

ADHESIVE SEALANT BIOMATERIALS

Clinical Series

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Radiological follow-up after use of TissuePatchDural™ for closure of the Dura following resective brain surgery

Object

This report summarises the radiological follow-up of four patients who underwent intradural resective procedures. All patients were followed up regularly during the postoperative course for up to three months after surgery.

Surgical procedure

In all patients, primary suturing of the dura was not sufficient to achieve water tight closure. For all cases, multiple small cerebrospinal fluid (CSF) leaks persisted along the suture line.

Treatment with TissuePatchDural

For each patient, a 50 × 50 mm piece of TissuePatchDural (TD-02) was cut to shape and applied as per the instructions for use. The operation site was dried prior to placement of the device. The material conformed easily to the contours of the underlying soft dural structures. Intraoperative inspection revealed a fast and effective sealing of the dura following use of TissuePatchDural.

Postoperative course

All patients recovered well without any postoperative complications. Wound healing was uncomplicated. No clinical CSF collection was detected. All patients were seen for regular follow-up visits. Cranial thin layer MRIs have been analyzed also for aspects of biocompatibility of the TissuePatchDural. The brain and its surrounding structures displayed no irregularities.

Patient 1: Selective amygdalohippocampectomy for mesial temporal lobe epilepsy.

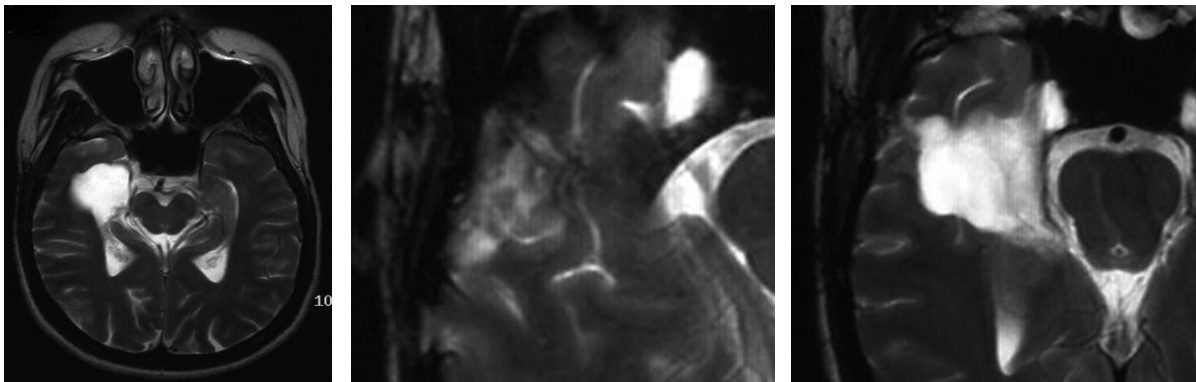


Figure 1: Postoperative axial MRI and magnified images showing dural structures

Patient 2: Extended lesionectomy for a focal cortical dysplasia causing epilepsy.

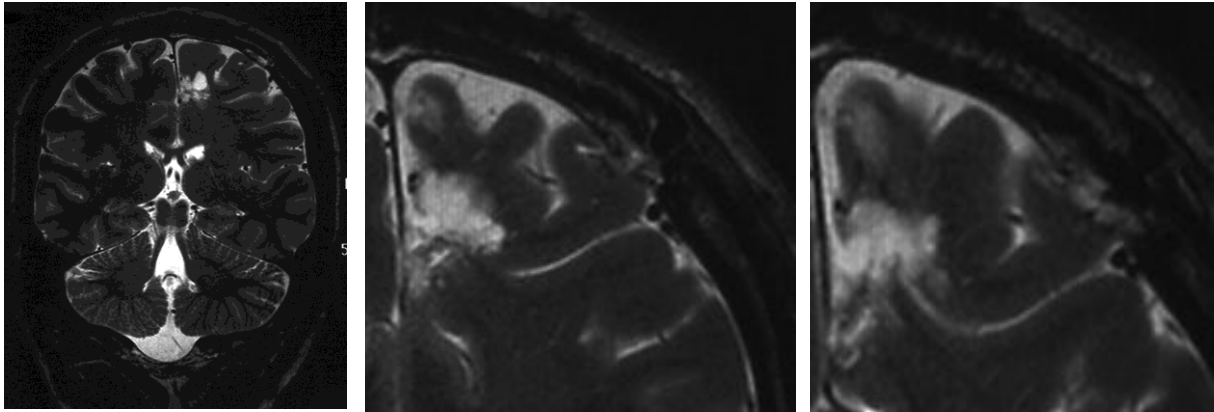


Figure 2: Postoperative axial MRI and magnified images showing dural structures

Patient 3: Frontotemporobasal meningeoma.

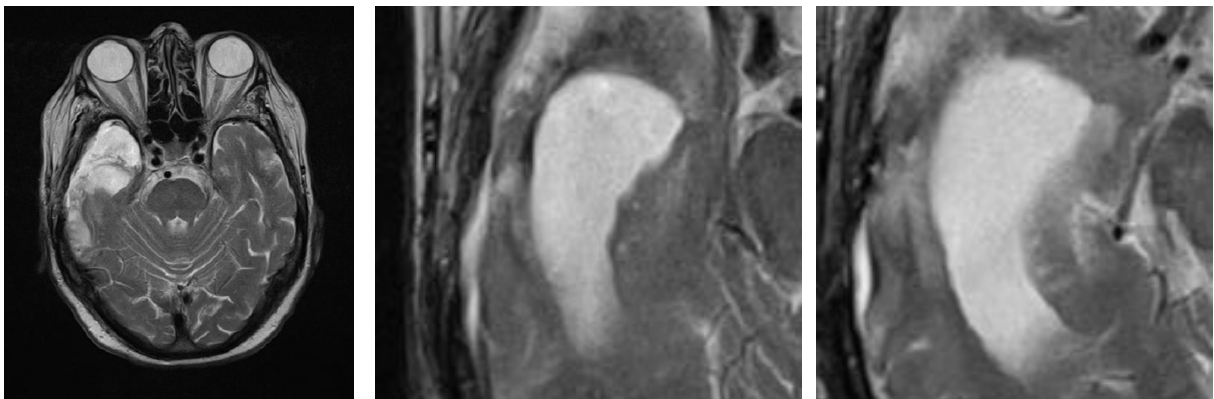


Figure 3: Postoperative axial MRI and magnified images showing dural structures

Patient 4: Lesionectomy for a brainstem cerebral cavernous malformation.

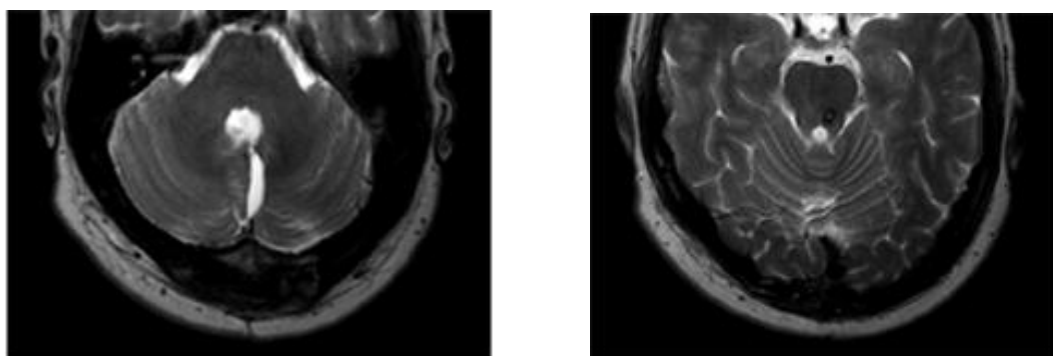


Figure 4: Postoperative axial MRI

Summary

The use of TissuePatchDural provides safe and effective water-tight closure of the dura. Clinically, the material displayed good biocompatibility. The material does not disturb wound healing, nor in our experience does it cause any clinically significant foreign body reaction. Postoperative imaging disclosed subclinical CSF collections. Furthermore, there were no features that could be identified as TissuePatchDural.