Postoperative hemorrhage

- Outcomes of brainstem cavernous malformation resection, without and with use of a flexible omnidirectional carbon dioxide laser: a single-surgeon series of 277 surgical procedures
- Japanese Nationwide Questionnaire Survey on the Treatment and Management of Subarachnoid Hemorrhage Due to Ruptured Cerebral Aneurysm
- Management and outcomes for thoracic anterior spinal artery aneurysms: illustrative case
- Surgical treatment to resect giant intraspinal epidural cavernous hemangioma of Cobb syndrome: illustrative case
- Post-traumatic hydrocephalus after decompressive craniectomy: a multidimensional analysis of clinical, radiological, and surgical risk factors
- Risk factors for the development of hydrocephalus in traumatic brain injury: a systematic review and meta-analysis
- Sudden Neurologic Worsening
- Secondary Pituitary Abscess Inside a Macroadenoma Complicated by Postoperative Hemorrhage and Reinfection: A Case Report

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Postoperative hemorrhage in neurosurgery is a complication associated with significant morbidity and mortality.

see Postoperative intracranial hemorrhage

see Postoperative spinal epidural hematoma

Application of the topical matrix sealant at the end of Anterior cervical discectomy and fusion (ACDF) can significantly reduce the amount of postoperative hemorrhage [1].

Patients should be informed about the risks of such an event prior to surgery. From a practical point of view, it would be important to know when the patient is most likely to deteriorate and to require surgery because of a postoperative haematoma and when it might be safe to transfer the patient to the regular ward. The up-to-date studies regarding this topic are few.

Nittby et al undertook a retrospective study, including a cohort of all patients operated on at the Department of Neurosurgery in Lund during the years 2011-2014, with the aim to define the time windows for clinical deterioration and reoperation, and whether risk factors such as anticoagulant agents/antiplatelet therapy, emergency versus elective surgery and abnormal coagulation blood values were present. We also defined the type of surgery resulting in postoperative haematoma and tried to find the clinical state of the patients when they deteriorated, as well as the outcome at 3 months postoperatively.

During the time period from June 2011 to November 2014, a total of 7,055 surgical procedures of all kinds were registered at our department. By the search for the diagnosis codes AWE00 and AWD00 (reoperation for deep haemorrhage and for superficial haemorrhage respectively), we identified 93 reoperations, meaning a percentage of 1.3 %. Thirty-four of the reoperations were done within the first 24 h. Twenty-four patients were reoperated on >24 h but ≤72 h after the first operation. Only

four patients who were initially doing well postoperatively showed a delayed clinical deterioration within the time frame from >6 h and ≤24 h postoperatively. This means that 0.06 % of the patients who were operated upon were doing well initially, being completely awake and with no new neurological deficit and no deterioration within the first 6 h postoperatively, and then deteriorated from a postoperative haematoma within the time frame of >6 h and ≤24 h postoperatively.

They could conclude that no exact time window distinguished very early from somewhat later postoperative haematomas.However, all but two patients deteriorating between 6 and 24 h after the operation had at least one of the following risk factors defined for post-operative haematoma: meningioma surgery, anticoagulant agents/antiplatelet therapy prior to surgery (including Dalteparin [Fragmin®], Enoxaparinnatrium [Klexane®], Warfarin [Waran®], ASA [Trombyl®] or ASA and caffeine [Treo®]), emergency operation, posterior fossa surgery or chronic subdural haematoma in a patient with a shunt. This material is too small to make any definitive conclusions, but a suggestion could be to include these factors when considering the transfer of a patient from the postoperative intensive care unit to the regular ward [2].

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Li QY, Lee O, Han HS, Kim GU, Lee CK, Kang SS, Lee MH, Cho HG, Kim HJ, Yeom JS. Efficacy of a Topical Gelatin-Thrombin Matrix Sealant in Reducing Postoperative Drainage Following Anterior Cervical Discectomy and Fusion. Asian Spine J. 2015 Dec;9(6):909-15. doi: 10.4184/asj.2015.9.6.909. Epub 2015 Dec 8. PubMed PMID: 26713124; PubMed Central PMCID: PMC4686397.
2)
Nittby HR, Maltese A, Ståhl N. Early postoperative haematomas in neurosurgery. Acta Neurochir (Wien). 2016 May;158(5):837-46. doi: 10.1007/s00701-016-2778-4. Epub 2016 Mar 28. PubMed PMID: 27020442.