Reinforcement of pericranium as a dural substitute by fibrin sealant.

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Abstract:

Background: For dural plasty, several kinds of substitute materials are used clinically. Among these materials, pericranium is often used as a dural substitute since it is autologous and easy to harvest. However, it is rather thin and fragile, which makes it difficult to suture onto peripheral dura mater, especially when the defect is large. Objective: We present a simple method of reinforcing the pericranium with fibrin sealant, which facilitates easier handling and suturing of the pericranium. Methods: Fifteen patients who underwent surgical removal of meningioma, metastatic brain tumor and glioma attached to the dura mater were included in this analysis. To close the defects, we use 'fibrin-sealed pericranium'. Herein we describe the method we employed in these cases. First, a standard skin flap is made by dissecting the subgaleal layer, leaving the periosteum on the bone. Second, fibrin sealant is evenly applied to the pericranium. Finally, the pericranium is cut along the reinforced area and dissected from the bone. The harvested pericranium is then used for closure of the dural defect. Some of these patients received further treatment as needed according to each pathology. The fibrin-sealed pericranium was examined histopathologically. Results: Fibrin-sealing of pericranium made it durable enough to be handled and sutured easily. There were no significant complications or treatment failures, such as infection or CSF leakage. Conclusions: Reinforcement of the pericranium with fibrin sealant is a simple and easy method to reduce the stress of dural plasty.