

Evaluating the safety and efficacy of semi-synthetic dural substitutes in cranial surgery: a combined retrospective and prospective study [Abstract]

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data.

Methods: For the most recent cases of 100 CEA cases (average 74.9, M/F: 78/22), preoperative tASL, intraoperative stump pressure, MEP/SEP and postoperative neurological findings were evaluated.

Results: In the case of the perfusion area by tASL on the operation side was wide, the stump pressure at blockade was low, then MEP abnormality appeared at a blockade. The tASL might show collateral circulation. But the degree of development of circle of Willis involved the stump pressure. The dominant perfusion area and stump pressure were correlated according to the degree of development of Acom, ipsilateral Pcom, A1, and ipsilateral P1. The stump pressure decreased in the order of ipsilateral P1 aplasia, Acom aplasia and ipsilateral Pcom aplasia, and contralateral A1 aplasia.

Conclusions: Preoperative tASL in addition to examining the degree of development of collateral circulation before surgery was useful as it helped to predict ischemia during internal carotid artery blockade noninvasively.

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252

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Evaluating the Safety and Efficacy of Semi-Synthetic Dural Substitutes in Cranial Surgery: A Combined Retrospective and Prospective Study

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Oral e-Poster Presentations - Booth 4: Emerging Technologies & Innovation 1, Research, October 16, 2024, 12:40 PM - 2:10 PM

Background: Dural closure is a pivotal yet often overlooked step in cranial surgery, with complications such as cerebrospinal fluid (CSF) leakage posing significant risks. This retrospective study focuses on assessing the efficacy and safety of semi-synthetic dural replacements, addressing a gap in literature and practice regarding dural closure techniques, especially in surgeries of the posterior cranial fossa.

Methods: The retrospective component of the study, conducted from December 2022 to March 2023, involved 30 patients who underwent neurosurgical procedures with semi-synthetic dural replacements at the University Hospital Augsburg. The study aimed to evaluate immediate and short-term postoperative outcomes, particularly monitoring for CSF leakage, infection, and inflammation within a 30-day post-surgery follow-up period.

Results: The analysis included 43% female patients with an average age of 63.2 years, undergoing procedures for both benign and malignant conditions. Notably, no adverse events, including CSF leakage, were observed intraoperatively or during the 30-day follow-up. Postoperative MRI scans conducted within 72 hours post-surgery revealed no signs of inflammation, and humoral inflammatory parameters remained within normal ranges throughout the study duration.

Conclusions: The retrospective analysis supports the safety and efficacy of semi-synthetic dural replacements in cranial surgery, with no recorded instances of CSF leakage or adverse inflammatory responses. These findings highlight the potential of semi-synthetic materials in improving dural closure outcomes, warranting further research in this area.

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99

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OLIF (Oblique Lumbar Interbody Fusion) For Revision Surgery And Indirect Decompression

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Oral e-Poster Presentations - Booth 2: Spine 1 (Degenerative), Spine 2 (Degenerative), October 16, 2024, 12:40 PM - 2:10 PM

Background: Clinical outcome of indirect decompression for a revision surgery, at the same level of a previous lumbar decompression, has not been reported. The purpose of this study was to investigate the efficacy of oblique lateral interbody fusion (OLIF) in revision surgery after decompression for degenerative lumbar spinal disease.

Methods: We included 72 patients who were preoperatively diagnosed with a recurrence of canal stenosis, foraminal stenosis, or intervertebral instability at

the same level of a prior lumbar decompression. These patients underwent OLIF with supplemental pedicle screw fixation without additional posterior decompression. All patients completed a minimum 1-year follow-up. We compared the cross-sectional area (CSA) of the thecal sac on magnetic resonance imaging as well as clinical outcome scores (ODI and VAS score) preoperatively and at the final follow-up. Fusion status, intervertebral foramen width and disc height/angle were evaluated based on computed tomography scans.

Results: The CSA expanded from 136.4 ± 57.9 mm² preoperatively to 194.1 ± 58.6 mm² at the final follow-up (mean: 27.4 months; $P < 0.001$). Clinical symptoms significantly improved (59.0% improvement rate of ODI and VAS score) at the average of a 17.1-month follow-up. The fusion rate was 93.0%. The disc height was restored (preoperative: 5.7 mm; postoperative: 8.3 mm; $P < 0.001$), and foraminal stenosis significantly improved postoperatively. There were no major vascular/ureteral injuries.

Conclusions: OLIF at the same level of a prior lumbar decompression provided a successful indirect decompressive effect, including expansion of the thecal sac, restoration of disc height, and subsequent improvement of foraminal stenosis. Specifically, this procedure can prevent incidental durotomy and nerve root injury, which may occur in conventional revision surgeries for direct posterior fusion.

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787

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Afferent and efferent fiber systems of the human amygdaloid body: Anatomical, pathophysiological and clinical significance

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Oral e-Poster Presentations - Booth 4: Emerging Technologies & Innovation 1, Research, October 16, 2024, 12:40 PM - 2:10 PM

Background: The amygdaloid body, also known as the amygdaloid nuclear complex or amygdala, is a collection of multiple interconnected diencephalic grey matter nuclei and is in turn a part of the larger limbic nuclear complex. Important commissural, and projection fibers are interconnected with the amygdaloid body.

Methods: In this study, we investigated the afferent and efferent fiber pathways of the amygdaloid body with white matter fiber dissection and diffusion tensor tractography technique. Functional and clinical syndromes associated with these fiber pathways were also reviewed in this study.

Results: Ansa peduncularis, ansa lenticularis, stria terminalis, and stria medullaris thalami are main amygdalofugal pathways. In this study we showcase these fiber pathways via white matter fiber dissection technique and diffusion tensor tractography. Functional roles and clinical significance of these pathways are also reviewed.

Conclusions: Comprehensive neuroanatomical knowledge of the amygdaloid body and its afferent and efferent pathways will avoid iatrogenic damage to these delicate structures.

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269

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New Microsurgical Techniques for Refractory Vertebrobasilar Insufficiency Addressing V1 Segment of Vertebral Artery's External Compressions and Dolichoarteriopathies

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Oral e-Poster Presentations - Booth 1: Vascular 5, October 16, 2024, 12:40 PM - 2:10 PM

Background: This retrospective study aimed to investigate the clinical outcomes of new microsurgical approaches for the V1 segment of vertebral artery (VA), addressing the external compressions and dolichoarteriopathies such as kinks