dl and RBS was 11.7 mmol/l. But his platelet count, BT, CT, PT, APTT and factor VII assay were within normal limits.

Though his tongue was hugely swollen, the patient did not have any respiratory distress and his airway was not compromised. So we selected to take a conservative approach although we were prepared to perform tracheostomy if any deterioration occurred. Our main concern was maintenance of his nutrition and oral medication therapy as the patient was unable to swallow. After consulting with the Maxillofacial Surgery Department and Department of Anesthesia, we decided not to introduce a nasogastric tube as it may further cause bleeding from tongue, oropharynx and esophagus. We started parenteral nutrition and intravenous medication including antibiotics, proton pump inhibitors with continuous oxygen therapy and maintained adequate urine output, optimum blood pressure and blood glucose level. Administration of subcutaneous low molecular weight heparin was stopped as it may further increase the haematoma. Four days later, his tongue swelling gradually subsided and oral medications and feeding were started. During this period no complication occurred. The patient came to us after one month for follow up and his tongue swelling resolved completely (Fig-2).

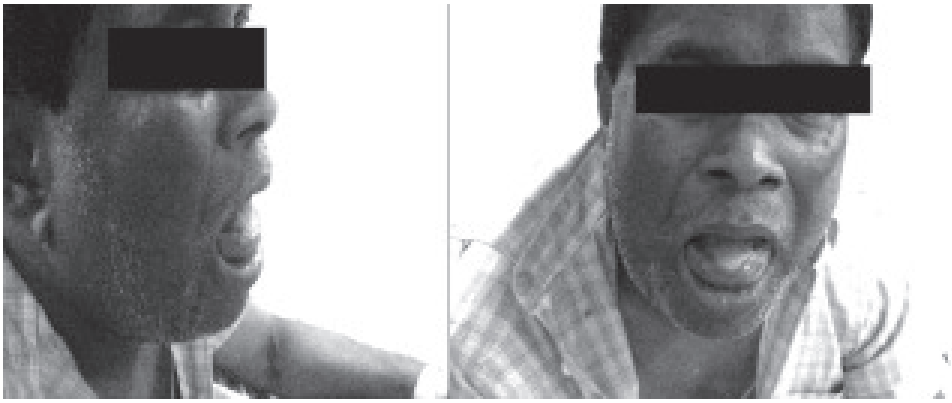

**Fig -1:** *The lingual haematoma of the patient. The picture of the left side shows the lateral view of the patient and the right side shows the frontal view of the patient.*

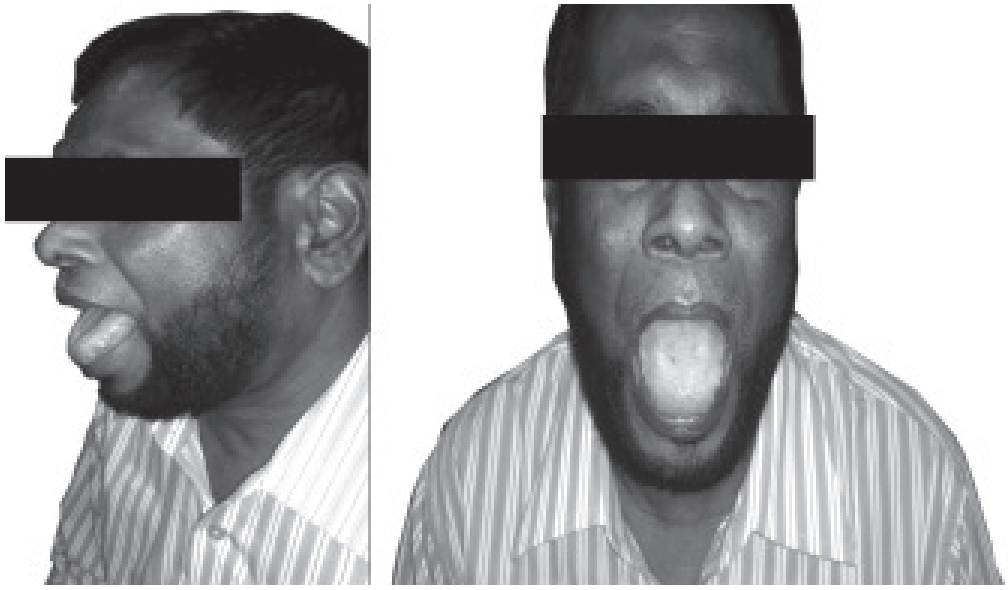

**Fig.-2:** *The lingual and sublingual haematoma of the patient has resolved completely. The picture of the left side shows the lateral view of the patient and the right side shows the frontal view of the patient.*

**Discussion:**

The use of intravenous thrombolytic agents has revolutionized the treatment of acute myocardial infarction. However, the improvement in mortality rate achieved with these drugs is tempered by the risk of serious bleeding complications including intracranial haemorrhage.[9]Our case is an unusual presentation of complication of streptokinase administration. Only a few cases have been reported regarding the development of lingual haematoma following Streptokinase injection.

Williams et al.[8] reported a patient of a lingual haematoma spontaneously developed 4 hours after giving Streptokinase injection and heparin infusion for acute inferior myocardial infarction. As the haematoma was expanding and the patient became dyspneic, they required fibre optic nasal intubation and discontinuation of heparin infusion and prompt administration of protamine and FFP. No further complication was noted. Our patient also developed lingual and sublingual haematoma spontaneously after giving Streptokinase for inferior MI but as his airway was not compromised and coagulation profile was within normal limit, so a conservative approach was chosen.

Eggers et al.[10] described a case of lingual and sub lingual haematoma following streptokinase administration for anterolateral myocardial infarction in a 41 year old patient. This patient developed a single episode of cardiac arrest for which intubation was tried but later it was abandoned due to successful resuscitation. Though the patient was dyspneic, he was able to maintain normal oxygen saturation level. So no intubation was done and the authority elected not to reverse the action of Streptokinase and compromise the revascularization of coronary vessels as the patient was relatively young. After three days the swelling disappeared. In our case, we adopted same strategy as there was no airway obstruction and no coagulopathy was detected.

Keya et al.[11] also noted a case of lingual and conjunctival haematoma in a 54 year old male following Streptokinase injection given for extensive anterior MI. The patient developed ventricular fibrillation after arriving to the hospital which was successfully managed. The patient did not need intubation as he could maintain his airway properly. As the lingual swelling was not large enough, the patient could take oral medications. They discontinued the anticoagulant therapy but continued the antiplatelet therapy as they did not want to compromise the coronary reperfusion. Our patient was unable to take oral medications and oral feeding; so we managed the case by providing parenteral nutrition and intravenous medication.

This case highlights the development lingual and sublingual haematoma as an adverse reaction of Streptokinase administration. Though there is no clear guideline for managing such cases, we successfully managed this case by monitoring oxygen saturation and signs of airway obstruction, maintaining optimum blood pressure, blood sugar, urine output, providing adequate nutrition by parenteral route and developing a conservative strategy by not reversing the effect of Streptokinase and thus preventing coronary rethrombosis.

**Conclusion:**

There is not enough data regarding the management of lingual haematoma following Streptokinase administration in myocardial infarction. Clinicians should be aware of potential haematoma expansion, coronary rethrombosis and airway obstruction. A quick physical examination to identify airway obstruction and a multidisciplinary approach can provide a better outcome in such patients.

**Conflict of Interest - None.**

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