Recurrent Subdural Hematoma Associated with Arachnoid Cyst: A Case Report

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Disclosure

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Introduction

- Chronic subdural hematomas (CSDH) are one of the most common neurosurgical conditions. Several factors have been associated with an increased risk of recurrence which include: thickness and density of the hematoma, sex of the patient, older age, comorbidities, and surgical approach.

- Arachnoid cysts (AC) have a reported prevalence of 1.4% among adults and have been associated to CSDH in young adults.

- The best approach to treat CSDH and arachnoid cysts is not well described, but current consensus among experts report a higher use of burr hole (BH) drainage as the first surgical option.
Case Presentation

- 41 year old male patient with a previous history of chronic subdural hematoma associated with a right temporal arachnoid cyst.

- He was treated with two burr holes (frontal and parietal) and placement of a parietal drain, which completely resolved the hematoma in the immediate postoperative period.

- The patient was discharged without any complications or signs of neurological deficits.
Initial imaging

Figure 1. Axial T2 MRI showing CSDH associated with a right temporal arachnoid cyst.

Figure 2. Axial Immediate Postop treated with BH showing complete resolution of CSDH.
The patient presented to the ER 17 days after discharge with an intense generalized headache in the absence of other associated symptoms.

Figure 3. Axial CT 17 days postop., showing possible SH associated with an AC.

Figure 4. CT 17 days postop., showing relapse of hematoma.
Case Presentation (Cont.)

-The patient was successfully treated with a right fronto-parieto-temporal craniotomy and drain, plus cortical membranectomy.

-The patient has remained without complications or signs of recurrence as of February 2020.

Figure 7.
Postop. CT showing complete resolution of SDH after craniectomy.
Discussion

There are different hypotheses to explain the mechanisms of development of CSDH in patients with an AC:

1) Flow changes within the cerebrospinal fluid could be magnified by the AC, leading to the rupture of vessels in the cyst wall.

2) The arachnoid cyst is less compliant than normal brain tissue, resulting in reduced intracranial cushioning following trauma.

3) The presence of small bridging vessels between the dura and outer membrane of the AC may be the source of initial bleeding.
Discussion

● The mechanisms of development of CSDH in patients with an AC, previously described, could also represent an additional risk factor for recurrence of SDH after conventional surgical management.

● The treatment of CSDH with craniotomy and membranectomy (CWM) is currently only used under conditions of subdural re-accumulation, solid hematomas, or following suboptimal postoperative cortical re-expansion.
Conclusion

Regardless of which of the many mechanisms causing a subdermal hematoma (SDH), the recurrence of SDH in the presence of an arachnoid cyst (AC) may be higher than without.

In order to prevent recurrence or chronicity of a subdermal hematoma, surgical management should be adjusted accordingly upon first presentation of SDH with an AC present.