lifting of the edge of the lower eyelid on all along. Production of such spacers is usually done on manufacturing sites, but also it can be manufactured in a clinic space.

RESULTS: The application of the proposed method is quite effective: the edge of the lower eyelid strengthens, rises cranially to the required level, its sagging and scleral lumen is eliminated.

CONCLUSION: The 2-year experience of using of the bridge-like thread spacers in 22 patients showed that this technique is quite effective to obtain desired aesthetic and therapeutic results. In some cases, it can quite effectively replace the classical methods.

Case Series of Minimal Invasive Tanongsak Technique for Reduction Malarplasty in 411 Patients

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BACKGROUND: Southeast Asian women prefer oval shape facial contour. To achieve this goal, there are a lot of procedures to reshape the facial skeleton. Reduction malarplasty is a common operation. Although multiple technique have been developed for reduction malarplasty. This study presents a new less invasive TANONGSAK technique for reduction malarplasty.

METHODS: Between January 2015 and December 2017, we applied TANONGSAK technique for reduction malarplasty inconsecutive 411 patients. TANONGSAK technique was performed by only one surgeon and all 411 patients have same procedure. Technique was performed by osteotomy site at zygomatic arch with 12 mm in length preauricular incision and at zygomatic body with 25 mm in length intraoral incision by a reciprocating saw. Out site-in Closed reduction was performed to reposition of malar bone complex. Internal fixation was not required.

RESULTS: The patients were followed up for 5 to 183 days postoperatively (mean 33.3 days). 97.8% of patients (402 patients) had satisfactory aesthetic results. The facial contour reduction was accomplished 0.1%-13.79% (mean 2.46%) in size reduction by photograph measured. The operative time in most case was less than 60 minutes (mean 41 minutes, 20-90 minutes). The mean hospital stay was 1.06 day (1–2 day) and patients required recovery period 2–14 days (mean 8.7 days). 8% of patients developed temporary inferior orbital nerve injury. 1% of patients developed delay union of zygomatic arch. No facial nerve injury and no any other postoperative complications.

CONCLUSION: Minimal invasive TANONGSAK technique reduction malarplasty is a preferable technique. This technique provides multiple advantages, including simple manipulation, less invasive, short incision, no internal fixation, good stability, achieved aesthetic results, short operative and recovery time, and less complications.

Precision Rhinoplasty Using Virtual Surgical Planning and Departmentally-Manufactured, 3D-Printed, Sterilizable, Patient-Specific Anatomic Models

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GOALS/PURPOSE: Rhinoplasty relies on clear patient communication and precise execution of a three-dimensional (3D) plan to achieve optimal results. 3D printing is becoming more popularized in the medical field as an aid to technical planning, patient communication, and the performance of this challenging operation. The current price of an individual set of commercial 3D-printed guides or models may reach upwards of several thousand dollars and is often prohibitive to the patient. We have developed an affordable, reproducible protocol for rapid in-house virtual surgical planning and subsequent manufacture of 3D-printed rhinoplasty models using departmentally-available resources.

METHODS/TECHNIQUES: 3D digital photographic images (3dMD, Atlanta, GA) of a patient’s face are taken and converted to steralithography (.stl) files. The images are uploaded to a freely available 3D imaging platform, BlenderTM (Version 2.78, Amsterdam, The Netherlands). Utilizing functions available within Blender, we perform
virtual rhinoplasty for each patient including: lowering the dorsum, straightening the upper and middle vault, infracture, medialization of the alar base, columellar lengthening/straightening, superior rotation of the depressed lower lateral cartilage, tip refinement, and alteration of nasal tip rotation/projection. Completed surgical models are comprised of a facial moulage defined by the superior border of the eyebrows, the inferior border of the mandible and the lateral border of each orbit. The 3D reconstructions from before and after virtual surgery planning are manufactured in-house by a departmentally-owned 3D printer (Ultimaker 3+ Extended) and white polyactic acid (PLA) filament (Batch #: 15099905). Upon completion, these models are sterilized according to a low temperature protocol (121°C for 60 minutes followed by 30 minutes dry cycle) set forth by the manufacturer and brought into the operating room, where they are available to the surgeon throughout the procedure.

RESULTS/COMPLICATIONS: Twelve patients have undergone rhinoplasty using virtual surgical planning and departmentally manufactured, sterilizable, patient-specific 3D printed models of preoperative and planned “postoperative” facial/nasal appearance. Four patients underwent cosmetic rhinoplasty, five underwent correction of cleft nasal deformity, and three underwent rhinoplasty to correct nasal deviation associated with trauma. Digital models were available to the surgeon preoperatively for review of treatment plan with the patient and confirmation of operative approach. Each target model required 4 hours average of digital preparation/sculpting time. Manufacturing averaged 22 hours of 3D printing time. Approximately 60 grams of PLA are used in the production of each model, and the materials cost of each pair of pre- and post-operative models was $4.00.

CONCLUSION: We present a protocol for virtual surgical planning and in-house manufacturing of sterilizable, scaled, patient-specific, 3D printed rhinoplasty models which can be affordably reproduced within other academic centers to assist in patient education, preoperative planning, and technical execution of this procedure.

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Changing Nasal Tip Projection Via Purposeful Manipulation of the Medial Crura: A Surgical Experience with Resecting the “Unresectable”

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GOALS/PURPOSE: A belief exists that dissection and resection of the medial crura should be discouraged to avoid compromise of the tip support. We believe that judicious resection of the columellar portion of the medial crura can be an effective and predictable technique to control or reduce tip projection. This is pertinent in cases of tip overprojection, increased columellar show, or intraoperative findings of significantly buckled medial crura, where this technique allows for greater precision in controlling tip projection. Concern for loss of tip support can be obviated by buttressing the resulting structure with a columellar strut graft. We describe the routine use of dissection and resection of medial crura by the senior author (TAM) and present a brief review of the results.

METHODS/TECHNIQUE:

METHODS: A single institution, retrospective review of all consecutive patients who underwent rhinoplasty with resection of the medial crura by the senior author (TAM) during a single year was conducted.

TECHNIQUE: All rhinoplasties were performed using an open technique. After conservative lateral crura resection in most cases, the nose is opened using a combination of blunt and sharp sub-mucoperichondrial dissection. Septoplasty is performed via a hemitransfixion incision, followed by dorsal rasping. The medial crura are dissected from the soft tissue envelope and the tip is shaped with a routine cephalic trim of the lateral crura and any dome suture maneuvers necessary. The projection of the tip is assessed and the