# Diffuse Multifocal Intracranial Hemorrhage Following Alteplase Infusion: A Case Image Report

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**A Case Image Report**

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**Abstract:**

We are presenting the head computed tomography (CT) scan image of a case illustrating complicated multifocal intracerebral hemorrhage following intravenous thrombolysis. This highlights the critical nature of such a serious complication, which can manifest not only in the ischemic area but also at multiple sites within the brain parenchyma. This case underscores the need for careful patient selection and vigilant monitoring during thrombolytic therapy to minimize the risk of adverse events such as intracerebral hemorrhage. It also emphasizes the importance of prompt recognition and management of complications to optimize patient outcomes.

**Case Presentation and Hospital Course:**

A 70-year-old Sudanese male patient presented to the emergency department with acute-onset left-sided weakness and confusion, which began two hours before arriving at the emergency department. His medical background includes uncontrolled hypertension, diabetes mellitus, dyslipidaemia, and coronary artery disease. He underwent coronary artery bypass graft surgery 20 years ago but is not regularly taking antiplatelet medication. On presentation, blood pressure was 196/107 mmHg, patient weight was 110 kg, a neurological exam revealed left side weakness (motor power 4/5), facial weakness with Right gaze preference, and the patient was not able to follow commands. NIHSS score was 11, and the Glasgow Coma Scale (GCS) was 13. Laboratory test results were significant for a high HbA1c level of 7.5%, borderline hypercholesterolemia, and elevated blood glucose (180 mg/dL). Hemoglobin and platelet counts were within normal limits, but the INR was not checked. A computed tomography (CT) scan with CT perfusion revealed features suggestive of acute ischemic changes in the right temporoparietal area, with a surrounding penumbra. The patient was given tissue plasminogen activator (tPA) (90mg infusion over 60 min) after initial blood pressure management. Systolic blood pressure after thrombolysis fluctuated between 150–176 mmHg, reaching a peak of 197 mmHg, which was repeated after 10 minutes and subsequently decreased to 176 mmHg. However, after 6 hours, the patient became suddenly less responsive, and the GCS dropped to 6. The urgent repeat CT scan revealed numerous intra-parenchymal bleeds, along with mild compression of the right lateral ventricle and midline shift (see **Figure 1** ). Unfortunately, the patient's neurological

condition remained unchanged during the course of his admission until 2 months. During the hospital course, the patient also developed hospital-acquired pneumonia, which subsequently progressed to severe sepsis with multi-organ dysfunction, ultimately leading to the patient's passing.

**Discussion:**

Haemorrhagic transformation of ischemic stroke refers to the secondary conversion of an ischemic infarct into an area of haemorrhage. It is considered a major limitation of intravenous thrombolysis using tPA, which can complicate the management and prognosis of ischemic stroke. The incidence of symptomatic intracranial haemorrhage (based on radiological classification and neurological status) generally ranges from 2% to 7% {1}. Risk factors associated with an increased risk of hemorrhagic transformation include older age, greater stroke severity, higher baseline glucose, uncontrolled blood pressures during and post thrombolysis, congestive heart failure, renal impairment, diabetes mellitus, ischemic heart disease, atrial fibrillation, baseline antiplatelet use, leucocytosis, and visible acute infarction on brain imaging {2}. Occurrence of the ICH post t-PA on distant site from the ischemic stroke site is unusual and specific risk factors are more closely associated with extra-ischemic intracerebral haemorrhage, such as a history of previous strokes and advanced age {3}.

In this report, we highlight a multifocal haemorrhagic transformation beyond the primary site of the ischemic area as an important and unusual complication of thrombolysis therapy. We emphasize the need for close monitoring of blood pressure and timely management in patients who receive thrombolysis. Therefore, maintaining strict blood pressure control is essential to mitigate this risk and reduce the likelihood of further bleeding episodes. Additionally, regular assessment of neurological status and monitoring for signs of worsening hemorrhagic complications are essential components of post-thrombolysis care.

**Authors Contribution:**

Abdallah Alwali: manuscript writing, review, and editing.

Mohanad Faisal: study design, review, and editing.

Naveed Hussain: supervision and review

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**Conflict of Interest:**

The authors declare no conflict of interest.

**Consent:**

Consent form obtained.

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Figure (1) Head CT scan showing multifocal diffuse intracranial haemorrhage.