INTRODUCTION

- Mechanical thrombectomy (MT) is an effective treatment for acute ischemic stroke with large vessels occlusion (LVO).[1]
- However, post-MT intracranial hemorrhage (ICH) remains a major complication requiring timely identification and management.[2]
- Multiple studies have shown a low presenting ASPECTS score, an elevated blood glucose, and the number of required stent retriever passes to be risk factors for post-MT ICH.[2,3]
- Intra-procedural contrast extravasation seen on digital subtraction angiography (DSA) is a rare phenomenon that has been previously reported to be related to worse outcome.[4]
- We are presenting a series of patients who experienced early signs of reperfusion ICH and subarachnoid (SAH) that correlated with intra-procedural contrast extravasation in the ischemic vascular territory.

METHODS

- Patients with contrast extravasation seen on intra-procedural angiography during mechanical thrombectomy for acute ischemic stroke with large vessel occlusion were retrospectively reviewed from our prospectively collected interventional database.
- Patient characteristics, presenting symptoms, stroke and vessel characteristics, use of intravenous tPA, radiological characteristics of intracerebral hemorrhage, and clinical status upon discharge were collected.
- Intra-procedural contrast extravasation was defined as a focus of contrast pooling that persisted after arterial and capillary phases and was not continuous with the adjacent blood vessels. ICH was confirmed by 24hrs post-MT CT scan classified using ECASS criteria.

RESULTS

- Between January 2017 and August 2019, five patients treated with mechanical thrombectomy for large vessel occlusion developed post-procedural intra-cerebral hemorrhage following intra-procedural angiography demonstrating contrast extravasation.

CONCLUSIONS

In this series of patients with active contrast extravasation during mechanical thrombectomy the prognosis was poor in four out of five cases (80%).

- Middle Cerebral Artery M2 segment occlusion that required distal device deployment, the use of anti-coagulation therapy and time from IV-tPA to catheter are factors that may be associated with intra-procedural contrast extravasation.
- Bailout maneuvers included blood pressure control and reversal of anticoagulation therapy.
- In these cases the vessel perforation was attributed to the embolization device or to wire perforation. Contrast extravasation not seen angiographically is mainly caused by reperfusion injury that is defined as blood brain barrier disruption following ischemic injury.[5]
- Early detection of hemorrhage post-MT is critical for rescue therapy like antithrombotic therapy reversal and blood pressure control.
- Intra-procedural contrast extravasation is a complication of MT that can precede life threatening hemorrhage. It should be identified early during the procedure to take urgent steps to control the underlying hemorrhage.

REFERENCES


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