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Case Report

Hyperacute intracranial aneurysm rebleed captured on planar and 3D digital subtraction angiography

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1. Introduction

Hyperacute rebleeding from aneurysmal subarachnoid hemorrhage is a serious event resulting in high morbidity and mortality [1]. This case study, with its planar and 3D spin angiographic images, emphasizes the importance of urgently securing an acutely ruptured aneurysm in order to prevent secondary rebleeding.

2. Case report

A 43-year-old female presented to a regional hospital an hour after onset of thunderclap headache at 7 am. She had no personal or family history of intracranial aneurysms. Computed tomography (CT) brain and CT intracranial angiogram performed at the regional center demonstrated a Fisher grade 3 subarachnoid hemorrhage, a moderate volume interhemispheric hematoma, and mild hydrocephalus. Blood pressure management was instituted and she was promptly transferred to our care at tertiary referral neurosurgical center for intervention for a suspected culprit aneurysm. Upon presentation to our center at midday, her Glasgow Coma Scale (GCS) was 13 (World Federation of Neurological Surgeons Scale (WFNS) grade 2) and the patient was immediately transferred to the neuroangiography suite. Prior to induction of gen-

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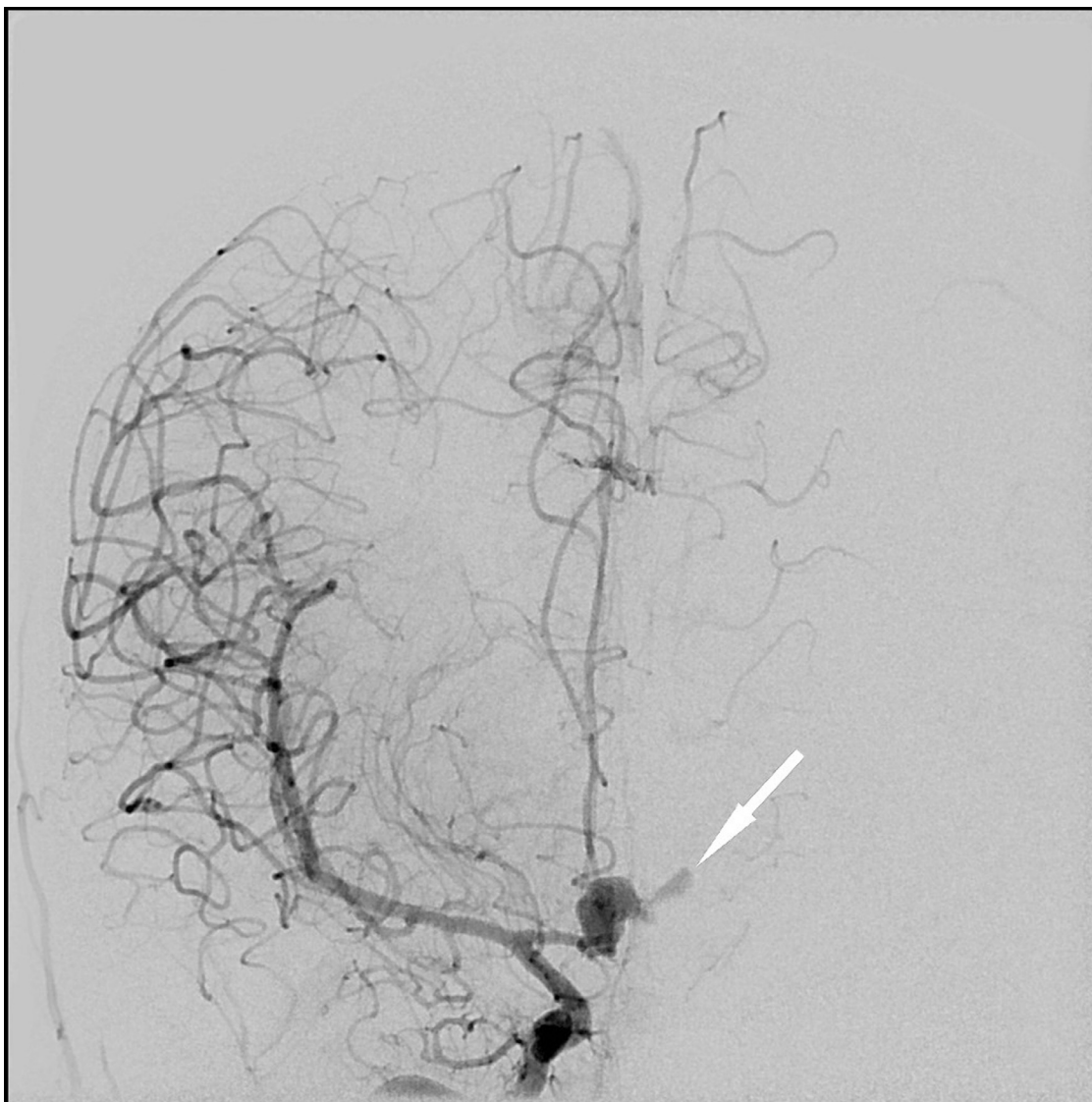


Fig. 1 – Coronal planar cerebral DSA image prior to coiling. The arrow indicates active contrast extravasation from an 11 × 5 × 5 mm anterior communicating artery aneurysm.

eral anesthetic, the patient's headache significantly worsened, which was followed by a loss of consciousness and onset of a generalized tonic-clonic seizure, her GCS dropping to 5 (WFNS grade 5).

Rapid sequence general anesthetic induction was performed followed by an on table cone beam CT which demonstrated enlargement of the interhemispheric hematoma. Access was made via the right Common Femoral Artery (CFA) with a 6.5 Fr catheter, with a 5 Fr catheter advanced into the right proximal cervical Internal Carotid Artery (ICA). Initial planar and 3D spin digital subtraction angiogram demonstrated brisk extravasation of contrast from a large 11 × 5 × 5 mm anterior communicating aneurysm with very early vasospasm affecting the Anterior Cerebral Artery (ACA) system (Figs. 1 and 2, Video 1).

Using a system of a 6 Fr Envoy guide catheter (Deputy Synthes, MA, USA), 017 Headway 17 microcatheter (Microvention,

CA, USA), 014 Traxcess microwire (Microvention, CA, USA), 4 mm × 7 mm Hyperform balloon (Medtronic, Dublin, Ireland), 7 Axium coils of various sizes (Medtronic, Dublin, Ireland), the aneurysm sac was packed with no distal embolization or branch occlusion with balloon assistance (Fig. 3). An unruptured left M1 middle cerebral artery aneurysm was additionally identified (Fig. 4). The right CFA accessed was closed with a 6 Fr Angioseal device at 4 pm.

Following endovascular coiling, the patient was transferred to theatre for extraventricular drain insertion by the on-call neurosurgical team. She was subsequently relocated to intensive care unit where she remained for 7 days. She underwent a total of four endovascular treatments for intracranial vasospasm; however, she eventually recovered and progressed to a rehabilitation facility a month following her original subarachnoid hemorrhage with mild cognitive but no focal neurological deficit. She underwent a repeat DSA and coiling of

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