

Lip Reduction Surgery (Cheiloplasty) For Lower Lip

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Abstract

Aim: The present study was performed to evaluate the stability of the lip reduction surgery in reducing the over-sized “hypertrophic” lower lip.

Methods: Ten female patients were included in the study who was unpleased from their enlarged lower lip which was not proportionate to their upper lip, patients were selected according to a specific inclusion and exclusion criteria, pre-operative photographic pictures were taken for planning and records. Preoperative measurement included measuring the vermilion height of the lower lip. Reduction cheiloplasty was performed under local anaesthesia for all patients by removing a strap of epithelium through a curved ellipse outline followed by key sutures evenly distributed and primary closure of the wound by interrupted 0- 5 resorbable sutures. All patients were followed up at 3 weeks, 3 months and 6 months, postoperative measurements were done by measuring the vermilion height changes.

Results: Post-operative measurements at 3 weeks follow up, showed marked decrease in the vermilion height of the lower lip where the lip looked much more smaller. This remained stable up to 3 month, however at six month follow up a slight increase occurred at the vermilion height of the lower lip but never returned to baseline value.

Conclusion: Lip reduction surgery is an effective technique in addressing hypertrophic lip but its long term stability remains questionable where further studies is needed with long term follow up in addition to modifications to the original technique and evaluating the effect of the excision of a wedge shape tissue from the deeper sub mucosal layer.

Keywords: lip reduction; hypertrophic lips; reduction cheiloplasty; lip surgeries; lips

Introduction

The lips are considered to be one of the most illustrious facial features and play a great role in facial expression that's why recently a lot of people have grown attention to the size of their lips. A patient self-image of his or her lips, like other body parts, is relative. Some people may prefer large lips while other people even in the same culture may prefer smaller lips, the perception of beauty will always differ among people in same or different cultures [1]. An over- sized lip which is scientifically called “Macrocheilia” which is more encountered in black and Asian patients represents a great challenge in aesthetic surgery [2], however such a condition is caused by several etiologies either; racial, hereditary, dentofacial abnormalities (pseudomacro- cheilia), lymphatic disorder , haemangioma, orbicularis oris dysfunction and medical causes (Melkersson-Rosenthal syndrome & Ascher syndrome) [3,4].

In the Caucasian patient the upper lip constitutes about 1/3 of the total lip volume on the other hand the lower lip constitutes about 2/3 of the total lip volume giving a ratio of about 1:1.6 [5,6]. Those dimensions are generally larger in African people, the vermilion height norms vary in different

ethnicities as well [7,8]. Lip reduction surgery is performed either as an aesthetic surgery for beauty enhancement or for therapeutic goals such as in cases of difficulty in speaking , eating due to very large lips , or drooling as in the case of abnormal orbicularis oris muscle tone [9].

A recent study have been reported in the literature by Jittilaongwong based on his experience of 9000 cases treated with lip reduction surgery [10], furthermore he also evaluated the results of lip reduction surgery on another 7145 patients using the “Seagull wing incision” where the author reported a high satisfaction rate with the surgical outcome [11]. Some techniques aimed at addressing the size of the lips only or focused on the reconstructive side [12,13], where others aimed at achieving smaller lips but putting into consideration the relative proportion of the upper lip and lower lips in order to provide an aesthetic harmony of the labial unit, those of which have advocated some modifications to the outline of the incision such as the Bikini shaped incision [1,14]. Up to our knowledge, none of the previously mentioned studies have reported the long term stability of the results of the surgery neither the amount of the relapse that occurs except for some studies

that aimed to address hypertrophic lips due to cheilitis granulomatousm [15,16], it is worth mentioning that there are not enough studies conducted on lip reduction surgery and from where comes the necessity of our study.

Materials and methods:-

Ten female patients ranging in age from 22 to 33 years who weren't pleased with the appearance of their lower lips due to its large size were included in the study. Patient's medical history was reviewed. Extra oral examination was performed to assess any facial asymmetry and to examine the lip architecture, followed by intraoral examination for the lower anterior teeth, associated periodontium and the mucosa. Digital photographic pictures were taken for recording and planning, in addition to lateral cephalometric to rule out any dentofacial deformities.

Inclusion criteria:-

- Female patients.
- Over-sized lips due to racial or hereditary causes.

Exclusion criteria:-

- Patients with large interlabial distance at rest (more than 3 mm).
- Dentofacial abnormalities and deformities.
- Microgenia
- Smokers
- Patients with systemic diseases.

The vermilion height were measured by recording the vertical distance from the stomion inferior to the most inferior point at the vermilion border of the lower lip. After proper diagnosis and assessment, lip reduction surgery was explained to the patient with all the possible complications and outcomes; this was preceded by signing all the written forms and consents. The study was conducted ethically in accordance with the Declaration of Helsinki.

Surgical procedure

Patient preparation:-

Marking the lips to detect the amount of excess tissue to be removed is more art than science. First the lips were dried then wiped with alcohol to allow better ink marking, where it have been kept dry after marking by placement of a cotton pellet or a piece of gauze in-between the lips and the lower anterior teeth to avoid dilution of the markings by the saliva, loss of the markings may jeopardize the results, markings were placed before local anaesthesia injection with the patient in an up-right position.

Markings were placed at or posterior to the wet/dry border of the lips to avoid scar visibility and excessive removal of the vermilion zone; on the other hand we avoided placing the marking too far posteriorly because this would have a little effect in drawing the lip backward.

All patients was asked to relax their lips and first markings are made on the neutral place of meeting of the upper and lower lip then the patients were asked to pull their lips toward their teeth imitating the desired shape of her lips, second markings were made as well. All patients were given a mirror and repeated this manoeuvre to a point where they would optimally prefer the amount of vermilion show and posture. The first and second markings were connected to each other on either side of the commissure giving an overall curved ellipse outline which is larger in the centre and tapers toward the commissure where we avoided going into the corner of the mouth in order not to cause a deformity, the distance between the two lines were recorded as it would affect the amount of tissue to be excised (the amount of tissue excised was 2 to 2.5 times the measured distance). Finally the lip mid-line was also marked to aid in proper symmetry during wound closure.

Anaesthesia:-

Infiltration anaesthesia (long acting anaesthesia with epinephrine) in the labial vestibule was given to all the patients for the purpose of pain control followed by infiltration into the substance of the lower lip for purpose of hydro dissection and hemostasis.

Surgical steps:-

No.15 blade was used for incision through the previously marked lines, followed by sharp dissection for excision of the mucosa from the sub mucosal structures, extreme care was taken not to dissect deep to the sub mucosal layer in order not to disrupt the orbicularis oris muscle which would have a negative impact on its function. Series of key sutures were placed using Silk suture, first suture placed at the midline followed by placing another suture one-half the distance to the end of the incision until 5 to 6 sutures are placed. Finally additional interrupted sutures were used to close the remaining tissue (Figure 1, 2).

Post-operative instructions:-

All patients were instructed to apply ice immediately after the procedure and to use it for 2 to 3 days, sleep with their head elevated, following a soft regime for the first 72 hours, avoiding excessive smiling or stretching the lips, refrain from drinking with a straw. Postoperative medications includes; analgesics (Brufen 600 mg) were prescribed for 3 days, anti- inflammatory (Alphinterin) were prescribed 3 times a day for 1 week and antibiotics (Augmentin 1gm tab) were prescribed 12 hourly for 5 days , antibtioc ointment. Sutures were removed after 3 weeks postoperatively. All patients were followed up at the following intervals; three weeks, three months and six months



Figure 1: steps of the surgical procedure, (A) placement of the markings, (B) the incisionoutline, (C) excision of the tissue, (D) wound closure.



Figure 2: (A) preoperative photograph, (B) Immediately postoperative photograph

Results:-

All patients reported edema that subsided within 1 week in addition to tolerable pain that was successfully controlled with the proper analgesic, other complications included tension at the lower lip which subsided within

1 month. At 3 weeks follow up there was a marked reduction in vermillion height of the lower lip and the patients were highly satisfied with the shape of their lip, this decrease in vermillion height remained stable up to 3 month follow. However at six month follow up a minute increase at the vermillion height was reported. (Figure 3&4) (Table 1)



Figure 3: (A) preoperative, (B) after 3 months post-operative.



Figure 4: (A) pre-operative, (B) after six months post-operative

Case Number	Measurement	Baseline (mm)	3 weeks (mm)	3 months(mm)	6 months (mm)
1	Vermilion height "VH"	13	8	8	8
2	Vermilion height "VH"	14	9	9	10
3	Vermilion height "VH"	12	7	7	7
4	Vermilion height "VH"	13	8	8	9
5	Vermilion height "VH"	12	7	7	8
6	Vermilion height "VH"	14	9	9	10
7	Vermilion height "VH"	13	8	8	10
8	Vermilion height "VH"	15	9	9	11
9	Vermilion height "VH"	14	8	8	10
10	Vermilion height "VH"	12	6	7	9

Table 1 : Measurements of the lower lip vermilion height pre and post reduction cheiloplasty

Discussion:-

The goals of reduction cheiloplasty are to achieve a harmonious relationship between both upper and lower lips that is in perfect balance with the whole face and also to provide a normal lip competence. Lip reduction surgery is either performed as a classical technique or as a modified technique focusing on the resultant contour of the lip and the volume relationship between the upper and lower lip, there are few studies that discuss techniques for lip reduction [17,20].

In our study we excluded patients with large interlabial distance at rest or dentofacial deformities because if lip reduction was performed in those patients it will worsen the cosmetic deformity by overly reducing the lip size and revealing the dentofacial deformity, microgenia was also excluded because the lack of chin prominence can make the lower lip appear larger "Pseudo" [9] where those patients may benefit from chin augmentation procedures to obtain a balance between the chin and the lips. Furthermore smokers and patients with systemic diseases were not included in our study since those patients are not good candidate for any surgery due to retarded healing and high risk of infection [21,22].

Marked decrease in the lower lip size was attained after 3 weeks of the surgery and remained stable up to 3 month, however at six month minute increase was noticed this may be due to the fact that in our technique we just removed the epithelium which would regenerate all-over again not to mention that those tissue are stretchable and elastic, that's why further studies may be needed to evaluate the effect of removing a deeper layer of the sub mucosa, different suturing technique and modifying in the original technique in order to contribute to a long lasting results.

Conclusion :-

Lip reduction surgery is an effective, simple technique for addressing hypertrophic lip but its stability remains questionable, further studies is needed with modifications in the original technique, increasing sample size and longer follow up periods.

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Conflicts of interest

The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or non-financial in this article.

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