Complex reconstructive surgery following removal of extra-intracranial meningiomas, including the use of autologous fibrin glue and a pedicled muscle flap.

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Abstract:

Background: Skull reconstructive surgery is critical to prevent cerebrospinal fluid (CSF) fistulas and infections, and to ensure good aesthetic results in meningiomas surgery.

Methods: A 65-year-old woman was surgically treated for a bilateral parasagittal meningioma with complete superior sagittal sinus (SSS) involvement, and an intra-extracranial extension, determining a significant cranial defect at the vertex. A Simpson I resection was achieved. Postoperatively a considerable and not conservatively repairable CSF leak was detected. Surgical revision of the wound with repair of the fistula and complex reconstructive operation was performed including a combination of techniques and devices such as autologous fibrin glue and reparation of the extracranial planes by an autologous vascularized vastus lateralis pedicled muscle flap.

Results: No postoperative complications, infections or new neurological deficits were detected, and the CSF leak definitively ceased after surgery; the aesthetic results were satisfactory.

Conclusions: Reparation of CSF fistulas that arise after meningioma surgery can require a complex reconstructive surgery of the superficial layers; when cranioplasty is not feasible or indicated, a meticulous reconstruction of the extracranial soft tissues is possible also by using vascularized autologous distal muscular tissue, with close interdisciplinary cooperation.