

## Research Article

# Non-Surgical Rhinoplasty Techniques, Using Filler, Botox and Thread Remodeling: Retro Analysis of 332 Cases Outcome

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### Abstract

**Background:** Non-surgical nasal job has been practiced and published with doubtful concerns about efficiency and safety among physicians and aesthetic surgeons. The aim of the work to share our experiences in non-surgical rhinoplasty Modern techniques, using filler, Botox and thread with presentation of aesthetic and complication outcome.

**Patient and Methods:** Retrospective analysis of the aesthetic and complication outcomes and techniques for non-surgical remodeling rhinoplasty using fillers, Botox and PDO absorbable threads, in 332 cases.

**Results:** Non-surgical nasal remodeling provides temporary correction of small nasal deformities with achieved satisfactory aesthetic outcome and very low incidence of complications.

**Conclusion:** Non-surgical nasal remodeling with injection precautions could work efficiently and safely in outpatient clinic with good temporary results up to 6 months.

## Introduction

The term non-surgical rhinoplasty, as we know nowadays, is referred to practiced idea, about one century ago, when Rebert Gersuny and James Leonard were used liquid wax made from paraffin to correct saddle nose [1]. Decades later, microdroplet silicon injections on multiple sessions were practiced by Robert Kotler and Jack startz. The high rate of granuloma and ulcers were got less popularity of the idea [1-2]. Alexander R., in 2002 has used FDA approved fillers for nose job injection and he has many publications about the non-surgical nose job [3-4]. The era of polyacrylamide injection also attracted some physician to inject it in the nose [3]. Nasal blood supply is highly considered when any injecting procedure in the nose [16]. Nasal units, angles, facial aesthetic proportion with the nose and all facial units are making harmony in human facial look [5]. When physician correct any observed nasal deformities, the facial attractiveness could be more apparent, with improvement of self-image satisfaction.

In this study, we will present our experiences including the aesthetic and complication outcomes and techniques for non-surgical remodeling rhinoplasty by the using of fillers, Botox and PDO absorbable threads, in 332 cases.

## Material and Methods

Retrospective analysis of hundreds of our patients' records who were submitted for routine cosmetic rejuvenations by Filler, Botox and thread lifting, for nose job remodelling. Of 332 cases, 182 were underwent filler correction by Hyaluronic Acid (HA) using 27-gauge needles, in 163 cases and by injecting Ca hydroxyapatite (CaHA) in 19 cases, using 23-gauge needle. 111 cases were undergoing Botox injection for the nose and 39 cases were undergoing nose narrowing and dorsal correction by polydioxanone threads. 29 cases have been done at Al-Azhar university hospitals and the remaining were done at private practice in period from June 2012 till October 2016.

Filler and Botox injected in the nose are FDA approved and as part of other facial rejuvenation procedure in most of cases. Only of 293 cases injected by filler or Botox in the nose, 35 cases were asking only for nose job. Of 39 cases were undergoing facial thread lifting 9 only submitted for thread rhinoplasty.

Procedures are done under complete a septic technique, at outpatient clinic, using withdrawal technique before injection, in tangential dermal touching maneuver when injecting the dorsum,

frontonasal angles and base of alae, while in perpendicular maneuver to inject the base of the columella (Figure 1A, 1B), or superior to inferior technique in tip domal areas, and oblique injection in all other areas.



**Figure 1:** Injection technique for filler.

Filler was injected to correct primary or post-operative deformities in different sites according to each case presentation. Sites of injection are varying may be at one site or more of the following; frontonasal angle, nasofacial angle, dorsum of the nose, supratip area, ifratip lobule, domal areas, over lateral crura, inter-cural; between medial curura, and /or at base of the clomella.

Amount of hyaluronic acid filler ranged from 1-2ml, and the amount of calcium hydroxylapatite was in average 2.1ml. Fillers injection was tangential when augmenting the dorsum and it was touching the dermis when using hyaluronic acid at any site. I used ca hydroxiappetite, only in case of saddle nose and it was deep on the dorsal nasal bone.

Botox was injected at the depressor septi nasi muscle, constrictor nasai muscle at the base of lateral crura to make tip definition and up word tip rotation. Botox was injected sometimes to the dilator naris at mid lateral alae when there is flaring in the alae and of course to the bunny lines when it is existing. Dose of Botox was 2-4units / each injection site.

Threads were inserted in the dorsum of the nose using absorbable, polydioxanone (PDO) 6-10 monofilament screws to augment saddle nose and 4D barbed opposing two threads at the base of the nose, to narrow the base (Figure 2 A). 4D barbed opposing two threads were inserted transversely at the inter-domal areas, to define the tip, and at fronto-nasal angle to correct it (Figure 2 B).



**Figure 2:** Threads insertion sites

Facial aesthetic angles; frontonasal, nasolabial, nasofacial nasal and dorsum heights were measured. Pre-and post-nasal job remodeling photos documentation in frontal, lateral and basal views were documented. Al-Azhar Ethical committee approved the study and informed consent was taken from patients before any procedure, for the procedure and photography.

## Results

Patients' follow up showed accepted temporary nasal deformity correction and near normal nasal aesthetic angles, up to six months and camouflaging of the dorsal hump and nasal length. The frontonasal angle, nasolabial angle, nasofacial angles are markedly improved to be near normal measurements. Saddle nose deformity, supra tip depression, inratip lobule depression, alar irregularities, domal definition, clomellar lengthening, were corrected by fillers. Tip definition, rotation, alar flaring improvement and bunny lines elimination are highly achieved by Botox Thread got a measurable improvement in nasal saddling, tip narrowing and nasal base reduction. Recorded complication was only infection, in one case only, injected by hyaluronic acid at the supra-tip depression and fortunately it was completely healed by local MEBO ointment with oral broad spectrum antibiotic. No any other complications were recorded in our analysis.

## Discussion

Nasal remodeling concept is not brand new thinking, as it was tried more than century ago by many physicians, before evolving of modern surgical rhinoplasty techniques [6-7]. As time go with multi-disciplinary subspecialties overlapping, nonsurgical nasal remodeling, has found a place again. Many reasons make the physician and even aesthetic surgeon sometimes could considers non-surgical rhinoplasty techniques, as sometimes, aesthetic clients are not agreeing to submit for surgery and general anesthesia either due to psychological or physical factors [8]. Second consideration for non-surgical rhinoplasty is post-operative minute

deformities [9], or pre-operative temporary corrective trial to enable surgeon to judge if his planned surgery could meet patient's expectation or not.

The name of non-surgical rhinoplasty is sometimes doubtful [9] for plastic surgeons and some are preferring to define it as non-surgical nasal remodeling, [10] although many publications under the title of non-surgical rhinoplasty [11]. Of course, use of fillers, Botox or thread aren't achieving précised correction in big nasal deformities, [9] as they are not an alternative for surgery. In this study if there is any significant nasal deformity in; rotation, projection, saddling, tip width, septum or bone, it has been corrected by surgery and this totally agrees with Pontius, et al. [12].

In this study, more than three hundred cases were submitted to correction of minor nasal deformities by non-surgical nasal remodeling as an outpatient service and this almost a universal agreement as the procedure is carried out in an outpatient bases and this is come with Hirsch's, et al. [13] publication. This study represents a huge number of patients who are underwent non-surgical nasal remodeling, and study has included not only filling remodeling, but also using of Botox and thread for non-surgical nasal reshaping, and this is different to Schuster in 2015 when he studied 63 cases injected with filler only [15].

In this study fillers were used in most cases about 55% of the cases, while Botox is used in 33.4 % and threads' nasal remodeling was used in 11.7% of cases. Most fillers used in this study was hyaluronic acid in 89.5% of cases have been corrected by fillers while Ca hydroxyapatite correction to the nasal dorsum was confined only to 19 cases, resembling about 10.5% of cases.

This is could be attributed to the easiest technique of hyaluronic filler injection when compared by Ca hydroxyapatite and the wide varieties of its application in; nasal tip, supratip, infratip, columella, side walls, nasolabial groove, and frontonasal angles and it could be injected easily anywhere in the nose, either touching dermis, which preferred by me.

Ca hydroxyapatite is less soft and it works good, when injected deeply over the bone and is used to augment the dorsum and could last for about 3 years in contrary to 6 months' duration of hyaluronic acid. This study results as regard longevity, and possible reversibility of hyaluronic acid by hyaluronidase injection, is coming with Smith's study [14] according to type of filler injected.

Many complications could be happen during non-surgical remodeling as Botox over dosage, infection, ischemic necrosis from arterial embolism, pressure necrosis from over injection of nasal tip, osteophyte from periosteal injection and blindness [18].

The most catastrophic complication reported in injection rhinoplasty by fillers is blindness [15-18] but it is reported also in other facial filling by fat [17] or HA, and it could be extremely avoided by proper precautions during injection specially syringe aspiration, withdrawal injection and avoidance of high pressure bolus injection.

In this study, there are no any of above mentioned complications, unless one case was complicated by infection, after supra-tip area has been injected by hyaluronic acid and have been spontaneously healed with topical ointment and oral Antibiotic.

The incidence of infection in our analysis was about 0.3%, while incidence in Schuster's study was 5.2%, as two cases were complicated by moderate redness and inflammation in one case and rejection in the other case. Schuter's [15] complicated cases occurred after he has injected Ca HA over the cartilage in both cases, and he has reported about 10.7%, in his group treated by Ca HA, while in this study there is no any report of Ca HA injection over the cartilage or any report of its complication.

This could be attributed to reactive inflammation of Ca HA in Schuter's [15] study, and he concluded that it is recommended to doctors to use HA in all cases without any more injection of Ca HA. In this study, Ca HA is confined only to injection over the bone, and all other sites were injected by HA, which is smoothly absorbed after 6th month and could by reversed by hyaluronidase injection, when indicated.

According to my practice experience, I think withdrawal aspiration of filler containing syringe, before injection is a must, and the most important step. It could be the safest step before injection, to avoid intravascular embolus, and subsequent blindness. Injection techniques for fillers are differing among physicians, but the most important consideration is to avoid intravascular injection.

In this study, nasal blood supply and injection precautions were considered strictly to avoid intravascular bolus, as most authors are concurring about [15-16]. Antiseptic technique with proper sterilization, meticulous handling and withdrawal precautions during any injection, are considered. Immediate reperfusion management by ophthalmologist should be started, if blindness [18] is diagnosed, using all tools as dissolving hyaluronidase injection, corticosteroids, diuretics, oxygen, Nitropaste topical application, hyperbaric oxygen, carbogen and lysis therapy [19-20].

## Conclusion

Proper precautions during injection rhinoplasty specially syringe aspiration, withdrawal technique and avoidance of high pressure bolus injection are absolutely indicated. Non-surgical nasal remodeling could work efficiently and safely in outpatient clinic with good temporary results up to 6 months.

## Conflict of interest

Author declares that; There is no any conflict of interest or financial fund for this study

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