

Commentary

Acute subdural hematoma (aSDH) resulting from rupture of an aneurysm was first reported by Hasse in 1855.^[1] The reported incidence in autopsy studies (10–22%) is higher than in clinical studies (0.5–1.6%), due to the high rate of mortality associated with this condition.^[1–3] In 2012,

Marbacher *et al.*^[3] summarized 200 published case reports to provide a comprehensive meta-analysis. In a comprehensive analysis of all published studies, Marbach specifically reviewed 20 published studies involving 82 patients and this by far is the most comprehensive summary

on this difficult clinical problem. The article by Ding and Bok of a case of mycotic aneurysm presenting with aSDH adds a different perspective to this unusual problem.^[4]

In almost all reported series of aSDH due to aneurysm, the most common site for aneurysm is the posterior communicating artery aneurysm, followed by middle cerebral artery aneurysm. Other less common sites include anterior communicating artery and internal carotid artery aneurysms. Patients with aSDH secondary to an aneurysm usually present in poor clinical grade with World Federation of Neurosurgical Societies (WFNS) Grade 4 and 5 patients accounting for nearly 74.4% of the patients.^[3,5] These patients are known to have a high incidence of associated comorbidities including cardiac arrhythmias and pulmonary edema which can prove fatal.

Different mechanisms have been proposed to explain the occurrence of aSDH due to ruptured aneurysms.^[1,6,7] It is believed that successive small bleeding episodes cause adhesion of the aneurysm to the adjacent arachnoid membrane, and the final rupture occurs into the subdural space. The other postulate is that a hemorrhage under high pressure may lead to pia-arachnoid rupture. Mycotic aneurysms are as a rule situated distally and it is reasonable to assume that such aneurysmal bleeds can produce subdural hemorrhages. However, mycotic aneurysmal bleeds more often than not manifest with intraparenchymal bleeds. The authors have done well to report this unusual presentation along with a brief summary of literature.

The initial management dilemma is in differentiating aneurysmal aSDH from a traumatic SDH. Patients are often brought to the emergency room in an unconscious state, and in the absence of a clear history, diagnosis becomes difficult. Computerized tomography (CT) scan will reveal the presence of an SDH and an associated subarachnoid hemorrhage (SAH) may or may not be seen. In the absence of an associated SAH, the diagnosis is extremely difficult although such cases of pure aSDH due to ruptured intracranial aneurysm are extremely rare. These patients pose real clinical challenge. The subsequent management dilemmas involve the decision to perform a diagnostic angiogram before craniotomy in poor-grade patients where the aSDH is seen to be causing significant mass effect. The alternative is to do a two-step procedure – Stage 1 craniotomy to evacuate the aSDH, followed by angiogram and securing the aneurysm either by coiling or by clipping. The concern in the latter option is the risk that craniotomy for draining the SDH could release the tamponade and could predispose the aneurysm to rupture again. The authors in the reference case performed an angiogram which led to the diagnosis of the mycotic aneurysm which in other instance would have been missed.^[4]

Clarke and Walton^[6] classified their patients into the three groups based on the amount of subdural clot and the clinical course: Group I – cases with a massive and rapidly fatal intracranial hemorrhage, Group II – cases with only an insignificant quantity of subdural blood, and Group III – cases with a clinically significant SDH which is not rapidly fatal. In Group II and III patients, where the level

of consciousness is not depressed (WFNS Grade 1–2), management may proceed in a standard manner with angiography and elective surgery with coiling/clipping. For Group I patients, one option is to perform an urgent CT angiography along with the initial CT scan followed by emergency surgery. The second option is to perform an intraoperative angiography and tackle both the aneurysm and the SDH in the same sitting, and the third option is to do a two-stage procedure as discussed earlier.

Outcome is uniformly poor in most case reports as the patients generally present in poor preoperative clinical grade.^[1-3,8] However, patients do well if they are taken up for emergency surgery including clot evacuation and aneurysm clipping.

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