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CASE REPORT

Mechanical Thrombectomy as an Alternative Reperfusion Therapy in Acute Ischaemic Stroke Associated with Recent Late Presentation of ST Elevation Myocardial Infarction

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ABSTRAK

Serangan strok iskemia akut di kalangan pesakit yang mempunyai sejarah serangan jantung infarksi miokardium yang baharu adalah kontraindikasi relatif kepada trombolisis. Intervensi melalui kaedah trombektomi mekanikal merupakan rawatan alternatif untuk mengelakkan komplikasi pendarahan. Laporan kes ini melaporkan pesakit berumur 77 tahun yang dimasukkan ke wad dengan hemiplagia sebelah kanan, disfagia dan kurang tahap kesedaran berdurasi 30 minit dan mempunyai sejarah rawatan untuk serangan jantung infarksi miokardium yang baharu. Angiografi serebral menunjukkan oklusi salur darah arteri serebral tengah sebelah kiri dan pesakit dirawat melalui intervensi trombektomi mekanikal. Pesakit menunjukkan peningkatan fungsi neurologi berikutan intervensi. Laporan kes ini menekankan kepentingan rawatan awal ke atas pesakit strok iskemia akut di pusat rawatan strok yang komprehensif.

Kata kunci: infarksi miokardium, strok akut, trombektomi

ABSTRACT

Concomitant recent myocardial infarction (MI) in patients presenting with acute ischaemic stroke (AIS) is considered a relative contraindication for thrombolysis. Mechanical thrombectomy is recognised as an alternative recanalisation therapy to avoid risk of haemorrrhagic complications. We report a 77-year-old patient who previously had recent admission for late presentation ST elevation myocardial infarction (STEMI) and currently presented with right-sided hemiplegia, dysphasia and reduced level of consciousness at 30 minutes from the onset. An urgent cerebral

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angiography showed total occlusion of the left middle cerebral artery (MCA). Successful mechanical thrombectomy was performed instead of administration of intravenous (IV) thrombolysis with excellent neurological recovery. This case report highlights the importance of patient transfer to a more comprehensive stroke center in the management strategies of the AIS.

Keywords: acute stroke, myocardial infarction, thrombectomy

INTRODUCTION

Early transfer of stroke patients in acute phase at the highest level of care available is crucial for optimal stroke care (Jauch et al. 2013). While the administration of intravenous thrombolysis is the first line treatment for acute ischaemic stroke (AIS) (Prabhakaran et al. 2015), mechanical thrombectomy is a recognised alternative for recanalisation therapy in a subset of patients whom thrombolysis is ineffective or contraindicated. However, this intervention is only available in a more comprehensive stroke center.

Screening for thrombolytic contraindications in patients with AIS are paramount to avoid potential haemorrhagic complications. In few instances, AIS occurs concomitantly with myocardial infarction (MI). Recent MI within the previous 3 months is considered a relative contraindication for thrombolytic therapy although this is not an evidence-based approach (Jauch et al. 2013; Prabhakaran et al. 2015).

Here, we report on a patient with recent admission for MI presented with onset of AIS and showed neurological improvement following a mechanical thrombectomy.

CASE REPORT

A 77-year-old lady presented to Emergency Department (ED) with complaint of right-sided body weakness 30 minutes from the onset of symptom. She had underlying hypertension and was admitted 2 weeks prior for late presentation of ST elevation myocardial infarction (STEMI).

Upon arrival, she was confused, with Glasgow Coma Scale (GCS) of 10/15 (Eye 3, Verbal 2, and Motor 5). Her blood pressure was 132/78 mmHg, pulse rate 82 beats per minute, respiratory rate 18 breaths per minute and oxygen saturation was 98% under room air. Physical examination revealed right-sided hemiplegia (power of 0/5), right hemineglect and right homonymous hemianopia and dysphasia. The National Institutes of Health Stroke Scale [NIHSS] score was 21/42. Her gag reflex was absent.

Multislice spiral computed tomography (MSCT) of the brain (plain CT and perfusion CT are shown in figure 1) following a standard protocol was immediately performed and showed left middle cerebral artery infarct with an Alberta stroke program early CT score [ASPECTS] of 7/10 and significant penumbra more than 50%.

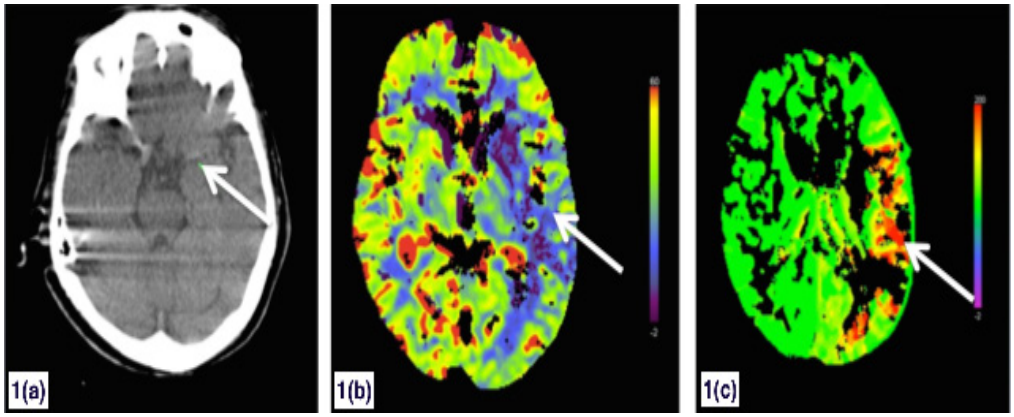

Figure 1: 1(a) Non-contrasted CT brain showing hyperdense MCA sign indicating presence of acute thrombus (arrow); 1(b) Brain CT perfusion showing a prominent delay in time to peak in left MCA territory (arrow); 1(c) Brain CT perfusion showing slight reduced of cerebral blood flow (CBF) in left lenticulostriate area (arrow).

In view of her recent MI and poor GCS score, she was subjected to mechanical thrombectomy as an alternative option for recanalization. Clot removal was successfully performed (CT angiogram pre and post thrombectomy are shown in figure 2) and reperfusion of the left-brain was obtained within 4 hours from the onset of the weakness.

Twenty-four hours post mechanical thrombectomy, her neurological status had improved to a motor power of 3/5 with full recovery of GCS level (NIHSS score of 10/42). Subsequently, she was discharged after 6 days of admission with NIHSS score of 6/42.

DISCUSSION

An organised stroke care system involving multidisciplinary teams favour good functional outcome from an AIS event (Jauch et al. 2013). This includes early recognition of acute stroke symptoms as well as early presentation to the ED. Early

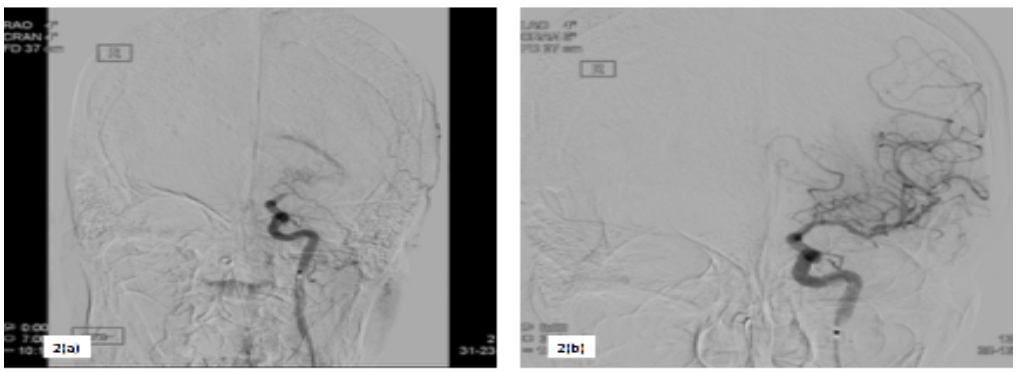

Figure 2: Brain CT angiogram; 2(a) pre-thrombectomy showing a truncated left MCA at M1 portion; 2(b) post-thrombectomy showing restoration of Left MCA flow.

transfer of stroke patient to a more comprehensive stroke center is crucial for appropriate alternative therapy in a patient contraindicated to conventional intravenous thrombolysis. The critical decision on the risk and benefit for thrombolytic therapy has to be made early; hence avoiding delay for other option in recanalisation therapy.

Concomitant occurrence of AIS with MI is rarely encountered in ED. Although recent MI in the previous 3 months is considered a relative contraindication for administration of intravenous thrombolytic therapy in AIS, it may constitute a major barrier in such patients. Acute ischaemic stroke patient with recent MI poses a risk for haemopericardium and life threatening tamponade after treatment with thrombolytic drugs (Kasner et al.1998).

Furthermore, there is evidence of increased risk for intracranial bleeding and in-hospital mortality in patients above the age of 70 years. In a large audit of more than 10000 AIS patients treated with thrombolysis, patients above 70 years of age had a reported 5.6% occurrence of post thrombolytic intracranial bleeding compared to 2.6% for those below 60 (Menon et al. 2012). Similarly the odd for in hospital mortality is three times higher in the same age group compared to patients below 50 (Heuschmann et al. 2004). Other consideration is the lower level of consciousness upon presentation that also significantly increases the risk of in-hospital mortality (Heuschmann et al. 2004). Hence taking this into consideration, mechanical thrombectomy seems to be a better option in this patient apart from the recent admission for MI.

Mechanical thrombectomy has been shown to improve functional outcomes for the most severe form of AIS. The probability of successful recanalisation in mechanical thrombectomy was double as compared to the standard therapy with intravenous thrombolysis (Rha & Saver 2007). In this patient, early presentation to hospital, early detection and immediate activation of the acute stroke clinical pathway with quick decision for mechanical thrombectomy really favour the outcome. The patient had a dramatic recovery within 24 hours of intervention that indicated the huge advantage of restoring blood flow as early as possible, as demonstrated in literature (Mazighi et al. 2012).

CONCLUSION

In conclusion, critical decision on the risk and benefit of intravenous thrombolysis in emergent patients with AIS should not delay the decision for definitive treatment. Mechanical thrombectomy should be considered as a viable therapeutic option, when available, for patients who are contraindicated or do not improve on treatment with intravenous thrombolysis.

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