willing to have some procedure again in order to meet their goals (12%). None had any serious complication such as death, necrotizing fasciitis, massive bleeding, permanent nerve damage or significant necrosis. Significant scar was not an issue in none of the patients.

CONCLUSION: The results achieved with this series of patients indicate that facelift under continued treatment with anticoagulants is a safe, predictable, and effective treatment for aging face, and we recommend considering it to all experience surgeons.

Lateral Brow Lift in Forehead Lift: Doubled Angled Percutaneous Sutures (Pulley traction)

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**GOALS/PURPOSE:** One of the major challenges on facial rejuvenation is the position of the eyebrows and its relationship with the forehead. Suspension alone won’t bring the desired effect and balance with the entire face. Doubled angled percutaneous sutures enables surgeons better control brows position. The purpose is to describe the doubled angled percutaneous sutures as a pulley traction for lateral brow lifting on facial rejuvenation Methods/technique: A total of 463 patients underwent the doubled angled percutaneous pulley traction in combination with blepharoplasty and cervical-facial lifting. Patients were analyzed by comparison between pre and post-operative pictures of one year, and the results interpreted by a visual analog scale sent for three different plastic surgeons, not involved on the surgical procedure.

**RESULTS/COMPLICATIONS:** By picture comparison all the three surgeons considered the one-year post-op very effective or effective in 98% of the operated cases. The only complication was the extrusion threads in 8 patients in the frontal area.

**CONCLUSION:** Lateral brow lift with doubled angled percutaneous sutures as a “pulley traction” demonstrated a very effective procedure for lateral brow lift when analyzed by different surgeons, and should be considered as an easy reproducible technique for facial rejuvenation

The Direct Brow Lift with Periosteal Fixation

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**PURPOSE:** Although it is possible to make visible scars, direct brow lift is often performed because of the easy, quick, effective procedure and minimal morbidity when compared to other surgical approaches. However, as one grows older descent of the eyebrows is caused by stretching of forehead soft tissue, so this surgery always has a possibility of recurrence. The periosteal fixation was performed only in limited areas of some facial palsy patients due to the risk of nerve damage. Thus, we introduced the periosteum fixation by slit incision technique for the lasting elevation of eyebrow, while minimizing the risk of complications.

**METHODS AND MATERIALS:** After measuring the resection amount and design on the sitting position, an incision was made along the superior border of the eyebrow as design under the supine position with local anesthesia using 2% lidocaine and 1:100,000 dilution of epinephrine. The skin strip and subcutaneous were excised avoiding going to the orbicularis muscle with secure bleeding control. Then, the periosteum is exposed through blunt dissection in three slit opening from the muscle in the lateral two third of brow, middle, and medial regions of eyebrow taking into consideration the course of the superficial and deep branch of the supraorbital nerve and supraorbital nerve foramen. And then, we confirmed the periosteum and aponeurosis layers and checked no visible nerve on site. The dermo-subcutaneous to periosteal suture fixation were made with gently avoiding tissue severance using non-absorbable suture. During the operation we adjust symmetry and aesthetical point on the sitting position. The skin and subcutaneous suture was done and light compressive dressing was made without drain.

**RESULTS:** From April 2010 to November 2017, 20 cases patient was carried out the operation. The mean follow up period was 6 months (range one to thirty six
months). This group of patients consisted of 3 men and 17 women with an average age of 62 (range thirty-four to eighty years old). The elevation of brow was well maintained during follow up and most of the patients were satisfied. Only a small number of patients underwent transient postoperative paresthesia, although this symptom was spontaneously diminished over the following 2 months.

CONCLUSION: This surgical method was confirmed to be a reliable method for treating brow ptosis without significant complication. This technique was excellent and long-lasting result compared to typical direct brow lift without sequela about supraorbital nerve injury.

Three-Dimensional CT Validation of Supraperiosteal Temple Volumization with Hyaluronic Acid Filler Techniques

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INTRODUCTION: Temporal hollowing is one of the earliest signs of facial aging. Fat and fillers are an effective method to treat the volume loss; however, the resultant anatomical location of filler is incompletely understood.1,2 The purpose of this study is to assess topographic changes of temple contour, and examine the final anatomical plane of hyaluronic acid (HA) gel injected into the anterior temporal fossa of cadaver specimens, using a previously published “One Up, and One Over” technique, as well as derivative techniques.3,4

METHODS: The study was composed of 2 groups of 4 hemifacial cadavers. For group 1, iodinated contrast material was added to dyed HA gel mixture, and injected in a “One Up, and One Over” technique. 10cc of iodinated contrast was injected into each common carotid artery. Following injection, a CT scan was performed to evaluate the location of the filler. Three-dimensional reconstructions of the CT scan were performed with Slicer 4.8, a free access program available for DICOM file manipulation.5 For group 2, the HA mixture was injected in specific locations, using “Two Up, and One Over” and “One-and-a-Half Up, and One Over” from the junction of the temporal crest and lateral orbital rim. All specimens were then dissected in a layered fashion to directly visualize relationships between the injected filler and temporal anatomy. Topographic surface changes were assessed by pre- and post-injection 3-D photography.

RESULTS: In group 1, CT scan imaging and dissection localized the HA gel to the deep and infra-temporal spaces. The filler tracked in a previously undescribed areolar layer along the anterior surface of the temporalis muscle toward the infra-temporal fossa. In group 2, filler diffusion was observed to create a clefting of the muscle fibers, but did not track through any apparent areolar plane, photographs of which are presented.

CONCLUSION: This study provides a greater understanding of the location of HA gel after deep injection within the temporal hollow. In group 1, volumes in excess of 0.5cc likely do not result in any additional changes in surface topography, as filler migrates inferiorly into the deep temporal space, hidden behind the zygomatic arch. Our findings indicate that in the previously described “One Up, and One Over” technique, temporal HA filler works primarily by displacement rather than diffusion to effect surface topographical changes. Injections placed at least 0.5 cm more cephalo-posterior effect more localized volume changes.

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