

# Giant Post-Traumatic Pseudoaneurysm of The C7 Segment of ICA Treated with Multiple Coils: A Case Report

Muhammad Hafif, Affan Priyambodo Permana, Renindra Ananda Aman, Setyo Widi Nugroho

Department of Neurosurgery, Faculty of Medicine, Universitas Indonesia – dr. Cipto Mangunkusumo National General Hospital

## Purpose:

Traumatic intracranial pseudoaneurysms (TIPA) are rare, accounting for about 1% of all intracranial aneurysms, and have a mortality rate of 20% or higher. Trauma is the most common cause of pseudoaneurysms. The diagnosis of a TIPA may be difficult, clinical manifestations vary depending on the rupture status, location, and size of the intracranial pseudoaneurysm. Treatment options are challenging, due to the variety of causes of pseudoaneurysms. Management of intracranial pseudoaneurysms includes microsurgery, endovascular, and conservative treatment. If untreated, the mortality rate for patients with intracranial pseudoaneurysm can reach high up to 50% due to delayed rupture and disastrous bleeding. Therefore, early diagnosis and efficient treatment are mandatory.

## Methods:

Data were collected through medical and radiology report. Intraoperative documentations were conducted from Department of Neurosurgery, Faculty of Medicine, Universitas Indonesia – dr. Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia. The outpatient neurosurgery clinic record was used for follow up.

## Results:

Male, 14-years-old had a traffic accident, after the accident there was decrease of consciousness. The patient underwent decompressive craniectomy for hematoma evacuation due to subdural hematoma. One month after the accident, there were complaints of weakness in the right limbs and difficulty to speak, the head CT was performed with the result hydrocephalus and vascular lesion. Then patient underwent the second surgery, ventriculoperitoneal shunt and cranioplasty. Within one year after the accident, the patient had improved right limb strength and began to speak fluently. The patient was referred to our hospital, head CT angiography and DSA was performed with the result of giant traumatic pseudoaneurysm of communicating segment ICA (with dome 29.0 mm, neck 3.4 mm, height 19.4 mm) and left ECA-ICA anastomosis was also found. The patient was treated with endovascular coiling treatment, total of seven Optima coils are deployed into the pseudoaneurysm with post angiography showed the Class I of The Raymond–Roy Occlusion Classification. The patient was follow-up routinely in neurosurgery clinic and take angiography evaluation in one month and six months after coiling. There was no new neurological deficit. From the last angiography showed complete obliteration of the traumatic intracranial pseudoaneurysm with Class I of The Raymond–Roy Occlusion Classification.

## Conclusions:

The treatment options for traumatic intracranial pseudoaneurysm were challenging. With advancements in techniques and materials, endovascular treatment has become an alternative to surgery for the treatment of traumatic intracranial pseudoaneurysms. The endovascular technique used is determined by the location of the pseudoaneurysm, vascular anatomy, and the patient's clinical status. Coil packing of the pseudoaneurysm is an option for cases with a narrow neck pseudoaneurysm.