RIGHT MIDDLE CEREBRAL ARTERY INTRACRANIAL STENT FOR INTRACRANIAL ATHEROSCLEROTIC DISEASE

E. Abdul Rahim[1*], M. N. Mohd Yaakob[1], M. F. A. K. Kamis[1], A. S. Muda[1], M. S. F. Md Noh[1]

[1]Department of Radiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

***Corresponding author:**
E. Abdul Rahim, Department of Radiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia. Telephone: +60397692519. Fax: +60389472585. Email: drezahar@gmail.com

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ABSTRACT:
The article briefly discusses the basis of why the intracranial stent was deployed during mechanical thrombectomy.

Keywords: Intracranial atherosclerotic disease, Middle cerebral artery intracranial stent.

NARRATIVE:

A 51years old Malay who had an acute stroke, the NIHSS score was 6. He had multiple transient ischemic attack for the past 6 month. Two months ago, he was hospitalized for similar acute stroke event and was successfully treated with alteplase. The patient was complete recovered. On examination the left upper limb power was 3/5 and the left lower limb power was 2/5. There is also loss of facial palsy and dysphasia. MRI showed right middle cerebral artery occlusion. Mechanical thrombectomy was performed immediately.

The cone-beam CT image showed (Figure 1) showed an intracranial stent (Solitaire AB, ev3 Inc, Plymouth) in the right middle cerebral artery that was deployed during mechanical thrombectomy.

The main aim of this image of interest is to briefly discuss the basis of why the intracranial stent was deployed during mechanical thrombectomy.

He came to our center within the thrombolysis and thrombectomy window for acute stroke treatment. However, the thrombolysis treatment was not given due to his previous stroke (2 months ago). The MRI showed total occlusion of the right middle cerebral artery, acute core infarction at the right corona radiata and MRI showed a significantly large area of hypoperfusion on MRI perfusion images. The only option left for treatment is mechanical thrombectomy.

The patient had total occlusion of the proximal middle cerebral artery as shown in the angiography image (Figure 2A). Mechanical thrombectomy was done using a stent retriever 4 mm × 20 cm (Solitaire AB, ev3 Inc, Plymouth).

Post mechanical thrombectomy showed persistent significant stenosis at the right M1 segment of the

middle cerebral artery (Figure 2B). We decided to deploy a stent because the arterial flow post stenosis is slightly delayed, and the patient has a large hypoperfusion area on MRI. Fortunately, we already using a stent retriever that can be detached. Solitaire AB is a self-expandable stent, that has enough radial support and one of the best things is the stent can be repeatedly delivered and withdrawn before its detachment. This is an advantage because the operator can position the stent into the desired location prior to its detachment. The stent is also safe to be deployed in stenoses in perforator-rich segments such as the M1 segment of MCA [1].

Post-stenting images showed the deployed stent placement in the M1 (Figure 3A) and its effect on the atherosclerotic plaque and arterial flow (Figure 3B and 3C). The recent literature suggested that intracranial stenting in an acute setting after a futile mechanical thrombectomy is effective and should be considered in a patient with a baseline NIHSS score of ≤9 [2].

STATEMENT OF ETHICS:

Informed consent was obtained from the patient for the publication of this work.

CONFLICTS OF INTEREST:

The authors have no potential conflicts of interest to disclose.

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DATA AVAILABILITY STATEMENTS:

Further information regarding the data used for this work can be obtained from the corresponding author upon reasonable request.

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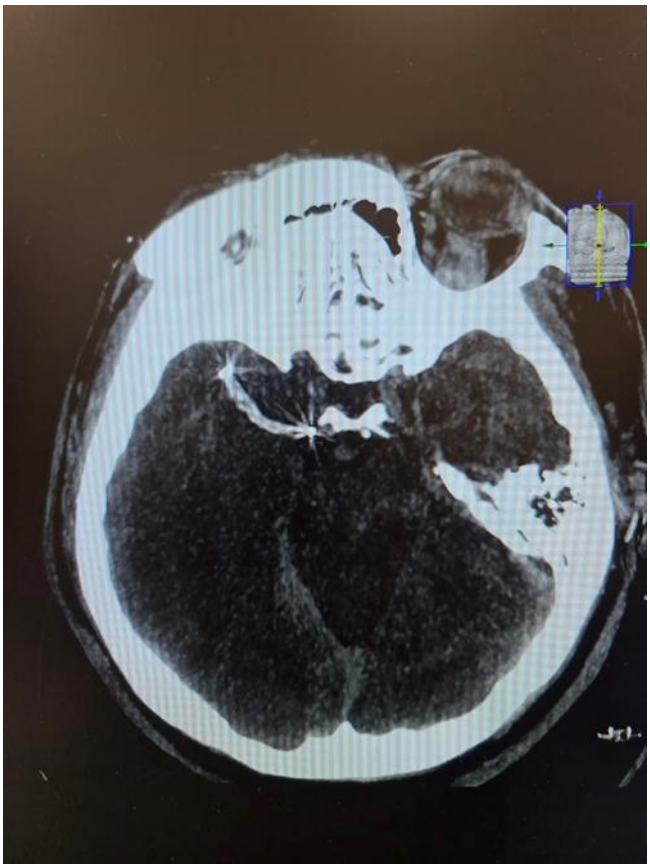

Figure 1: Intracranial stent in the right middle cerebral artery that was deployed during mechanical thrombectomy

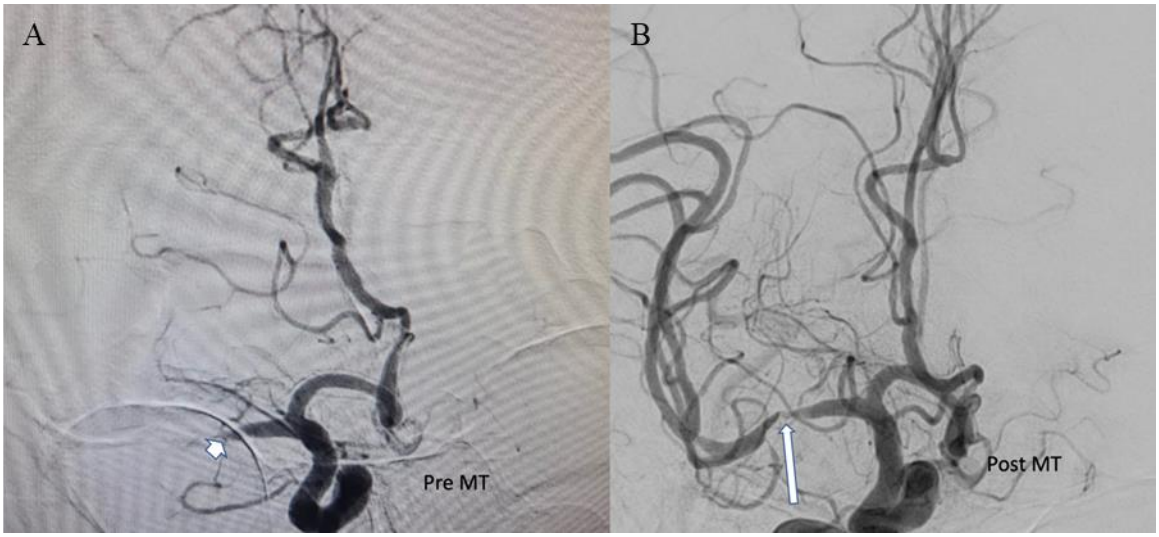

Figure 2: (A) Angiographic image in Anteroposterior view showed total occlusion of the right M1 prior to mechanical thrombectomy (short arrow) and (B) significant stenosis post mechanical thrombectomy (long arrow)

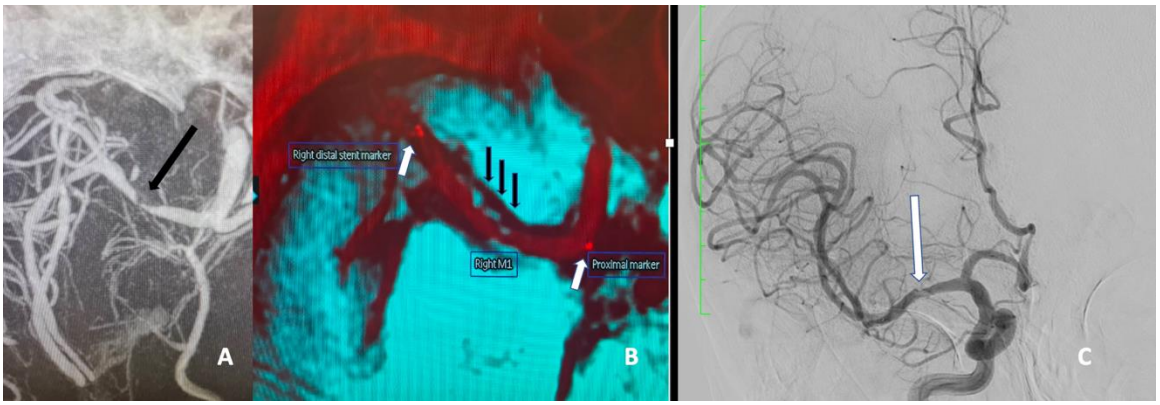

Figure 3: Smart CT Vaso image showed the site of intracranial atherosclerotic disease (long black arrow) (A). Fusion imaging MRI post gadolinium black blood with Intraarterial Smart CT Vaso image. The short white arrow showed the distal marker and proximal marker of Solitaire AB stent. The 3 short black arrows showed the atherosclerotic plaque appearance with stent in situ (B). Post intracranial M1 stenting angiographic image (image C) showed the area of atherosclerotic plaque after intracranial stenting (long white arrow).