ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 3, Issue – 2, March - 2020, Page No. : 259 - 263

Prosthetic rehabilitation of nasal deformity in Cleft lip and Palate patient: A Case report.

[1]Dr Tulsi G Lodhi, BDS, MDS Associate Professor, Department of Plastic, Reconstructive & Maxillofacial Surgery, Government Medical College and Hospital, Nagpur, Maharashtra, India.

[2]Dr Surendrakumar B Patil, M.S, Mch (Plastic Surgery), Professor and Head, Department of Plastic, Reconstructive & Maxillofacial Surgery, Government Medical College and Hospital, Nagpur, Maharashtra, India.

[3]Dr SurendraKumar K Bahetwar, BDS, MDS, Assistant Professor, Department of Pedodontics and Preventive Dentistry, Government Dental College and Hospital, Nagpur, Maharashtra, India.

[4]Dr Aparna B Sharma, BDS, MDS, Assistant Professor, Department of Plastic, Reconstructive & Maxillofacial Surgery, Government Medical College and Hospital, Nagpur, Maharashtra,

[5]Dr Ashish M Warhekar, BDS, MDS, Assistant Professor, Department of Plastic, Reconstructive & Maxillofacial Surgery, Government Medical College and Hospital, Nagpur, Maharashtra,

[6]Dr Suryakant Deogade, BDS, MDS, Associate Professor, Department of Prosthodontics, Government Dental College and Hospital, Nagpur, Maharashtra, India.

[7]Dr Kalpak Peter, BDS, MDS, Assistant Professor, Department of periodontology, Government Dental College and Hospital, Nagpur, Maharashtra,

Corresponding Author: Dr Tulsi G Lodhi, Department of Plastic, Reconstructive & Maxillofacial Surgery, Government Medical College and Hospital, Nagpur, Maharashtra

Citation of this Article: Dr Tulsi G Lodhi, Dr Surendrakumar B Patil, Dr SurendraKumar K Bahetwar, Dr Aparna B Sharma, Dr Ashish M Warhekar,Dr Suryakant Deogade, Dr Kalpak Peter , “Prosthetic rehabilitation of nasal deformity in Cleft lip and Palate patient: A Case report.”, IJDSIR- March - 2020, Vol. – 3, Issue -2, P. No. 259 – 263.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Reconstruction of Nasal deformity associated with cleft lip and palate is one of the difficult tasks for the surgeons. Even after the surgical corrections there are the chances of collapse of nasal valve and constrictions of the nostrils which affects the esthetic and function. In this case report of patient with nasal deformity due to cleft lip and palate, prosthetic reconstruction was done by the fabrication of the customized unilateral nasal stent to support and prevent the collapse of nasal valve after surgery. It improves the esthetic and restores the function by maintaining the patency of the nasal cavity.

Keywords: Nasal deformity, Rhinoplasty, Nasal stent.

Introduction

Cleft lip and palate is one of the most common congenital orofacial malformations, with the incidence of 1:800 to

1:1000 population in India[1]. Nasal deformity is one of the complications of cleft lip and palate. Cleft lip causes abnormal shape and position of the nasal cartilage which leads into deviation of the nasal septum and uneven appearance of nostril and nasal tip affecting the esthetic of the patient. It also hampers the function of nose by causing difficulty in breathing. The nasal deformity is corrected surgically by closed or open rhinoplasty method[2]. In literature lot of studies had been done on the timing of the surgery, surgical approach, nonsurgical techniques, and outcome assessment[3,4], but still the controversies exist.

Correction of nasal deformity is one of the most difficult challenge. Even after the surgical correction, a nasal stent is needed to prevent the collapse of nasal valve. In this case report of 19-year-old girl patient, the nasal stent was given post-surgically to prevent the collapse of nasal valve to improve the esthetic and restore the function of breathing by maintaining the patency of the nose.

Case report

A 19-year-old female patient was reported to the Department of Plastic, Reconstructive and maxillofacial surgery for the correction of nasal deformity occurred due to cleft palate and cleft lip. Patient gave a history that she had undergone surgery twice. First surgical intervention was done at the age of 3 years for the correction of unilateral cleft lip and plate and second surgery was performed 2 months before for the correction of nasal deformity. Presently the patient complained of poor esthetic due to collapse of left alae of nose even after the surgery. On extraoral examination it was noted that the upper portion of left alae of nose was collapsed causing constriction of left nostril (Fig1). Intraoral examination showed ‘V’ shaped arch of the palate (Fig2).

So, in this patient, the treatment plan was by the non-invasive approach, by prosthetic rehabilitation of nasal deformity with the fabrication of customised unilateral nasal stent. Treatment modality and the importance of the use of the nasal stent were explained to the patient and her parents. After getting consent treatment was started.

For the fabrication of the unilateral nasal stent, the impression was made with impression compound (Fig 3). Before starting the impression, the inner surface of the left nasal cavity was blocked with gauze to prevent the entrapment of impression material. Inner surface of nasal cavity was coated with petroleum jelly for the easy removal of impression material. Patient was asked to sit in upright position and to breathe through the mouth while taking the impression. The reason behind using the impression compound was re-adaptation of the impression material to contour the collapsed nasal wall in normal anatomically position. The cast (Fig4) was obtained by pouring the impression with dental stone. The obtained cast was coated with separating media and stent was fabricated by mixing auto polymerised acrylic resin polymer and monomer. To fabricate a hollow stent, at the time of placing the auto polymerised acrylic resin, the cap of a 5ml syringe coated with the petroleum jelly was placed at the centre of the cast. After setting of the resin, the nasal stent (Fig 5)was finished and polished. It was placed in hot water at 50°C for 5 mins for removal of excess monomer[5,6].

Try-in of the nasal stent (Fig 6) was done to check for proper contour of the nose, mucosal irritation and discomfort while breathing. Patient was recalled after 24 hrs to check for any discomfort. All the instructions regarding the maintenance of hygiene of nose and nasal stent were explained to the patient. Patient was examined after 15 days for any discomfort and was then advised to wear the nasal stent for 2 months.

Discussion

In literature suction catheters, nasal airway tubes[7,8], endotracheal tubes[7,8], Argyle nonconductive connective tube[9,10], inflatable tube[9] were used as a nasal stent to support the reconstructed contour of nose after surgery. For the fabrication of customised nasal stent various materials like autopolymerised resin[7,11], heat cured acrylic resin [12,13] and silicon sheets[8] are used. Even with the advancement in digitalisation, nowadays 3 D printing technique[14,15] is used for the fabrication of the nasal stent but it is costlier than conventional methods. The stent fabricated by silicon material is also costly. Fabrication of nasal stent by heat cured acrylic resin is time consuming. So, in this case we have fabricated a nasal stent with auto polymerised resin, by a simple and convenient method in a short duration which was cost effective. The only disadvantage of auto polymerised resin is leaching out of residual monomer, for which the stent has to be kept in hot water at 50^0 C for 5 mins. to reduce its toxicity[5,6].

References.

1. Neela PK, Reddy SG, Hussain A, Mohan V. Association of cleft lip and /or Palate in people born to consanguineous parents:A 13 year retrospective study from a very high volume cleft center. JCleft Lip Palate Craniofac Anomal 2019;6:33-7.
2. Baskaran M, Packiaraj I , Divakar T. K. Cleft rhinoplasty, Journal of Pharmacy & Bioallied Sciences,2015;7(2):S691-S694.
3. Yoav k, Buchanan E, Stal S. Cleft nasal deformity and rhinoplasty. Semin Plastic surgery 2012;26(4):184-190.
4. Farouk A. Rhinoplasty in Clefts: An 18-Year Retrospective Review. Facial Plastic Surgery 2015;31(5):539-552.
5. Tsuchiya H, Hoshino Y, Tajima K, Takagi N. Leaching and cytotoxicity of formaldehyde and methyl methacrylate from acrylic resin denture base materials. J Prosthet Dent 1994; 71:618-24.
6. Tripathi S, Singh R, Singh S, Arya D. A Simplified Approach of Customized Acrylic Nasal Stent Fabrication. International Journal of Prosthodontics and Restorative Dentistry 2012;2(4);143-145.
7. Khatri A, Kalra N, Tyagi R, Panwar G, Garg K. A simplified approach of prosthetic management of posttraumatic nasal obstruction using a custom made unilateral intranasal stent in 14year old child. Journal of Indian society of pedodontics and preventive Dentistry.2019;37(3):311-313.
8. Bassam WA, Bhargava D, Al-Abri R. A Novel V-Silicone Vestibular Stent: Preventing Vestibular Stenosis and Preserving Nasal Valves. Oman Medical Journal.2012;27(1):60-62.
9. Lemon JC, Martin JW, Wesley PJ, King GE. Use of nonconductive tubing for nasal stent fabrication. J Prosthet Dent 1994;71(3):301-2.
10. Sharon-Buller A, Golender J, Savion I, Sela M. Technique for fabrication of splint preventing postsurgical restenosis in choanal atresia. J Prosthet Dent. 2003 ;90(3):301-3.
11. Rathee M, Bhoria M, Boora Priyanka. Post Septorhinoplasty: Custom-Made Unilateral Nasal Stent for Nasal Cleft Deformity. North American Journal of Medical Sciences. 2015;7(2):73-76
12. Chander K, Komala J, Venkatesh K. Prosthetic Rehabilitation of bilateral external nasal valve area after nasal reconstruction for a congenitally missing nose: A clinical report. Journal of international oral health 2015;7(1):80-82.
13. Fernandez T, Karunakaran H, Rodrigues S. Prosthetic management of a Nasal septal Defect using a custom made unilateral intranasal stent: A case report. J clin Diagn Res 2016;10(8): ZD33-ZD34.

14. Mills D , Tappa K , Jammalamadaka U , Weisman J , Woerner J .The Use of 3D Printing in the Fabrication of Nasal Stents. Inventions 2018; 3(1):1
15. Boyer CJ, Woerner JE, Galea C, Gatlin CA, Ghali GE, Mills DK, Weisman JA. Personalized Bioactive Nasal Supports for Postoperative Cleft Rhinoplasty. J Oral Maxillofac Surg. 2018 Jul;76(7):1562

Legends Figure

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6