

Infracallosal Aneurysm Rupture Revealed by Chronic Subdural Hematoma: A Case Report

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Abstract

Chronic subdural hematoma (CSDH) is one of the most common entities seen in neurosurgery. We report a case of infracallosal aneurysm revealed by CSDH in a 52 years old woman. She presented 3 days alteration of consciousness in 2019 and repeated in September 2020 a severe headache and dizziness. There was no history of others symptoms, nor head trauma. Routine blood examination and coagulation profile were normal. Emergency computed tomography (TC) showed a left temporoparietal-occipital CSDH. Cerebral Angio CT found a bilobated of A₂ aneurysm. The precallosal inter-hemispheric approach was made and clipping the aneurysm after evacuation of CSDH without complication. CSDH is one of the revealed features of intracerebral aneurysm rupture.

Keywords

CSDH, Cerebral Hemorrhage, Infracallosal Aneurysm, SAH

1. Introduction

Chronic subdural hematoma (CSDH) is one of the most common entities seen in routine neurosurgical practice with relatively simple surgical evacuation [1]. CSDH can be associated with many others diseases such as Moya Moya disease, arachnoid cyst in children, and young adults and ruptured intracranial aneurysm [2] [3] [4]. This latter association is very rare in range from one to two percent and more frequently the middle cerebral artery aneurysm and the incidence range from 1% to 1.7% [5].

Subarachnoid hemorrhage (SAH) following evacuation of CSDH is a very rare entity, and only three cases have been reported in the English literature [6] [7]. Pseudo-SAH has been reported in patients with CSDH [8].

We report a very rare case of CSDH following a rupture of an infracallosal aneurysm.

2. Case Report

A 52 years old woman with a personal medical history of gastroduodenal ulcer since 6 years. She presented a generalized headache and alteration of consciousness for 3 days in February 2019. She had no CT scan at this moment and was improved with medical treatment. In September 2020 she presented again severe headache without lost consciousness associated to dizziness. There was no history of fever, vomiting, seizure nor head trauma. Her vital signs were stable and routine blood tool and coagulation profile were normal. She was hospitalized for 10 days and treated by intravenous antipaludic without improvement.

Emergency computed tomography was taken, and showed left fronto-temporo-parietal-occipital CSDH measuring 10 mm in maximum thickness and a midline shift of 8mm to the right side (Figure 1), and injection of contrast product showed clearly an anterior midline image (Figure 2).

The angio-computed tomography was taken that showed a bilobated A₂ aneurysm with the fundus size at about 14 mm and the collar 8 mm (Figure 3).

The management options including surgical clipping of aneurysm and hematoma evacuation were discussed in our team.

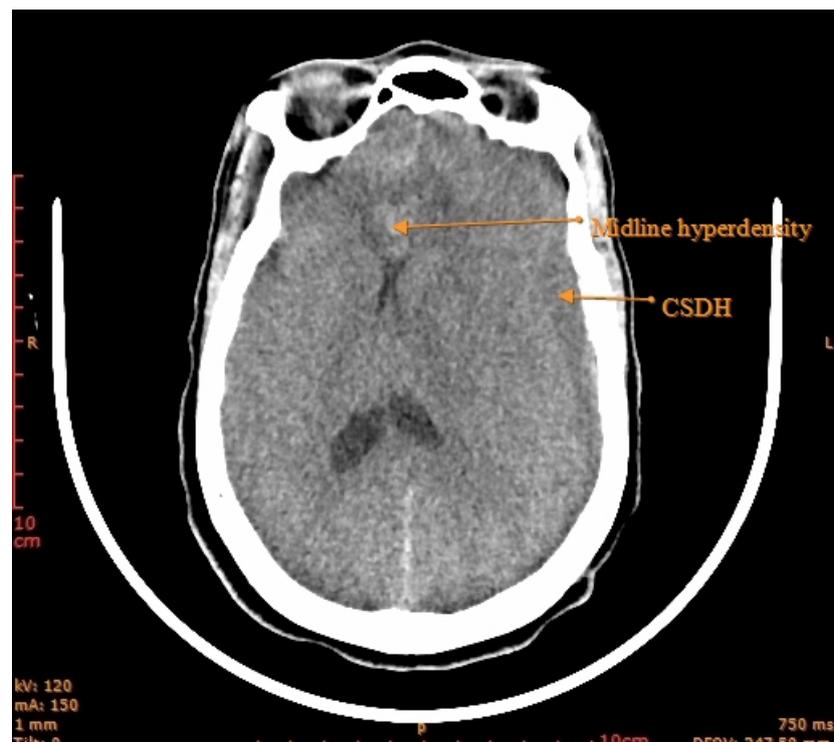


Figure 1. Preoperative computed tomography.



Figure 2. Computed tomography with injection.

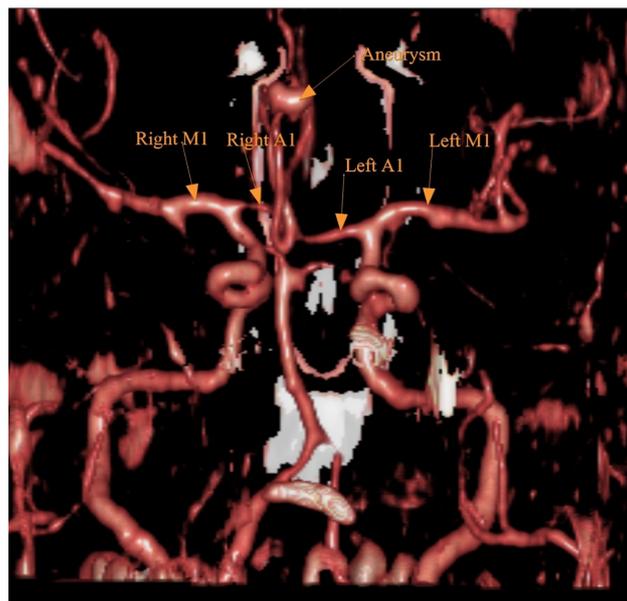


Figure 3. Cerebral Angio CT.

Under general anesthesia we made a 1 cm hole in the left parietal bone and evacuation of subdural collection by suction irrigation. After we put the patient's head at 0 degrees rotation fixed with Mayfield system. An 8-cm linear incision was made in a skin crease of the forehead on right frontal bone. Two entry burr holes were made adjacent to the superior sagittal sinus. The edge of the sagittal sinus was dissected from the bone. The bone flap (4 × 4 cm) was cut with a craniotome. The dura was opened to reflect over the sagittal sinus. Interhemispheric

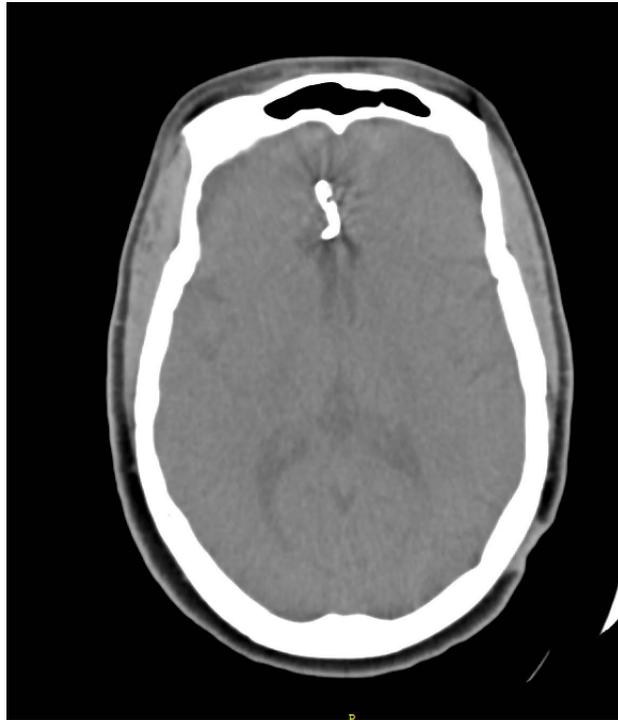


Figure 4. Postoperative CT scan.

dissection was made to expose the aneurysm and clipping without major incident. After the dura and the bone flap was habitually closed.

Post-surgery period was uneventful; the anesthesia was reversed and the patient was noted to be alert with no neurological deficit. There was no evidence of

Post-surgery complications on control CT scan. After one year follow up the patient has no symptoms and has a good evolution and doesn't take any medication (**Figure 4**).

3. Discussion

The most common cause of chronic subdural hematoma is a head trauma and is one of the most common neurosurgical conditions and is usually treated by simple burr-hole drainage [9]. The subdural hematoma can be also associated with aneurysm rupture in only 1% or 2% [5] [10]. This accumulation of blood could be directly through rupture of aneurysm in the subdural space [11] or indirect through tear in the arachnoid membrane because of intracerebral bleeding [12]. Chronic subdural hematoma associated to rupture of aneurysm is an emergency and can be treated by endovascular treatment safely [13] and in our case we treated efficacely by microsurgical technic. In some cases, the chronic subdural bleeding is associated with aneurysm in an arachnoid cystic cavity [3] and the frequent location are the middle cerebral artery aneurysm [4] [5] [10]. The infracallosal aneurysm association is very rare and we didn't find in the literature.

In the majority of cases, the aneurysm is diagnosed after hematoma evacua-

tion either subarachnoid [14] complication or acute subdural bleeding [11] [12]. SAH following evacuation of CSDH is a very rare complication, and three such cases have been reported [6] [7]. Of these, only two cases were associated with aneurysm-one was arising at the basilar apex [6] and the other one at the anterior communicating artery [7]. We suspected the diagnosis before the surgery on the basis of the CT scan that show a midline high-density but also high density in cortical subarachnoid space and confirmed that with angio-computed tomography. We have found a saccular infracallosal aneurysm of the right-side artery. High-density around the frontal low density on the CT scan and the high density on the falx suggest a new bleeding. We are not sure that it's not a co-existence aneurysm CSDH but, our patient has no past history of head trauma, no coagulation problem, no oral medication anticonceptive taking and deshidratation neither CSDH evacuation.

The most plausible explanation that we have is the recurrent bleeding from the aneurysm even if there is no arachnoid cyst.

The major complication of the infracallosal aneurysm surgery is disorientation and bladder incontinence [15] our patient didn't present these complications.

4. Conclusion

Intracerebral aneurysm rupture is the most common cause of spontaneous subarachnoid hemorrhage but in some cases such as ours, the chronic subdural hematoma associated with any spontaneous hyperdensity in the vessel trajectory is an indication of angio-computed tomography.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for his images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflicts of Interest

There are no conflicts of interest.

References

- [1] Das, J.M., Rajmohan, B.P., Sharmad, M.S. and Peethambaran, A. (2015) Incidental Diagnosis of Two Intracranial Aneurysms Following Surgical Evacuation of Chronic Subdural Hematoma. *Asian Journal of Neurosurgery*, **10**, 151-153.
- [2] Takeuchi, S., Nawashiro, H., Uozumi, Y., Otani, N., Osada, H., Wada, K., *et al.* (2014) Chronic Subdural Hematoma Associated with Moyamoya Disease. *Asian Journal of Neurosurgery*, **9**, 165-167.
- [3] Shrestha, R. and You, C. (2014) Spontaneous Chronic Subdural Hematoma Associated with Arachnoid Cyst in Children and Young Adults. *Asian Journal of Neu-*

- rosurgery*, **9**, 168-172.
- [4] Fatima, N., Al Sulaiti, G. and Al Rumaihi, G. (2019) Onyx Embolization of Distal Middle Cerebral Artery Aneurysm in a Patient with Nontraumatic Subdural Hematoma. *Asian Journal of Neurosurgery*, **14**, 915-918.
- [5] Lee, S.M., Park, H.S., Choi, J.H. and Huh, J.T. (2013) Ruptured Mycotic Aneurysm of the Distal Middle Cerebral Artery Manifesting as Subacute Subdural Hematoma. *Journal of Cerebrovascular and Endovascular Neurosurgery*, **15**, 235-240. <https://doi.org/10.7461/jcen.2013.15.3.235>
- [6] Stefani, R., Ghitti, F., Bergomi, R., Catenacci, E., Latronico, N. and Mortini, P. (2008) Uncommon Presentation of Ruptured Intracranial Aneurysm during Surgical Evacuation of Chronic Subdural Hematoma: Case Report. *Surgical Neurology*, **69**, 89-92. <https://doi.org/10.1016/j.surneu.2006.11.068>
- [7] Mishra, S.K., Prasad, M., Ghosh, I. and Bhattacharya, R.N. (2011) Incidental Aneurysmal Rupture during Burrhole Drainage for Chronic Subdural Hematoma. *Neurol India*, **59**, 308-309. <https://doi.org/10.4103/0028-3886.79167>
- [8] Ohno, S., Ikeda, Y., Onitsuka, T., Nakajima, S. and Haraoka, J. (2004) Bilateral Chronic Subdural Hematoma in a Young Adult Mimicking Subarachnoid Hemorrhage. *No To Shinkei Brain and Nerve*, **56**, 701-704.
- [9] Yadav, Y.R., Parihar, V., Namdev, H. and Bajaj, J. (2016) Chronic Subdural Hematoma. *Asian Journal of Neurosurgery*, **11**, 330-342.
- [10] Barami, K. and Ko, K. (1994) Ruptured Mycotic Aneurysm Presenting as an Intraparenchymal Hemorrhage and Nonadjacent Acute Subdural Hematoma, Case Report and Review of the Literature. *Surgical Neurology*, **41**, 290-293.
- [11] Mrfka, M., Pistracher, K., Augustin, M., Kurschel-Lackner, S. and Mokry, M. (2013) Acute Subdural Hematoma without Subarachnoid Hemorrhage or Intraparenchymal Hematoma Caused by Rupture of a Posterior Communicating Artery Aneurysm: Case Report and Review of the Literature. *Journal of Emergency Medicine*, **44**, e369-e373. <https://doi.org/10.1016/j.jemermed.2012.11.073>
- [12] Ishibashi, A., Yokokura, Y. and Sakamoto, M. (1997) Acute Subdural Hematoma without Subarachnoid Hemorrhage Due to Ruptured Intracranial Aneurysm—Case Report. *Neurologia medico-chirurgica*, **37**, 533-537. <https://doi.org/10.2176/nmc.37.533>
- [13] Lv, N., Zhou, Y., Yang, P., Li, Q., Zhao, R., Fang, Y., et al. (2016) Endovascular Treatment of Distal Middle Cerebral Artery Aneurysms: Report of Eight Cases and Literature Review. *Interventional Neuroradiology*, **22**, 12-17. <https://doi.org/10.1177/1591019915617317>
- [14] Shima, H., Shirokane, K., Baba, E. and Tsuchiya, A. and Nomura, M. (2019) Bilateral Chronic Subdural Hematoma Presenting with Pseudo-Subarachnoid Hemorrhage Sign on Computed Tomography. *Asian Journal of Neurosurgery*, **14**, 510-512.
- [15] Sugita, K. (1983) *Microneurosurgical Atlas*. Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 62 p.