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Case Report

Spontaneous psoas hematoma in a case of acute myocardial infarction following streptokinase infusion



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ARTICLE INFO

Article history:

Received 21 July 2015

Accepted 29 September 2015

Available online 18 December 2015

Keywords:

Spontaneous

Psoas

Hematoma

Streptokinase

Acute myocardial infarction

ABSTRACT

Introduction: Cardiovascular disorders are the major cause of mortality and morbidity globally as well as in India. In India, where resources are limited and majority of patients pay out of their own pocket, thrombolysis is still done for majority of STEMI cases.

Case Scenario: A 48-year-old male patient, nonhypertensive and nondiabetic, came to the ER with history of retrosternal chest pain suggestive of angina at rest. An Electrocardiogram (ECG) revealed ST-segment elevation in the anterior leads. Patient was diagnosed with Acute STEMI and thrombolysis was initiated with STK. The following day, the patient complained of pain in his left groin. On examination, there was a swelling and tenderness in left lower abdomen and inability to extend the hip. A CT scan was done, which showed Psoas muscle hematoma.

Conclusion: Spontaneous bleed into psoas muscle is a very rare complication of thrombolysis that may require surgical exploration.

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1. Introduction

Cardiovascular disorders are the major cause of mortality and morbidity globally as well as in India. The incidence of Cardiovascular Disease (CVD) in India has risen from 7% in 1970 to 32% in 2011.¹ Coronary Artery Disease (CAD) is prevalent among 8–10% of urban and 3–4% of rural population

and it accounts for close to 1.5 million deaths per year.¹ Primary percutaneous intervention, when performed in a timely fashion, is the reperfusion therapy of choice in patients presenting with Acute ST-segment Elevation Myocardial Infarction (STEMI).^{2–7} In India, where resources are limited and majority of patients pay out of their own pocket, thrombolysis is still done for majority of STEMI cases.⁸ Fibrin-specific fibrinolytic agent is the preferred agent, but

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<http://dx.doi.org/10.1016/j.ihj.2015.09.031>

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as streptokinase (STK) is cost effective, it is still widely used. The most dreaded complication of STK is Intracerebral Hemorrhage (ICH), which usually occurs in less than 1% cases. Other common complications are allergic reactions and hypotension, which usually respond to steroids and fluid replacement, respectively. Noncerebral bleeding is also a common complication, usually from the puncture sites and mucosa. Here we report a rare case of spontaneous psoas hematoma after thrombolytic therapy with STK infusion.

2. Case scenario

A 48-year-old male patient, nonhypertensive and nondiabetic, came to the ER with history of retrosternal chest pain suggestive of angina at rest. Patient used to chew tobacco and consume alcohol occasionally. An electrocardiogram (ECG) revealed ST-segment elevation in the anterior leads (Fig. 1). There was regional wall motion abnormality noted in the anterior wall, in the 2D echocardiogram. Patient was diagnosed with Acute STEMI and thrombolysis was initiated with STK. Patient was started on standard Acute Coronary Syndrome (ACS) management with antiplatelets, nitrates, beta-blockers, and statins. His pain subsided and the ECG at 90 min post-STK showed good resolution of more than 70% (Fig. 2). The following day, the patient complained of pain in his left groin. On examination, there was a swelling and tenderness in left lower abdomen and inability to extend the hip.

A screening ultrasound was done, which was normal. A CT scan was done, which showed Psoas muscle hematoma (Fig. 3). The patient's Hemoglobin (Hb) fell from 16 g/dL to 8.5 g/dL. Patient was managed conservatively; heparin and antiplatelets were stopped. The patient improved symptomatically and the Hb increased to 11.6 g/dL, no transfusion blood or blood products were administered.

3. Discussion

Streptokinase is a protein, and a single-chain polypeptide, derived from beta-hemolytic streptococci cultures. It combines with pro-activator plasminogen and converts inactive plasminogen into plasmin.^{9,10} High dose of STK is needed to neutralize the anti-streptococci antibodies. STK produces a profound hypocoagulable state; despite this, the bleeding chances are rather rare. The first large-scale thrombolytic trial was GISSI-1,¹¹ which showed that the mortality at 21 days was 8–10% in patients thrombolized compared to 15% mortality in the group not thrombolized. Similar results were seen in ISIS-2 trial.¹²

Major adverse effects of STK are Allergic reactions, Hypotension, and Bleeding. Since STK is a protein, it is antigenic. Though major anaphylaxis reactions are seen in <0.5% of cases, minor reactions like itching are seen in 10% of the cases. The biological efficacy does not seem to be decreased when the patient develops allergic reactions. Anti-Strep antibodies can be found in the body for 7.5 years.¹³ STK is not given if the patient has been administered with it within the past 6 months. Hypotension is the other common side effect usually seen when STK is infused at a dose higher than 500 U/kg/min. This usually responds to decrease in the speed of infusion. If it does not, then fluids can be infused; in resistant cases, inotropic support can be used.

Bleeding, including major and minor, from any site is usually seen in around 11% of the cases that are thrombolized. Gastrointestinal tract is the most common site of spontaneous bleed. 3–4% of the patients will have minor bleeds from puncture sites. Major bleeding like Intracerebral Hemorrhage is usually seen in <1% of cases, and after 70 years of age the risk increases to 1.67%.^{14,15} Hemorrhage can also occur into spleen, mediastinum, liver, intraspinally, tongue, and rectum.^{16–20} There has been only one case report in literature till

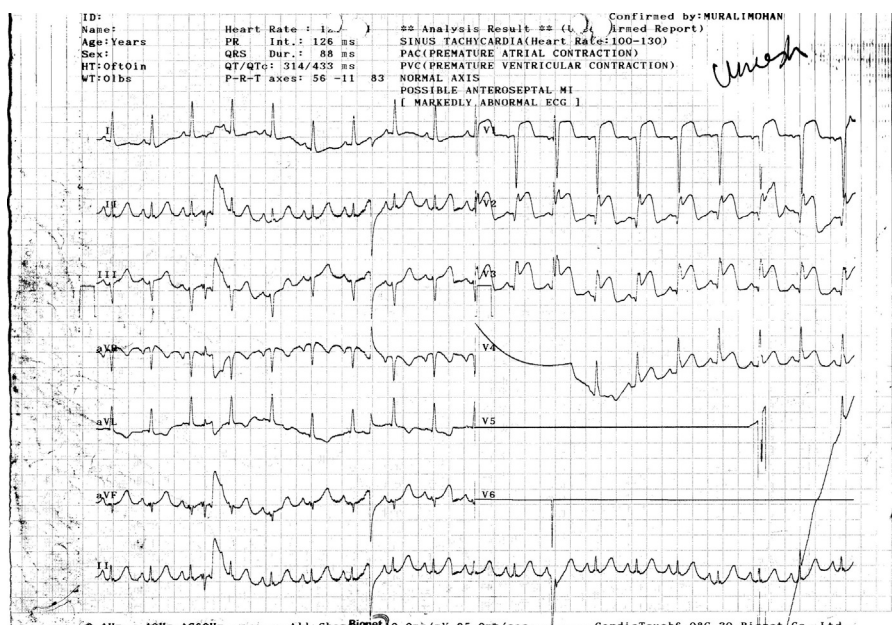


Fig. 1 – ECG at presentation.

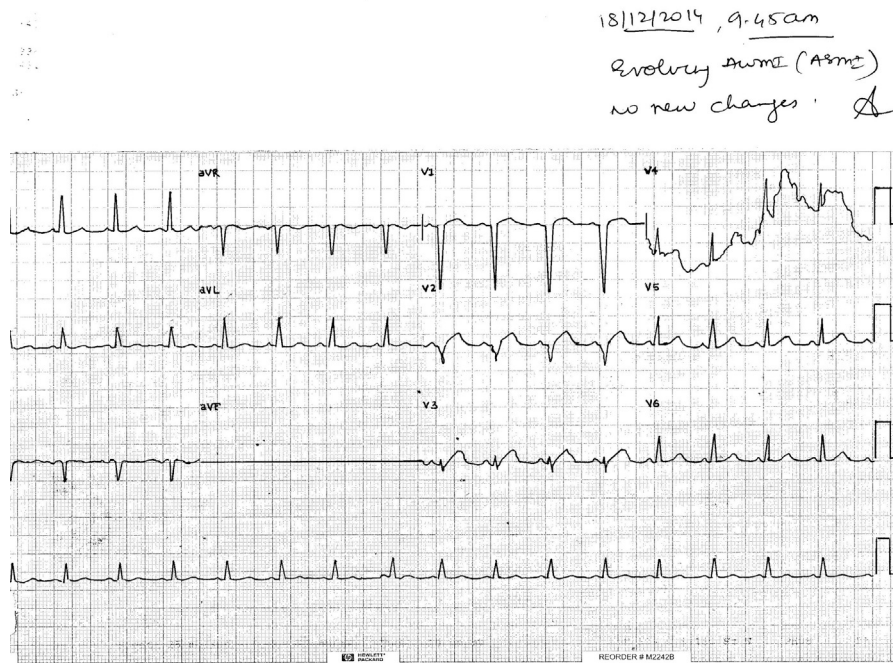


Fig. 2 – Post-streptokinase (STK) administration; ECG showing good resolution.



Fig. 3 – Showing bulky psoas muscle, with collection on the left side.

now describing spontaneous psoas hematoma post-STK infusion.²¹

4. Conclusion

STK still commonly used for the treatment of AMI patients. Spontaneous bleed into psoas muscle is a very rare complication of thrombolysis. It must be considered when patient complains of pain in the groin that increased in intensity on extending the hip. As Femoral nerve passes through the Psoas muscle, this has the potential of causing entrapment mononeuropathy. Since the area is retroperitoneal and cannot be reached easily, this complication must always be kept in mind and patient must be evaluated using imaging techniques. Ultrasound can be a good screening test, but to confirm, the diagnosis Computer Tomography (CT) or Magnetic Resonance Imaging (MRI) is

needed. Majority of cases can be managed conservatively by stopping antithrombotics and antiplatelets. If the patient has hemodynamic instability, transfusion is needed. In severe cases, decompressive surgery may be considered.

Conflicts of interest

The authors have none to declare.

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