

# Ruptured of BAPA (Basilar artery perforator aneurysm)

almost mistaken for perimesencephalic SAH : a case  
presentation & review of the literature

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# Purpose

Basilar artery perforator aneurysm(BAPA) is a very rare case of intracranial aneurysms. Subarachnoid hemorrhage (SAH) originated from rupture of BAPA also very uncommon and may not be easily diagnosed because of these rarities.

For these reasons, the pathophysiology and treatment have not yet been accurately established, and the treatment plan is endovascular treatment (Stent-assisted coiling, flow diversion, trapping), surgical clipping or conservative care. <sup>[1],[2]</sup>

We performed a case of ruptured BAPA that was almost mistaken for non-aneurysmal perimesencephalic SAH in first Trans-femoral cerebral angiography(TFCA).

In addition to our case, we would like to introduce you to the diagnosis and treatment of BAPAs by introducing previously reported literatures.

# Methods

We retrospectively reviewed a case from our center and previously published literatures for ruptured BAPA. The case in our center is from a patient hospitalized from March 3, 2023 to March 23, 2023.

# Result

A 69-year-old male patient visited our hospital with severe headache, and SAH was diagnosed on Brain CT, which was Hunt and Hess grade III and Fisher Grade IV (Fig. 1). No aneurysm was found on the first catheter angiography (Fig 2), but BAPA was found on repeated examination (Fig 3).

According to the classification by Satti et al.<sup>[3]</sup>, it belonged to Classification III, and conservative treatment was performed.

Classification by Satti et al.<sup>[3]</sup>

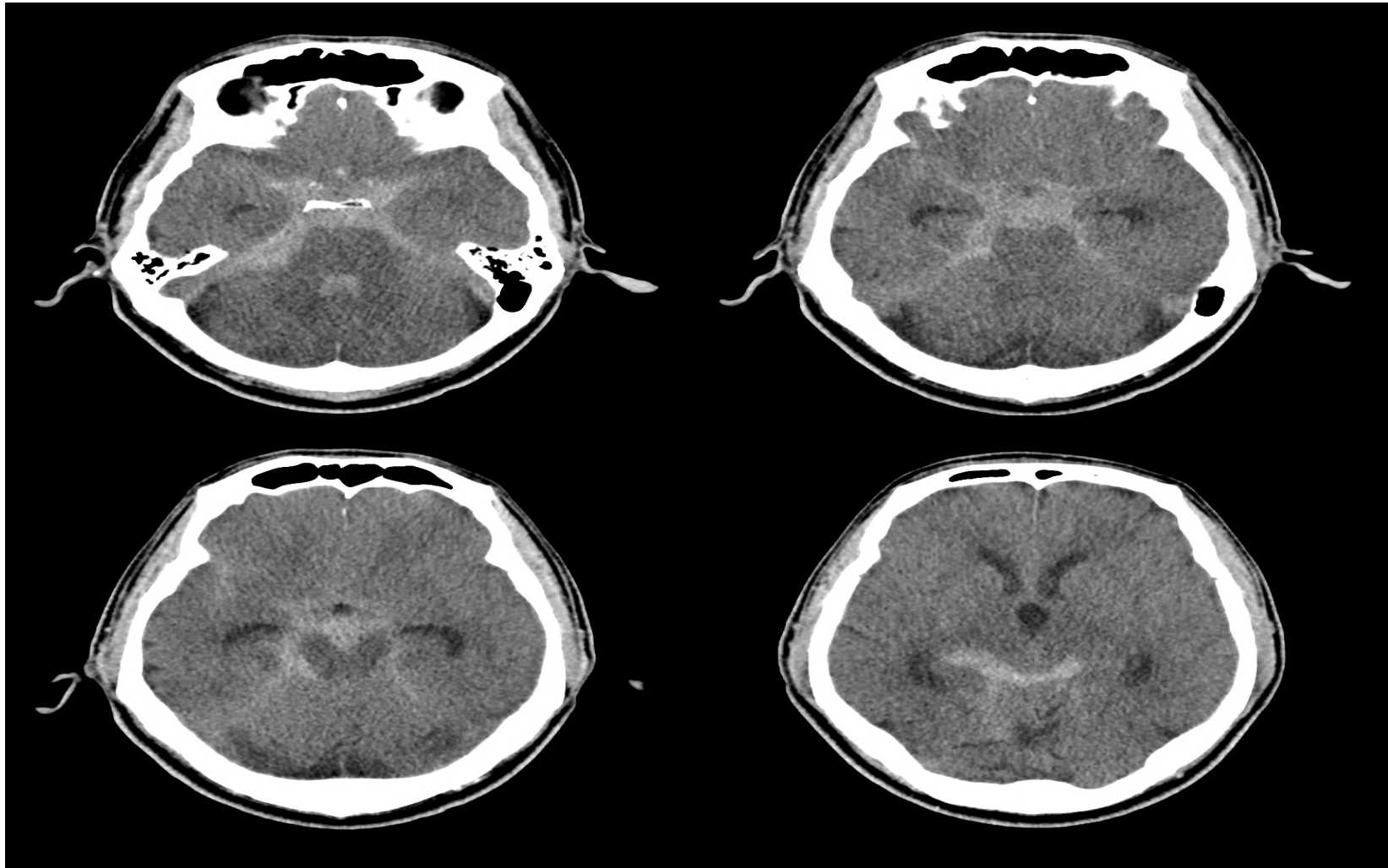
Type I : aneurysm arise from the basilar artery trunk adjacent to a perforating arterial branch but do not involve a perforating artery

Type IIa : aneurysms incorporating the origin of the perforating arteries

Type IIb : aneurysms having the perforating artery arise from the dome of the aneurysm

Type III : aneurysms are fusiform and arise beyond the parent vessel

There were side effects such as acute kidney injury and pleural effusion due to repeated contrast-enhanced examination, but no side effects such as re-bleeding and vasospasm due to aneurysm occurred. After 21 days of hospitalization, he was discharged without any specific neurological symptoms and is undergoing outpatient treatment.



**Fig. 1**  
Non-contrast CT of the brain demonstrated diffuse acute SAH (Fisher Grade IV) in whole cisterns, predominantly in right basal cistern and ambient cistern.



**Fig. 2**  
Through initial TFCA (Trans-femoral catheter angiography), no bleeding focus such as aneurysm was found.



**Fig. 3**  
BAPA was found on fu TFCA performed on the 4<sup>th</sup> day of hospitalization. Aneurysmal sac was located in the right perforator of basilar artery (near proximal part of the right SCA)

# Conclusion

BAPA is an uncommon cause of subarachnoid hemorrhage.

Diagnosis is not easy even with catheter angiography, and repeated tests must be performed.

The treatment of BAPAs has not been precisely established, and conservative treatment or endovascular treatment is the mainly chosen by surgeon. <sup>[1],[4]</sup>

In this case of ruptured BAPA, which is small and has no side effects like this case, conservative treatment can be prioritized based on several cases. <sup>[4],[5]</sup>

# Referenes

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