ORIGINAL RESEARCH PAPER

Volume-8 | Issue-2 | February-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PER CUTANEOUS VS ENDONASAL OSTEOTOMY IN RHINOPLASTY OPERATIONS.

ENT

Dr Irfan ul Shamas Consultant ENT J&K Health Services

ABSTRACT

Background:
The aim of this study was to compare per cutaneous osteotomy technique with endonasal technique.
Materials and Methods: Two groups of ten patients each were included in this study. One group underwent percutaneous osteotomy and other group underwent endonasal osteotomy technique for lateral osteotomies. Post operative edema and ecchymosis was evaluated in both groups using Kara and Gokalan scoring system.
Conclusion: Per cutaneous technique of osteotomy is a precise and easy approach to carry out fracture along a preset line. The fracture is greenstick type so the bone stump is stable. Dorsal irregularities if any can be rasped immediately after the osteotomy. Mucosal injury, bleeding, lacrimal sac injury, edema, ecchymosis are much less in this technique compared to endonasal technique. Cutaneous external scar at the site of osteotomy is invisible in all cases after few weeks of surgery.

KEYWORDS

Percutaneous Osteotomy, Endonasal osteotomy, Lateral osteotomy, Rhinoplasty,Edema,Ecchymosis.

INTRODUCTION

Osteotomies are generally the last and key step of a cosmetic rhinoplasty. There are several approaches or techniques employed for performing a lateral osteotomy namely "per cutaneous", "endonasal" or "intraoral"1,however most commonly performed are per cutaneous and endonasal ostetomy. The lateral osteotomy in rhinoplasty is done to correct the asymmetric lateral nasal wall and to narrow the nose.Tactile guidence is used to perform both endonasal and percutaneous ostetomies as they are blindly done,hence there is always a risk of injuring nasal mucosa,periosteum, lacrimal sac and other supporting soft tissues. Massive edema, intra cranial complications, lacrimal sac injury, nasal obstruction,disfigurements have been reported in literature subsequent to osteotomies2. An ideal osteotomy produces precise, predictable and reproducible aesthetic, functional result and minimizing soft tissue damage3. The aim of this paper is to compare external percutaneous osteotomy technique with endonasal technique.

MATERIALS AND METHODS

The study was conducted in District Hospital Pulwama a secondary care hospital in South Kashmir and Florence Hospital Srinagar. All cases were done by the corresponding author under hypotensive general anaesthesia from January 2018 to october 2018. A total of twenty patients were included in this study. Informed consent was obtained from all patients before surgery and the procedure was explained with all possible complications. Ten patients were included in external percutaneous osteotomy group randomly and rest underwent an endonasal osteotomy.

Technique:

Per cutaneous osteotomy was done via two stab incisions; one at the midpoint of vestibule and medial canthus in the nasofrontal groove and second at the level of medial canthus at the midpoint of medial canthus and nasion. All cases were done by Kalelkars 3mm osteotome. Local infiltration of adrenaline with xylocaine in a concentration of 1: 100000 was given in all cases on the bony dorsum at the start of the procedure. Periosteum was sweeped by the sharp end of osteotome along the proposed line of osteotomy which was marked externally in all cases. Angular vein was also sweeped medially along the line of transverse osteotomy in all cases to prevent rupture, bleeding and edema.

Endonasal osteotomy was done by making a small incision at the pyriform aperture at the level just above the attachment of inferior turbinate. The osteotome was engaged and passed along the nasofrontal groove and curved medially with digital guidance to join the medial osteotomy which was done in all cases by a 5 mm osteotome engaged para medially starting just lateral to the attachment of nasal septum to the nasal bone to guard the keystone area.

Immediately after osteotomies gauze packs immersed in ice cold water was used over nasal dorsum and midface. Dexamethasone 8 milligrams was adminstered in all cases at the end of surgery as a routine protocol. The scoring system for edema and ecchymosis was following (as modified from Kara and Gokalan in 1999)4.

Scoring system for edema

Grade 1 – No coverage of iris with eyelids.
Grade 2 - Slight coverage of iris with swollen eyelids.
Grade 3 - Full coverage of iris with swollen eyelids, Grade 4 - Full closure of eyes.

Scoring system for ecchymosis
Grade 1 - Eccyhmosis upto the medial one-third part of lower and /or upper eyelid.
Grade 2 - Ecchymosis upto the medial two-third part of the lower and/or upper eyelid.
Grade 3 - Ecchymosis up to the full length and /or upper eyelid.

OBSERVATION

All patients underwent a nasal endoscopy at the end of the procedure. All ten patients (100%) who underwent endonasal osteotomy had nasal mucosal injury atleast at one place. Only one patients (10%) who underwent external per cutaneous osteotomies had internal nasal mucosal tear at atleast one place.

All ten patients(100%) of endonasal osteotomy group developed post operative edema. It was Grade 1 in 1(10%) patients, Grade 2 in 3(30%) patients, Grade 3 in 6 (60%) patients. All patients were managed with tapering dose of oral steroids (methyl-prednisolone) over a period of ten days.

Only 4 patients(40%) of percutaneous group developed postoperative edema. All patients had grade 1 edema and was managed with oral steroids.

Five patients(50%) of endonasal group developed postoperative ecchymosis. It was grade 1 in two (20%) patients and grade 3 in three(30%) patients.

None of the patients in per cutaneous group developed echymosis.

Picture 1. Showing patients of endonasal group with grade 3 edema and ecchymosis.

Picture 2. Showing patient of endonasal group with grade 2 edema and grade 1 ecchymosis.

Picture 3. Showing patient of percutaneous group with grade 1 edema and no ecchymosis.

Picture 4. Showing patient of per cutaneous group with no postoperative odema and ecchymosis.

DISCUSSION

The external technique was first used by Goria5 and popularised by Straasma6.Cadaveric study has revealed less chances of tear of internal mucosa of nose by external techniques3. The preservation of periosteum in external technique provides excellent control and the reduction in the intranasal complication and postoperative morbidity such as bleeding, edema and ecchymosis. Postoperative edema and ecchymosis are common complaints after rhinoplasty. Although patients have little discomfort and pain related with their appearance, their resulting edema and ecchymosis are socially disturbing and frightening.

In this study,comparison of these 2 techniques (per cutaneous and endonasal) related with postoperative edema and ecchymosis was done. Other factors were reduced by having all surgeries done by one surgeon(author), same instruments, all cases done under hypotensive general anaesthesia and same medication. Like other studies7,8, this study concurs with higher rates of post operative edema and ecchymosis with endonasal technique compared to per cutaneous technique.

Giacomarra et al 1 in their review of one hundred forty two rhinoplasty also found external osteotomy an easy and precise approach. Periosteum was not elevated for any possibility of disrupting the lacrimal sac or damage to the medial canthus ligament. There is green stickfracture so the bone stumps are stable. The reduced bleeding reduces the edema formation and ecchymosis around the eyes. The damage to the mucosa is minimal and the cutaneous scars are virtually invisible a month after the surgery. None of the patients developed any scar formation at the entry site of the external perforating osteotomy nor did they develop discoloration at the entry site even in their long-term follow-up. Our findings are similar as above.

CONCLUSION

Per cutaneous technique of osteotomy is a precise and easy approach to carry out fracture along a preset line. The fracture is greenstick type so the bone stump is stable. Dorsal irregularities if any can be rasped immediately after the osteotomy. Mucosal injury, bleeding, lacrimal sac injury, edema, ecchymosis are much less in this technique compared to endonasal technique. Cutaneous external scar at the site of osteotomy is invisible in all cases after few weeks of surgery.

REFERENCES

1. Giocomarra V, Russolo M, Arnez ZM, Tirelli G (2001) External osteotomy in rhinoplasty. Laryngoscope 111(3): 433-438.
2. Parkers ML, Borowiecki B, Binder W (1980) Functional sequel of rhinoplasty. Ann Plast Surg 4(2): 116-120.
3. Rohrich RJ, Krueger JK, Adams WP, Jr.,and Hollier LH Jr. Achieving consistency in the lateral nasal osteotomy during rhinoplasty: An external perforated technique. Plast. Reconstr. Surg.2001,108:2122, (cross reference).
4. Kara CO, Gokalan l (1999) Effects of single dose of steroid usage on edema. Ecchymosis and intraoperative bleeding in rhinoplasty. Plast reconstr Surg 104(7): 2213-2278.
5. Denecke HJ, Meyer R. Plastic Surgery of the Head and Neck:Corrective and reconstructive Rhinoplasty. New York:Springer-Verlag;1967 (cross reference).
6. Straatsma CR. Surgery of the bony nose:comparative evaluation of chisel and saw technique. Plastic reconstructive surgery.1961;28:246 (cross reference).
7. Khalaf AQ, Taher FS, Khudhair HM (2017) Comparism Study between Internal & External Lateral Osteotomy in Rhinoplasty Operations. J Otolaryngol ENT Res 6(2): 00159. DOI: 10.15406/joentr.2017.06.00159.
8. Vikas Sinha, Devang Gupta.External vs Internal osteotomy in rhinoplasty. Indian Journal of Otolaryngology and Head and Neck Surgery Vol. 59, No. 1, January - March 2006:9-12.