Delayed cerebrospinal fluid leak after watertight dural closure with a polyethylene glycol hydrogel dural sealant in posterior fossa surgery: Case report.

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Abstract:

A polyethylene glycol (PEG) hydrogel sealant recently has been approved as an adjunct to sutured dural closure in Japan. We treated consecutive six patients with PEG hydrogel sealant in posterior fossa operation. Three of six cases suffered delayed cerebrospinal fluid (CSF) leak after watertight dural closure with the PEG hydrogel sealant, although there was no leak case which was treated with fibrin glue, before 2 years until the adoption of the new material. These patients underwent posterior fossa craniotomy and discharged without remarkable CSF leak. The pseudomeningocele under the occipital wound caused the CSF leak occurr from 5th to 7th week postoperatively. All CSF leak cases needed surgical repair. At the repair, the PEG hydrogel was liquefied and almost absorbed. A fistula on the closure line and a dead space after the absorption of the PEG hydrogel was observed. When the absorbable PEG hydrogel sealant plugs in small gaps of sutured dura, its properties to prevent adhesion might suppress healing process of dural closure, so that CSF could leak through the gaps and collect as a pseudomeningocele in the dead space after absorption of the PEG hydrogel. In posterior fossa surgery a PEG hydrogel sealant should be applied when dural edges are closed tightly without any gaps.