Dural closure

Water-tight dural closure is imperative after neurosurgical procedures because inadequately treated leakage of cerebrospinal fluid (CSF) can have serious consequences.

Types

A variety of techniques for dural closure have been described, employing natural and artificial materials.

Water-tight dural closure.

Water-tight with additional muscle patch/ not Water-tight with small or large defect (>1 cm) remaining).

<html><iframe width="560" height="315" src="https://www.youtube.com/embed/TtFwE3pl6CE" frameborder="0" allow="accelerometer; autoplay; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe></html>

When such a task cannot be performed, dural substitute and other adjunctive measures can provide an effective barrier between the subarachnoid compartment and the extradural space.

A novel technique for dural reconstruction involves soft tissue grafts in the form of fibrous or fibromuscular flaps, which are placed on the dural defects to seal the gaps. These soft tissue grafts represent an appropriate scaffold for cell ingrowth and fibrosis, thus preventing CSF. In a pilot study, Velnar and Gradisink described the application of soft tissue grafts for dural reconstruction in 10 patients who underwent convexity meningioma surgery [1].

Dural substitute

see Dural substitute.

Dural sealant

see Dural sealant.

Inlay-onlay dural repair technique

Inlay-onlay dural repair technique

1)
Velnar T, Gradisnik L. Soft tissue grafts for dural reconstruction after meningioma surgery. Bosn J Basic Med Sci. 2019 Mar 11. doi: 10.17305/bjbms.2019.3949. [Epub ahead of print] PubMed PMID:

30877836.