improved their situations such as size decrease, vesicle disappearance, or prevent following functional loss. Only one case increased vesicles on the surgical site. No complications such as allergy reactions, lymphorrhea, functional loss, surgical site infections or post-operative bleeding were observed.

CONCLUSION: We applied ICG and modified LVA for mLm patients and found they are effective. This flow oriented surgical strategy with ICG and LVA for LM was very unique. To our best knowledge, this is the first report that shows the effectiveness of ICG and of LVA on LM.

mLM were considered that related to the obstruction of lymph flow proximally. Conventional surgeries were limited, so this surgical strategy could be a break-through for this challenging disease. And also ICG and LVA could spread their indications to a new field.

The limitation of this study was the short time follow-up period after the surgery, so more cases should be indicated.

Postoperative Hematoma in Microvascular Reconstruction of the Head and Neck

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INTRODUCTION: Free tissue transfer has become a safe and reliable means for repairing soft tissue and bony defects of the head and neck. Although success rates for free flaps in the head and neck are high, at around 97 to 98%, the incidence of postoperative complications is also relatively high. One significant complication is postoperative hematoma formation. However, few published studies have addressed its incidence, etiology, or outcome. Therefore, we carried out a retrospective analysis to investigate this issue.

METHODS: A 3-year review of 288 patients with 293 consecutive microvascular free tissue transfers to head and neck defects at Taipei Veterans General Hospital for the period January 2013 to December 2015 was conducted. Patients with postoperative hematoma were identified via chart review. Demographic data, perioperative conditions, medications and outcomes were evaluated.

RESULTS: Thirty-four patients (11.8%) developed postoperative hematoma. Compared with the patients without hematoma, these patients had higher wound infection rates (34.3% VS 19.7%, p = 0.049), longer hospital stay (28.9±24.0 VS 21.6±15.3 days, p = 0.04) and needed more secondary procedures (1.89±1.35 VS 0.94±1.38, p <0.001). Lower platelet count and the use of non-steroidal anti-inflammatory drugs (NSAIDs) are associated with higher incidence of hematoma formation (p = 0.04 and p < 0.001), but age, flap types, drain types, radiation and post-operative blood pressure have no significant associations. Among the 34 patients with hematoma, 18 had flap compromise and underwent emergent re-exploration. Sixteen patients were salvaged while 2 patients had flap failure. After flap salvage, the final flap failure rate of hematoma patients was similar to the others. (5.7% VS 4.7%, p = 0.68).

CONCLUSION: Postoperative hematoma in head and neck microvascular reconstruction is not uncommon and may lead to poor outcome and more complications. The avoidance of NSAIDs preoperatively may prevent hematoma formation. Surgeons should be alert to this situation with prompt recognition and intervention that a high salvage rate can be achieved.

Microvascular Composite Reconstruction of the Skull and Scalp: Assessment of Treatment Options

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INTRODUCTION: Microvascular reconstruction of the scalp and skull is difficult for numerous reasons. Composite defects require careful consideration of both soft tissue and bony reconstructive
options. The ideal construct would restore the structure of the native scalp and skull, while minimizing the risk of trauma and infection. The optimal way to achieve these goals remains undetermined.

METHODS: A retrospective chart review was performed at a tertiary academic medical center for all patients who underwent microvascular surgery of the scalp from July 2011 through December 2016. Reconstructions were evaluated by type of flap utilized (myofascial, myocutaneous, fasciocutaneous, or osteocutaneous) as well as type of cranial reconstruction performed (titanium implant, polyetheretherketone (PEEK) implant, split calvarial graft, or vascularized bone). Fisher’s exact test was used for statistical analysis to compare outcomes between each category of flap and each type of cranial reconstruction.

RESULTS: Forty microvascular reconstructions performed in 36 patients were identified during this time. Thirty-two reconstructions included composite scalp and cranial bone or skull base defects. Microvascular flaps used included: myofascial/myocutaneous (n=12), fasciocutaneous (n=10), and osteocutaneous (n=10). No significant differences existed in flap survival or reconstructive outcome based upon type of flap selected for soft tissue coverage. Cranial reconstruction was either autologous (n=15), including vascularized bone grafts (n=10), split calvarial bone grafts (n=4) and banked cranial bone (n=1), or alloplastic (n=13), including titanium (n=6) and PEEK (n=7) cranioplasties. Ten of the 15 (66%) autologous reconstructions and 10 of 13 (77%) alloplastic reconstructions underwent preoperative radiation. Of the radiated patients, 1 of 10 (10%) autologous reconstructions sustained flap or graft complications. In comparison, flap/implant related complications occurred in 5 of 10 (50%) alloplastic cranioplasties (p=0.05). Alloplastic complications occurred in 5 of 6 (83.3%) patients reconstructed with titanium implants compared to 0 of 7 (0%) of PEEK reconstructions (p=0.0006). All reconstructions were salvaged, with 2 of the titanium cranioplasties requiring conversion to PEEK. Only one complication (partial flap loss) occurred in the non-irradiated patients, secondary to post-operative hematoma.

CONCLUSION: Composite reconstruction of the skull and scalp is a difficult problem encountered by the microvascular surgeon. In our experience, complete autologous reconstruction is preferable and demonstrated fewer complications than alloplastic reconstruction.

Intraoperative Location of the Greater Occipital Nerve in Patients Undergoing Migraine Surgery

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PURPOSE: Migraine headaches are debilitating and widely prevalent. Newer treatment options for migraines include onabotulinum toxin A injections and migraine surgery. The greater occipital nerve (GON) is a common trigger point. For optimal results, both injection and decompression require knowledge of GON anatomy, and the average depth of this nerve has not been previously described. The purpose of this study was to report the intraoperative location, including depth, of the GON in human subjects undergoing migraine surgery to optimize future nerve identification.

METHODS: We reviewed records of patients who underwent GON decompression by a single surgeon. Intraoperative measurement of the GON location in the x-, y-, and z-axes (e.g. distance, in millimeters (mm) lateral to midline, inferior to the occipital protuberance, and deep to the skin) was collected for two previously described positions: where the GON (a) exits (“point #3”) and (b) enters (“point #2”) the semispinalis muscle. Means were compared using independent t-tests. A p-value of < 0.05 was deemed statistically significant.

RESULTS: Thirty-four subjects (60 nerves) were included, with a mean age of 41 years (SD 10) and mean BMI of 29 (SD 7) at time of surgery. The mean depths of the GON were 20 mm (SD 4) where the nerve exits the semispinalis at point #3 and 30 mm (SD 6) at point #2. In 26 subjects who underwent bilateral surgery, there was no difference between right and left nerve depth at either point (p=0.720, p=0.534).