Cerebellar hemorrhage surgery indications

- European Stroke Organisation (ESO) and European Association of Neurosurgical Societies (EANS) guideline on stroke due to spontaneous intracerebral haemorrhage
- Recovery of neurological complications following endovascular parent artery occlusion of ruptured a2 segment anterior inferior cerebellar artery aneurysm: a case report
- PP2A activation overcomes leptomeningeal dissemination in group 3 medulloblastoma
- Treatment response as surrogate to predict risk for disease progression in pediatric medulloblastoma with persistent magnetic resonance imaging lesions after first-line treatment
- The role of liver transplantation in COACH syndrome (Joubert syndrome with congenital hepatic fibrosis): A review of the literature
- Indications for surgical evacuation of cerebellar intracerebral hemorrhage: consensus guidelines from the French Society of Neurosurgery (SFNC) and the French Society of Vascular Neurology (SFNV)
- Comparison Between the Supracerebellar Infratentorial and Precuneal Interhemispheric, Transtentorial Approaches to the Cerebellomesencephalic Fissure: An Anatomoradiological Study and Illustrative Cases
- Clinical Efficacy of Endoscopic Infratentorial Supracerebellar Approach for Pineal Region Tumors: A Retrospective Case-Control Study

French Society of Neurosurgery (SFNC) and the French Society of Vascular Neurology (SFNV)

The writing committee comprised 9 members of the SFNV and the SFNC. Recommendations were established based on a literature review using the PICO questions. The American Heart Association (AHA) classification was used to define recommendation level. In case of insufficient evidence, expert opinions were provided.

Levels of evidence were low to moderate, precluding definitive recommendations. Based on available data, surgical hematoma evacuation is not recommended to improve functional outcome (Class III; Level B NR). However, based on subgroup analysis, surgical evacuation may be considered in strictly selected patients (Class IIb; Level C-EO): hematoma volume 15-25 cm3, GCS 6-10, and no oral anticoagulation or antiplatelet therapy. Moreover, surgical evacuation is recommended to decrease risk of death (Class IIa; Level B NR) in patients with a hematoma volume >15 cm3 and GCS score <10.

These guidelines were based on observational studies, limiting the level of evidence. However, except for strictly selected patients, surgical evacuation of cerebellar ICH was not associated with improved functional outcome, limiting indications. Data from RCTs are needed in this field [1)]

In 2014, the European Stroke Organization (ESO) stated that “There is insufficient evidence from randomized control trials (RCT) to make strong recommendations about how, when, and for whom surgical evacuation should be performed in adults with cerebellar ICH (quality of evidence: low, strength of recommendation: week)” [2)]

Surgical treatment of cerebellar ICH can be life-saving but often leads to a poor functional outcome. New studies are needed on long-term functional outcome after a cerebellar ICH [3].

Since the 1970s, there has been a wide mutual consensus in the neurological and neurosurgical community that cerebellar ICHs should be operated on. However, the scientific proof is mainly based on small retrospective series with conflicting results [4].

To relieve brainstem compression and hydrocephalus, surgeons tend to favor occipital craniectomy or occipital craniotomy with hematoma evacuation in patients with a declining level of consciousness [5]. Some regard this counterintuitive as long-term outcomes after surgical treatment of cerebellar ICH are generally pessimistic [6].

Since the report by Little et al., [7] the hematoma diameter has been considered a significant factor in the decision-making process for optimal treatment.

The criteria for surgery remain controversial, and many researchers have determined that a hematoma larger than 3 cm, obstruction of the quadrigeminal cistern, and compression of the fourth ventricle are surgical criteria [8] [9] [10].

Cohen et al. [11] used a maximal hematoma diameter greater than 3 cm as the surgical criterion, however, some patients with a hematoma larger than 3 cm who underwent conservative treatment had a good prognosis as well. In addition, a hematoma volume greater than 15 mL, being equivalent with a hematoma with a maximal diameter greater than 3 cm, has also been used as a criterion in some cases [12].

The criteria of Kobayashi et al., are as follows:

1) patients with Glasgow Coma Scale scores of 14 or 15 and with a hematoma of less than 40 mm in maximum diameter are treated conservatively

2) for the patients with Glasgow Coma Scale scores of 13 or less at admission or with a hematoma measuring 40 mm or more, hematoma evacuation with decompressive suboccipital craniectomy should be a treatment of choice

3) for the patient whose brain stem reflexes are entirely lost with flaccid tetraplegia or whose general condition is poor, intensive therapy is not indicated. The validity of these criteria was tested and confirmed in 49 cases [13].

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