Prolonged anterograde amnesia and disorientation after anterior communicating artery aneurysm coil embolisation

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DESCRIPTION
A 64-year-old man with a previous medical history of hypertension and non-specific focal seizures was admitted for treatment of recurrent anterior communicating artery aneurysm (ACoA). He had previous treatment of the ACoA twice but the aneurysm recanalised again and had grown in size from 1.8 cm in greatest dimension to 2.6 cm and associated with 6 x 7mm of residual filling (figure 1). He was retreated with stent-assisted coil embolisation.

The day after endovascular intervention, he was disoriented to time and situation, confused and inattentive. He was also agitated with pressured speech, unable to recognise his wife, exhibited intermittent expressive aphasia and poor short-term recall after 5 min. His inpatient medication was not contributory to his new-onset altered mental status, as he remained on his home medication of levetiracetam (750mg two times per day), metoprolol (50mg two times per day), methadone (50mg daily) and topical testosterone gel. Despite undergoing treatment for a urinary tract infection, poor mentation persisted, prompting brain MRI that revealed diffusion-restricted, punctate acute ischaemic foci in the fornix and the left frontal and bilateral parietal lobes (figure 2). Psychological evaluation 7 days into his hospital stay revealed a Montreal Cognitive Assessment score of 16/30 and severe anterograde amnesia with visual memory more preserved than verbal memory. His neurological exam otherwise remained benign. He was ultimately discharged shortly thereafter with minimal improvement.

Outpatient neuropsychiatric evaluation 1 month following endovascular revision revealed abnormalities with complex attention, executive function, and most significantly, anterograde amnesia. Subjectively, the patient described frequent memory loss of conversations, with visitors to his house, or where he had been recently. He completed an outpatient traumatic brain injury clinic cognitive behavioural therapy programme without the need for antipsychotic medication and demonstrated recovery of symptoms over the next few months with almost complete resolution after 9 months.

Amnesia after ACoA coiling is rarely described in prior literature.1 The fornix is supplied by medial central arteries that usually arise from the proximal anterior cerebral artery, but may also originate from the ACoA.2 The subcallosal artery, a major perforator branch off the posterior aspect of the ACoA, is the sole source of perfusion to the anterior columns of the fornix bilaterally.3 The risk of fornical stroke

Learning points
► Fornical stroke may result from subcallosal artery occlusion during anterior communicating aneurysm repair, resulting in severe persistent anterograde amnesia in patients undergoing this procedure.
► Anterograde amnesia resolution may take months; however, patients should be encouraged to participate in cognitive behavioural therapy programmes and to create a structured living environment to facilitate recovery.
must be weighed against the potential benefits conferred by endo-
vascular obliteration of wide-necked ACoA.

Occlusion or damage to these perforators leading to infarction of fornix and amnesia can occur after seemingly uneventful endo-
vascular treatment of ACoA. Injury to mammillary bodies, hippo-
campus and thalamic nuclei can also lead to amnesia; however, injury to these structures was not seen in our patient. Hence, fornix infarct was the most likely cause of amnesia in our patient.

It is important to recognise fornical infarction following ACoA coiling as a cause of amnesia postoperatively, as it can be misdiagnosed as delirium or acute stress reaction and lead to inappropriate medication administration. It is also important to counsel patients on reversibility and excellent prognosis with this complication, although the course may be prolonged.

Contributors TK conceived and directed the construction of this case report. HAS conducted the intervention and obtained the intraoperative images. TK and HAS interpreted the images and maintained direct patient care. ZA-A and BF designed and drafted the manuscript and figures. All authors discussed and edited the final and revised versions of the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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