

Prosthetic Management of Nasal Defect in Pigmentary Mosaicism- A Rare Case

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Abstract: *Nose is one of the most commonly associated defect in the trauma involving craniofacial region. The resulting aesthetic and structural defect causes facial disfigurement affecting the overall personality of the patient. The defect not only affects the individual with impaired functionality but also psychologically. Hence, the treatment involves multidisciplinary approach in the management of cases.*

Background: *The purpose of this Case report primarily focuses on the prosthetic rehabilitation as treatment modality in management of nasal defect in Pigmentary Mosaicism.*

Case Presentation: *The 14 year old patient reported with the complain of missing central incisor and nasal defect. Rehabilitation of the single missing was done with removable partial denture. Patient was diagnosed with a rare disorder of Pigmentary Mosaicism with nasal defect as the associated deformity which also represents with cutaneous and the extra-cutaneous involvement. Along with the nasal defect the patient also manifested with Hyper and hypopigmented patches on the skin overall on the body surface in mosaic pattern, Which was treated simultaneously.*

Conclusion: *Management of all these defects brought about visible changes which is aesthetics as well as invisible changes such as boosting of the self-confidence of the patient and social acceptance. Management of these defects depends upon various factors like the age of the patient, location of defect and other systemic parameters. Multidisciplinary approach serves an excellent option rendering complete care to the patient.*

Keywords: *Nasal Prosthesis, Facial disfigurement, nasal trauma*

Key Messages: Rehabilitation of the facial defects is challenging. Reconstruction gives patient social acceptance and satisfaction.

Introduction:

Nose is the most alluring feature of the face. Nasal defects occur secondary to Neoplasms, Trauma or Idiopathic causes. Correction and rehabilitation of these defects is always challenging. Hence the management of such defects still remains a challenge that includes an appreciation of in depth examination, history taking diagnostic tests followed by corrective treatment timing and options¹. The psychological wounds that show no scars may range to such extent that the disfigured person himself rejects society under the mistaken notion that society rejects him. This disfigurement also conceals the real self behind the mask.² This case report describes a rare condition in which the nasal defect was acquired post ventilation at the age of 1 month which was managed with removable nasal prosthesis. Congenitally missing 11 was replaced with a removable prosthesis.

Case Report:

A 14 year old female patient was referred from Paediatric Department, Acharya Vinoba Bhave Rural Hospital, Datta Meghe Institute of Medical Sciences, Wardha for the rehabilitation of the nasal defect as well as for the replacement of missing tooth. On clinical examination it was noticed that the patient was an introvert type and was reluctant for any kind of treatment. There was congenitally missing 11 and nasal defect present. Birth history revealed no such defects present congenitally. After thorough case history it revealed that the defect was acquired due to faulty intubation when admitted at one month age for Broncho-pneumonia. The defect was developed post-ventilation period. Her mother also noticed progressing rashes over her body dominantly on right side of her body from face to legs. Radiographs revealed missing 11 with impacted maxillary permanent canines, and over retained deciduous canine in the same region. On lateral cephalogram, it was found that there was absence of soft tissue shadow partial absence of anterior nasal spine. Various prosthetic treatment modalities were explained to her parents ranging from surgical reconstruction to fixed and removable nasal prosthesis. Due to economic issues secondarily and fear of the hospital acquired defects due to her past hospitalisation experiences as described by her parents they chose removable nasal prosthesis as a treatment option. Case history documentation followed by formulation of the treatment plan

First & second appointment – Impression making and obtaining the mould

- Primary facial impressions and intra oral diagnostic impressions of patient, and donor nose impressions (for wax pattern fabrication) were recorded using Irreversible Hydrocolloid impression material and poured in dental stone.(Figure II a)
- Final impressions with light body poly-vinyl-siloxane impression material using custom tray and master cast pouring with Type IV dental stone. (Figure II b)

- Wax pattern was fabricated using donor nose model for ease of replication of features that was further modified and carved taking into consideration the other facial features and specificities of the patient.
- Putty impression of the nasal patency was made for fabrication of the customised heat cured polymethyl methacrylate (PMMA) scaffold (Figure III a) which was a salient feature of the case and was characterised with resin stains to match her skin tone.

Third & fourth appointment-Try-in, Shade matching & Packing

- Wax try in of the sculpted nasal prosthesis was done along with the evaluation of the fit of scaffold. (Figure III b,c)
- Flasking, dewaxing followed by shade matching in natural day light using medical grade silicone (Technovent factor II) with the cheek areas and forehead skin tone. Three tones of skin shades were made using stains and were packed accordingly.
- After 24 hours the prosthesis was retrieved, finished, polished and characterization using external staining technique.

Fifth appointment: Prosthesis Insertion

- Prosthesis were tried in order of scaffold with the nasal prosthesis (Figure IV b) and later followed by the spectacles that further aided to provide additional retention and also helped to mask the margin of the prosthesis. (Figure IV a)
- Removable prosthesis with 11 were inserted.
- Post-insertion instructions about maintenance and care were given to the patient for the prosthesis.

Discussion:

Facial defects creates a negative impact on mankind as those facially disfigured patients are treated as different which indirectly categorises them as inferior leading to social rejection by the patient itself. This 14 year old kid fell prey to bully in her school and had built fence from everyone leading to social deprivation and loss of self-confidence.

And as the patient's family had a bad past hospitalisation experience which took them so long for revisit to a hospital. Skin biopsy was performed and diagnosed based on clinical and laboratory findings as "Pigmentary Mosaicism" (unilateral type). Phototherapy was advised for the patient and remarkable changes were observed after therapy of one month. All the parameters for treatment formulation and patient desire were used to determine the methods of reconstruction³.

Almost all the prosthesis are retained with the help of tissue undercuts, magnets, attachment system or other accessories to mask the margins and aid in retention with seldom use of endosseous implants for retention.^{4,5,6,7,8,9,10}. Each of these methods has its own advantages and disadvantages³. Most important is the after care of the prosthesis. The prosthesis can be cleaned with normal soap water and should be avoided wearing it during the night. The advantages of this prosthesis are that the technique is non-invasive, tissue tolerant, aesthetic,

comfortable to use, and easy to fabricate and clean. Additionally, this prosthesis is often preferred by the patients because the weight and the cost of such prosthesis are low. Recently the prosthesis is fabricated by digital workflow where CAD CAM system is used. Dentistry has evolved itself into the world of digitalisation.¹¹ Digitalization eradicates the long appointment system and is advantageous. Also 3D data capturing and visualisation of the facial features without errors or distortion is possible nowadays and are in its accepting stage but still not available in general routine practise. There are always creative ways as solutions in some cases which proves to give remarkable effects¹². A patient reporting for dental treatment also indirectly gets treated for psychological issues in relation¹³. Also in literature they have explained about the importance of first dental visit of children which plays a pivotal role in further psychological management and acceptance of the treatment^{14,15}.

Conclusion:

Restoration of smile after the placement of prosthesis and along with the faith and hope in doctors. Such leads to rehabilitation in such a way that the patient more comfortably and confidently resumes the regular daily activity. In countries like India, where cost of the treatment is still a primary concern for the patient, removable silicone prosthesis can give good results.

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Figure I a-extraoral photograph showing nasal defect and facial pigmentations

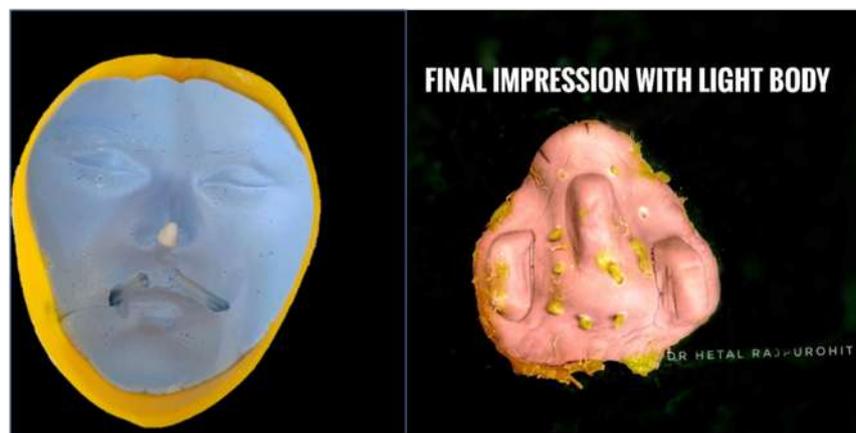


Figure II A- primary impressions

Figure II B- final impressions using light body



Figure III A – Heat cured polymethyl methacrylate(PMMA) scaffold

Figure III B- wax pattern along with the spectacles

Figure III C- wax try in on the patient



Figure IV A- Patient photograph without prosthesis

Figure IV B- Nasal prosthesis of silicone (Technovent factor II)

Figure IV C- Post insertion photograph with prosthesis, spectacles, and scaffold in place

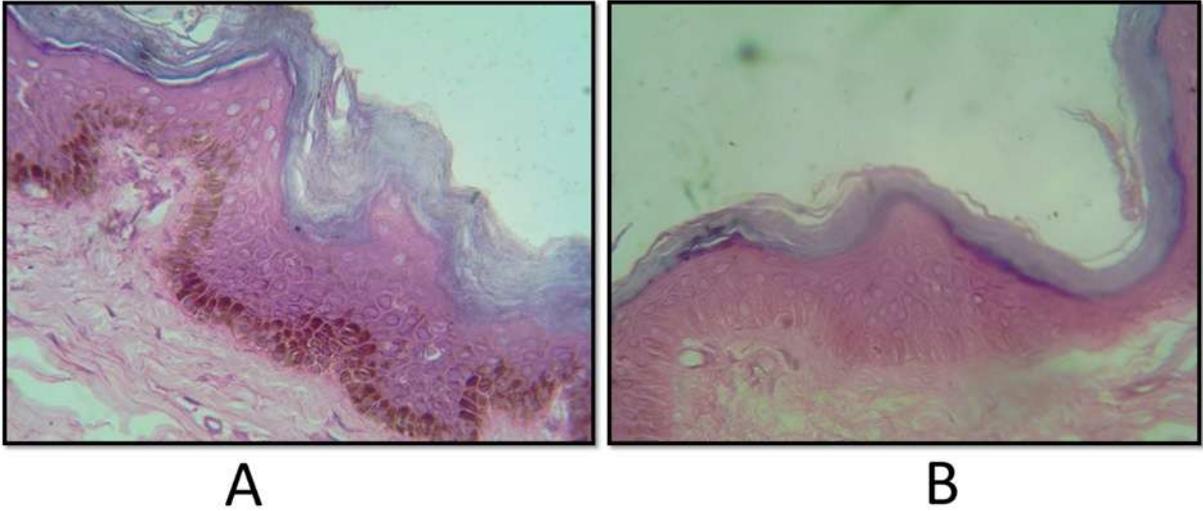


Figure V – Biopsy report of Hyperpigmented (A) and Hypopigmented(B) Macules on histopathology report (at 40X)