

**PROSTHETIC REHABILITATION OF A NEUROFIBROMATOSIS PATIENT WITH
COMPLETE DENTURE: A CASE REPORT****Dr. Pallavi Patil^{1*}, Dr. Shivakumar Puranik², Dr. Anand Mangalagi³, Dr. Smitha M.⁴, Dr. Ashwini⁵, Dr. Chandan B. L.⁶**¹Postgraduate Student, Department of Prosthodontics, HKE's S. Nijalingappa Institute of Dental Science and Research, Kalaburagi, Karnataka, India.²Professor, Department of Prosthodontics, HKE's S. Nijalingappa Institute of Dental Science and Research, Kalaburagi, Karnataka, India.³Professor, Department of Oral and Maxillofacial Surgery, HKE's S. Nijalingappa Institute of Dental Science and Research, Kalaburagi, Karnataka, India.⁴Professor and HOD, Department of Prosthodontics NSVK SV Dental College and Hospital, Bangalore, Karnataka, India.^{5,6}Postgraduate Student, Department of Prosthodontics, HKE's S. Nijalingappa Institute of Dental Science and Research, Kalaburagi, Karnataka, India.***Corresponding Author: Dr. Pallavi Patil**

Postgraduate Student, Department of Prosthodontics, HKE's S. Nijalingappa Institute of Dental Science and Research, Kalaburagi, Karnataka, India.

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ABSTRACT

Neurofibromatosis is a genetically inherited neurocutaneous disorder characterized by the development of multiple neurofibromas involving the skin, peripheral nerves, and oral and maxillofacial structures. Oral manifestations such as soft tissue enlargement, vestibular obliteration, mucosal nodules, macroglossia, and facial asymmetry may adversely affect mastication, speech, esthetics, and prosthetic rehabilitation. Prosthodontic management of these patients is often challenging because of altered denture-bearing tissues, reduced vestibular depth, tissue compressibility, and compromised facial support. This case report describes the prosthetic rehabilitation of an edentulous patient with neurofibromatosis involving the upper labial region using conventional complete dentures. Comprehensive clinical examination and meticulous treatment planning were performed to overcome the anatomical and functional limitations associated with the condition. Special emphasis was placed on atraumatic impression techniques, selective relief of affected tissues, controlled border molding, and modification of denture flange extension to accommodate the enlarged and compressible soft tissues. The fabricated complete dentures demonstrated satisfactory retention, stability, esthetics, phonetics, and masticatory efficiency without causing trauma to the involved tissues. Post-insertion follow-up revealed significant improvement in oral function, facial appearance, speech, and psychological confidence. This case highlights the importance of individualized treatment planning and careful clinical execution in successful prosthodontic rehabilitation of patients with neurofibromatosis.

KEYWORDS: Neurofibromatosis Type 1, Complete Denture Rehabilitation, Prosthodontic Management, Edentulous Patient, Oral Manifestations, Vestibular Obliteration, Soft Tissue Enlargement.**INTRODUCTION**

Neurofibromatosis (NF) is an autosomal dominant neurocutaneous disorder characterized by the formation of multiple benign neural tumors known as neurofibromas. Among its variants, Neurofibromatosis

Type 1 (NF1), also referred to as Von Recklinghausen disease, is the most prevalent form and commonly affects the skin, peripheral nerves, skeletal structures, and oral tissues. The condition results from mutation of the NF1 gene located on chromosome 17 and demonstrates

variable clinical expression. Oral manifestations are frequently observed in affected individuals and may include mucosal neurofibromas, macroglossia, enlargement of the alveolar ridge, vestibular obliteration, soft tissue hyperplasia, facial asymmetry, and deformities involving the lips and oral musculature.^[1,3]

From a prosthodontic perspective, rehabilitation of patients with neurofibromatosis presents considerable clinical challenges due to altered oral anatomy and compromised denture-bearing structures. The presence of enlarged and compressible soft tissues, reduced vestibular depth, distorted muscle attachments, and irregular residual ridges can adversely affect denture retention, stability, support, and border seal. In addition, facial deformities associated with neurofibromatosis may compromise esthetics and lip support, thereby influencing phonetics and psychological well-being. The prosthodontist must therefore adopt a carefully modified treatment approach emphasizing atraumatic impression procedures, selective relief of affected tissues, proper extension of denture borders, and meticulous occlusal rehabilitation.^[10,13]

Conventional complete dentures remain a conservative, economical, and effective treatment option for edentulous patients with neurofibromatosis when surgical intervention is either contraindicated or not preferred by the patient. Thorough diagnosis, individualized treatment planning, and regular post-insertion follow-up are essential to ensure successful functional and esthetic rehabilitation.^[13]

This case report describes the prosthodontic rehabilitation of an edentulous patient with neurofibromatosis involving the upper labial region using conventional complete dentures, highlighting the clinical challenges encountered and the modifications incorporated during treatment.



Fig: 1.



Fig: 2a.

CASE REPORT

A 70-year-old male patient reported to the Department of Prosthodontics with the chief complaint of difficulty in mastication, compromised speech, poor facial appearance, and inability to wear his previous dentures comfortably. The patient expressed discomfort and dissatisfaction with the existing prosthesis due to poor retention and instability, particularly in the maxillary anterior region, which adversely affected his oral function and social confidence.

The patient presented with a history of progressive swelling involving the upper labial region for several years. Medical history revealed a diagnosed case of Neurofibromatosis Type 1 (NF1). The swelling was gradual in onset and had progressively increased in size over time. No history of pain, ulceration, bleeding, or paraesthesia was reported. The patient's medical and family histories were otherwise non-contributory.

Clinical Examination

Extraoral examination revealed: (fig 1)

- Diffuse enlargement of the upper lip region
- Facial asymmetry due to soft tissue involvement
- Soft, pendulous neurofibromatous tissue involving the upper labial area
- Reduced lip competence and compromised facial esthetics

Intraoral examination revealed: (fig: 2a-2b)

- Edentulous maxillary and mandibular arches with few remaining compromised teeth
- Distortion and obliteration of the anterior labial vestibule
- Flabby, mobile, and compressible mucosal tissues in the maxillary anterior region
- Reduced denture-bearing area with compromised vestibular depth
- Reduced residual alveolar ridges affecting denture support and stability

Radiographic examination revealed generalized alveolar bone loss and poor periodontal prognosis of the remaining teeth. (fig 3)



Fig: 2b.



Fig: 3.

Treatment Plan

Considering the patient's clinical condition and prosthodontic requirements, the following treatment plan was formulated

- Extraction of hopeless remaining teeth
- Tissue healing and conditioning phase
- Fabrication of conventional complete denture.
- Selective relief of compressible tissues during impression making
- Modification of denture flange extension in the upper labial region
- Periodic recall, post-insertion adjustment, and follow-up.

Prosthodontic Procedure

1. Completely edentulous maxillary and mandibular arch. (fig :4a& 4b)
2. Primary impression: Made with impression compound; diagnostic models fabricated using Type II model plaster. (fig :5)
3. Custom trays: Spacer wax adapted, and trays fabricated using self-cure acrylic material (fig :6)

4. Border moulding: Done using low-fusing impression compound, followed by final impression with zinc oxide eugenol impression material. (fig :7)
5. Master cast: Poured using Type III dental stone; baseplate fabricated using self-cure acrylic resin; occlusal rims made with modeling wax. (fig :8)
6. Vertical dimension and centric relation were recorded carefully due to altered lip anatomy and compromised muscular balance. articulated on mean value articulator (fig :9a& 9b)
7. Semi-anatomic acrylic teeth were arranged to provide adequate lip support and acceptable esthetics. Try in carried out. (fig :10 a,10b,10c)
8. The dentures were processed using heat-cure acrylic resin. Polished surfaces were contoured to harmonize with surrounding musculature and minimize soft tissue irritation. (fig :11a,11b,11c)
9. At insertion, retention, stability, esthetics, phonetics, and pressure areas were evaluated and corrected.
10. The patient was reviewed after 24 hours, one week, and one month. Improvement in mastication, speech, facial support, and patient confidence was observed. No significant mucosal irritation or ulceration was noted.



Fig: 4a.



Fig: 4b.



Fig: 5.



Fig: 6.



Fig.: 7.



Fig: 8.

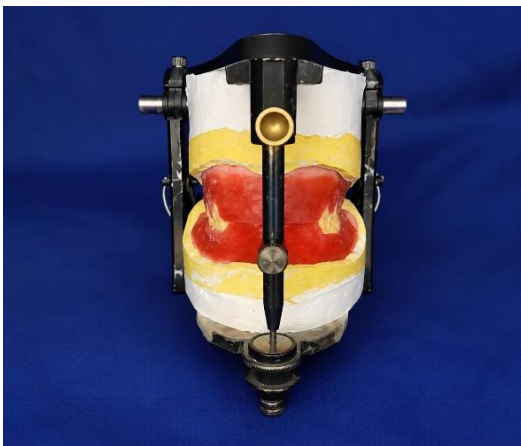


Fig.: 9a.

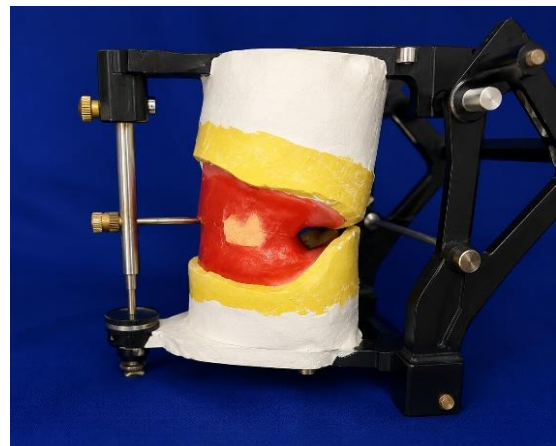


Fig.: 9b.



Fig.:10a.



Fig.: 10b.



Fig.: 10c.



Fig.: 11a.



Fig.: 11b.



Fig.: 11c.

DISCUSSION

Neurofibromatosis Type 1 (NF1), also known as Von Recklinghausen disease, is a hereditary neurocutaneous disorder commonly associated with oral manifestations such as vestibular obliteration, soft tissue enlargement, macroglossia, and alveolar ridge deformities.^[1] Oral involvement has been reported in approximately 66–72% of affected patients and often complicates prosthodontic rehabilitation because of altered denture-bearing anatomy.^[8]

In the present case, diffuse enlargement of the upper labial tissues and compressible vestibular anatomy compromised denture retention and stability. Excessive pressure during impression making may distort these tissues and result in an unstable prosthesis. Therefore, a selective pressure impression technique with relief over the affected areas was used to minimize tissue displacement and improve denture adaptation.

Previous reports have emphasized the need for modification of conventional prosthodontic procedures in NF1 patients. D'Ambrosio *et al.*^[11] reported that vestibular deformities and soft tissue hyperplasia adversely affect denture extension and require customized impression techniques. Guedes *et al.* highlighted the importance of individualized denture design in patients with neurofibromatous oral changes. Similarly, Shigli and Angadi recommended minimally displacive impression techniques and controlled flange extension to improve comfort and prosthesis stability in compromised vestibular anatomy.^[12]

Careful border molding and reduced flange extension were essential in the present case to prevent tissue irritation and ulceration while maintaining an adequate peripheral seal. Apart from restoring mastication and speech, the prosthesis also improved lip support, facial appearance, and patient confidence.^[10]

Although surgical correction may be considered in severe deformities, conservative prosthodontic rehabilitation remains a practical and economical treatment option for many NF1 patients. Regular follow-up is essential because progressive soft tissue changes may influence long-term denture adaptation and tissue tolerance.

CONCLUSION

Successful prosthetic rehabilitation of neurofibromatosis patients requires careful diagnosis, modified clinical procedures, and periodic maintenance. Complete dentures fabricated with selective pressure impression techniques can provide satisfactory esthetic and functional outcomes while improving the patient's quality of life.

Source of Funding

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Conflict of Interest

None.

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