Subcutaneous haematomas following thrombolysis treatment for ischaemic stroke

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Symptomatic intracerebral haemorrhage is a feared complication of thrombolysis, however bleeding can also occur at extra-cranial sites.

Case history

A 68-year-old right-handed man presented following an unwitnessed collapse with right-sided weakness and speech disturbance. He was last seen well by his wife on the morning of admission, when leaving his house to walk his dog. He was found collapsed by a passerby 30 minutes later and an ambulance was called. He was face, arm, speech test (FAST) positive.

His past medical history included hypertension, hypercholestrolaemia and throat cancer which was treated with radiotherapy 17 years previously. He was an ex-smoker and drank up to 80 units of alcohol a week.

On examination he had a normal blood pressure and was in sinus rhythm. Clinically he had a left hemisphere stroke. He was assessed for thrombolysis and deemed suitable for treatment. His National Institutes of Health Stroke Scale (NIHSS) score was 7. A computed tomography (CT) brain scan showed a hyperdense middle cerebral artery with no evidence of early ischaemic changes or haemorrhage (Figure 1). His initial bloods, including full blood count, clotting and liver function tests were normal: haemoglobin 13.9 g/dl, platelets 446, INR 1.1, PT 12 s, APTT 29 s, bilirubin 10 umol/L, ALT 20 iu/L and alkaline phosphatase 245 iu/L.

He was thrombolysed with intravenous alteplase four hours after onset of his stroke symptoms. Two hours after thrombolysis was completed, he developed superficial ecchymoses over his chest wall and right arm. There was no change in his conscious level and he remained haemodynamically stable. He developed further massive haematomas over his right shin and zygoma. His bloods were repeated. Haemoglobin remained stable at 13 g/dl, however as expected his clotting was abnormal: INR 2.3, PT 27 s, APTT 39 s, with a normal fibrinogen level (2.9 g/L; normal range 1.6–5.9 g/L). The haematoma over his chest wall continued to increase in size to 10 cm diameter (Figure 2). Despite this, his neurology remained stable. Following treatment with 10 mg of vitamin K his clotting improved (INR 1.7, PT 19 s, APTT 31 s). However, as his fibrinogen was had fallen to 0.3 g/L and his haemoglobin had dropped by 3 g to 10.5 g/dl, he was given 4 units of fresh frozen plasma.

Although the subcutaneous haematomas improved over the next 24 h, there was deterioration in his higher cortical functions of language, comprehension and neglect, with a repeat NIHSS of 11. CT brain scan the next day showed an area of low density in the left basal ganglia, insular and left temporal lobe, with new haemorrhage within the sylvian fissure.

Discussion

Following the National Institute of Neurological Disorders and Stroke (NINDS) trial there has been an increase in the use of intravenous recombinant tissue Plasminogen Activator (rtPA), alteplase, in the treatment of acute ischaemic stroke.[1] Thrombolytic therapy has shown to be of benefit up to four hours and 30 minutes after stroke onset, although the earlier the treatment is started the better the outcome for patients.[2–4]

Patients with stroke may present unable to give a comprehensive history due to speech and language disturbance and have to be assessed quickly on clinical grounds. As much information

Figure 1
Non-contrast CT brain scan showing a hyperdense middle cerebral artery

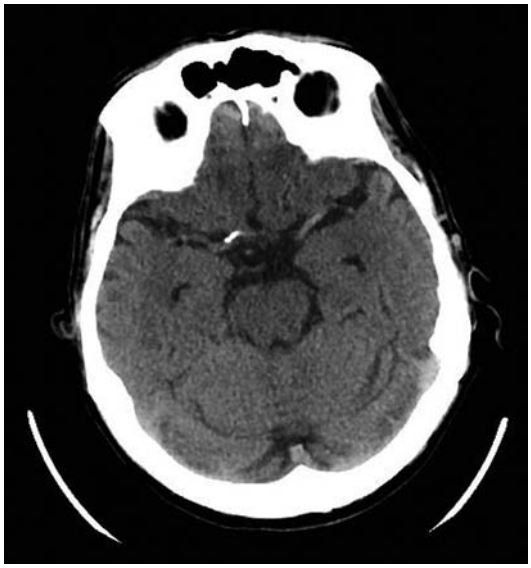
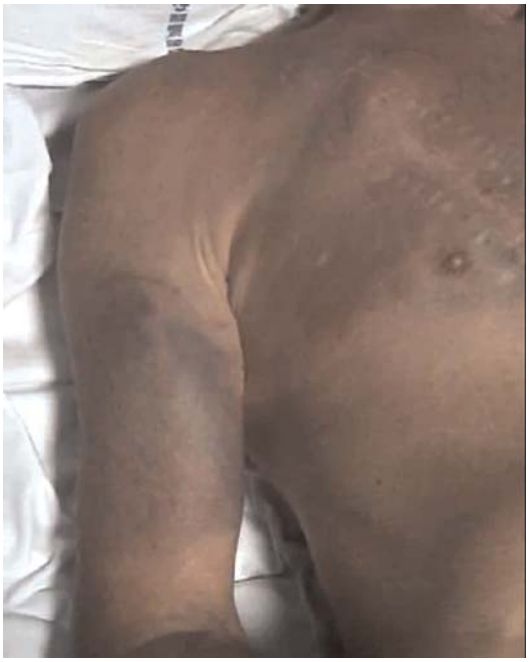


Figure 2
Widespread subcutaneous haematomas in a patient treated with rtPA



is gleaned from witnesses or family. As a result of limb weakness, patients can be found on the floor with no apparent injury, and this is a common presentation in elderly patients.

Bleeding is a serious adverse effect of rtPA and contraindications to therapy include recent trauma. Mild trauma as a result of a collapse or fall is often not reported by patients or relatives, and it is only following thrombolytic treatment that the injury becomes visible. In this case the bleeding was significant, causing a drop in haemoglobin and necessitating reversal of thrombolysis. As a consequence of this, his ischaemic stroke completed. With the increasing use of alteplase in hyperacute stroke, it is important physicians are aware of this potential complication which can occur from previous unrecognized minor injury. This case highlights the importance of only administering alteplase within a well organized stroke service with staff trained in delivering thrombolysis and in monitoring for any complications associated with thrombolysis.[5]

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