



Deviated Nose: Partial Lateral Osteotomies in a New Preservation Rhinoplasty Concept

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Abstract

Background: A deviated nose continues to be a problem to solve in Rhinoplasty. Various techniques were presented as a possible solution of this aesthetic and functional nasal deformation. In the light of current trend of preservation of structures and function, a modification of osteotomies was presented.

Goals: The goal of this paper is to present partial lateral osteotomies surgical technique performed with piezo-electric instruments.

Methods and Results: Partial and incomplete osteotomies were introduced as method to avoid disinsertion of nasal pyramid of glabellar area and to avoid bony step in areas of osteotomy cut. Rhinosculpture in its extended mode was promoted for modulation of bony structure with obtaining immediate aesthetic and structural results, minor a surgical trauma.

Conclusion: An incomplete oblique transverse, lateral and intermediate osteotomies, facilitates the "slide-down" positioning of the bone edges, without the need of bone disinsertion in glabellar region.

Keywords: Preservation Rhinoplasty; Partial Osteotomies; Rhinosculpture; Dorsal Preservation Rhinoplasty

Introduction

Nasal deformities, as deviated/crooked nose or high rhinion-nasion deformities as seen in posttraumatic nose with multiple irregularities, frequently with wide bridge, are still challenging entities in Rhinoplasty [1-4]. There are a variety of procedures that can be applied in solving those problems [1-6].

Most common tools are osteotomies that can be performed in different directions (lateral, median, oblique or medium-oblique, transverse or intermediate) [7-9]. The approach to perform the osteotomy can be internal (guided or not), external by percutaneous perforations (by 2-3 mm osteotomes) and, lately, by ultrasonic piezo-electric instruments [10-14]. All of them inevitably give a "step" or irregularities on the cutting edge [16].

External percutaneous approach is quite less traumatic to underlying mucosal, preserves the periosteal connection and reduces the damage of soft tissue envelope [17-19]. The use of small osteotomes facilitates the oblique bone cut (instead of being perpendicular to bony surface) providing a smoother transition between the bony edges [7].

The oblique cut in "Let-Down" or "Push-Down" technique in the concept of preservation rhinoplasty, reintroduced and popularized by Saban, is preventing the "step" by "sliding down" effect [20]. Ultrasonic Piezo-electric instruments are supposed to be less traumatic and more precise, especially under direct vision control by open approach, without lesions of the skin, underlying mucosa, perichondrium or periosteum [12-15,21,22]. For patient's point of view, it offers significantly diminished/or absence of bruising, faster healing of the bone without of the effect of "floating" nose and lower risk of secondary corrective surgery of irregularities [23].

With the currently available piezo-electric instruments, the oblique cut is not easy to perform, even though some authors manage to perform it, so, the common deformity still is a "step" [24]. The "step" is even more evident in transverse complete osteotomies, as performed by Çakir saw, needing drilling in nasion area or/and camouflage techniques if it is bigger than 2 mm [25,26].

Median oblique osteotomies actually do not give such a prominent deformity, but irregularities exist and they can be seen or palpated [3,27]. Also, the risk of unwanted prolongation of the fractures

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Figure 1: Patient pre and immediate pos-op result by Extended PR-D with Partial Lateral osteotomy done with Ultrasonic Piezotome (open Approach, profile view).



Figure 2: Patient pre and immediate pos-op result by Extended PR-D with Partial Lateral osteotomy done with Ultrasonic Piezotome (open Approach, superior view).

line (up to cribriform plate, frontal bone etc.) can be very high [28].

The goal of this paper is to present partial lateral osteotomies surgical technique performed with piezo-electric instruments.

Results and Methods

An open approach functional rhinoplasty was performed in all patients. Patients had nasal pyramid deformity such as slight dorsal deviation, big hump, long nasal bone with thick ones, asymmetry and irregularities on dorsal osseocartilaginous pyramid and broad nasal “bridge”, isolated or combined. The ultrasonic piezo-electric instrument was Piezotome M+ by COMEG[®] used in all patients, for osteotomies and for rhinosculpture.



Figure 3: “LOW-to-LOW” osteotomies example performed by piezo scraping tip (RHS1). Modified from: Patient Information Series: Rhinoplasty, Visuluma Scientific Visualaization, EAFFS 2019.

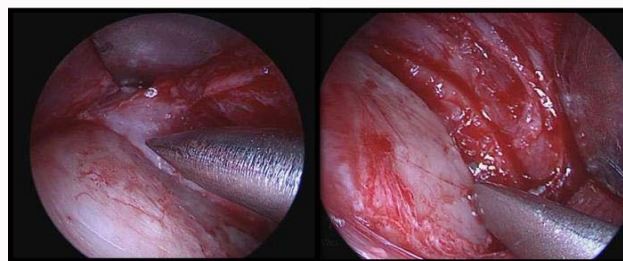


Figure 4: Partial Lateral osteotomy done with Ultrasonic Piezotome (endoscopic image, patient’s left side). Right image show the bone *dorsum* and *glabella* area and note that the surgical instrument point to an incomplete osteotomy. Left image show the basal part of the osteotomy, close to the pyramid area. Note that the internal *periosteum* is preserved.

The rhinosculpture was performed by rasping the bony hump and/or irregularities on dorsal and lateral surface of nasal bones by piezo scraping tip, also with hard and fine rasps (RHS1, RHS2HB and RHS2FB). This must be delicate, and concerning for not disturbing the K-stone area, even in patients with prominent hump following principles of preservation attitude [20,29].

A “LOW-to-LOW” osteotomies was performed by piezo scraping tip (RHS1). The oblique cut, of the bony surface, started on the border of the piriform aperture [20,29]. When reached the area of medial eye canthus area, 2 mm lower of it, the orientation needs to turn upwards in the direction of the maxillary-nasal suture that surpasses for 2 mm to 3 mm. The cut/osteotomies should end between 2 mm to 4 mm in front of the junction of the nasal bones (sutura internasalis) on the midline, and it is important to adapt to each patient's anatomy [30].

Due to a lack of unification of these modified transverse osteotomies, it was possible to perform one more intermediate osteotomy in a safe way. This intermediate osteotomy was performed on the site of a previous traumatic fracture of nasal bone or other deformity that had the necessity to be reshaped (convexity). In the absence of previous fracture line, the intermediate osteotomies were performed 3 mm to 4 mm laterally of the sutura internasalis and always above the K-stone area [29,30].

The deviation of nasal bones was solved by spontaneous positioning of deviated nasal bone fragment into the correct position by the principle of “pressure spring”. The spontaneous returning of bone fragment in the natural and normal position was achieved. There was no secondary deviation of the fragments in the follow up of 2 years in all of the patients.

Discussion

A deviated nose in majority of cases represents a dislocation of nasal bones “en block” more evident in rhinion area. Dislocations are absent, by our experience, in the area of the sutura nasofrontalis and even rare in the intercanthal line, which is in average 10 mm, 7 mm caudally positioned [31]. This is actually the point where the dislocation/deviation begins so it is a perfect place to locate a transverse osteotomy or 1 mm to 2 mm below [32].

The most visible bony pyramid ‘deviations are found on the caudal border of the nasal bones (margo inferior ossi nasalis) that are in contact with the K-stone area. It is so very important to perform a lateral and intermediate osteotomies to solve this issue [29,30].

Based on these principles, the transverse osteotomy in our patients was not unified, leaving it incomplete, or not even performed. By maintaining the central junction of the nasal bone (sutura internasalis) and the connection with glabellar region (sutura frontonasalis), there was no need to fixate the fragments with suture as some authors recommend [26,32,33]. Even though, this connection is not large (only around 4 mm) and it is sufficient to maintain stability of the bone fragments.

The dorsum was partially preserved (K-area), the “step” in central nasion area was avoided and the “slide effect” was obtained using oblique non-traumatic piezo-electric cut on lateral side.

A learning curve in rhinoplasty surgery, nicely said by Finocchio, is never ending journey with sinusoidal flow [34]. No one can say the process of acquiring knowledge or skills is finished, nor an expert surgeon nor a beginner one.

Opinions and attitudes modifications should be a permanent process in a long walk of achieving results, if not perfect, but at least pleasurable and natural.

Conclusions

A deviate nose is challenging problem in rhinoplasty surgery.

Complete transverse osteotomies in intercanthal line leave a mobile bony edge deformity in a form of the step. Different forms of solving and camouflage the problem were confronted.

In this work a solution is offered in a form of incomplete oblique transverse, lateral and intermediate osteotomies, facilitating “slide-down” positioning of the bone edges.

A modification of attitudes in executing osteotomies was presented, respecting the principles of preservation of the structures and with the aim of obtaining better and durable results, with less traumatic effect on the patient.

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