Omental-cranial transposition

Doron et al. reported on a new technique to bypass the blood-brain barrier after re-resection and potentially to allow tumor antigens to be surveilled by the immune system. The study aims to assess the feasibility of performing a cranial transposition and revascularization of autologous omentum after the re-resection of glioblastoma multiforme. The laparoscopically harvested omental free flap was transposed to the resection cavity by a team consisting of neurosurgeons, otolaryngologists, and general surgeons. This was done as part of a single-center, single-arm, open-label, phase I study. Autologous abdominal omental tissue was harvested laparoscopically on its vascularized pedicle in 2 patients, transposed as a free flap, revascularized using an external carotid artery, and carefully laid into the tumor resection cavity. Patients did well postoperatively returning to baseline activities. Graft viability was confirmed by cerebral angiogram. Omental cranial transposition of a laparoscopically harvested, vascularized flap, into the cavity of re-resected Glioblastoma patients is feasible and safe in the short term. Further studies are needed to ascertain whether such technology can improve progression-free survival and overall survival in these patients ¹⁾.

The pedicled omentum can be lengthened as needed by dividing it between the vascular arcades. It is transposed to the brain via skip incisions. The flap can be trimmed or stretched to cover ischemic areas of the brain. The cranial exposure is performed in parallel with pediatric surgeons. We performed this technique in 3 pediatric patients with moyamoya disease (aged 5-12 years) with previous superficial temporal artery to middle cerebral artery bypasses and progressive ischemic symptoms. In 1 patient, we transposed omentum to both hemispheres.

Results: Blood loss ranged from 75 to 250 mL. After surgery, patients immediately tolerated a diet and were discharged in 3 to 5 days. The ischemic symptoms of all 3 children resolved within 3 months postoperatively. Magnetic resonance imaging at 1 year showed improved perfusion and no new infarcts. Angiography showed excellent revascularization of targeted areas and patency of the donor gastroepiploic artery.

Conclusion: Laparoscopic omental harvest for cranial-omental transposition can be performed efficiently and safely. Patients with moyamoya disease appear to tolerate this technique much better than laparotomy. With this method, we can achieve excellent angiographic revascularization and resolution of ischemic symptoms $^{2)}$

1)

Doron O, Chen T, Wong T, Tucker A, Costantino P, Andrews R, Langer DJ, Boockvar J. Cranial transposition and revascularization of autologous omentum: a novel surgical technique for resection of Glioblastoma recurrence multiforme. Neurosurg Rev. 2022 Mar 24. doi: 10.1007/s10143-022-01767-7. Epub ahead of print. PMID: 35325296.

Navarro R, Chao K, Gooderham PA, Bruzoni M, Dutta S, Steinberg GK. Less invasive pedicled omentalcranial transposition in pediatric patients with moyamoya disease and failed prior revascularization. Neurosurgery. 2014 Mar;10 Suppl 1:1-14. doi: 10.1227/NEU.000000000000119. PMID: 23921707. From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

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