

# Full Mouth Rehabilitation of a Patient with Severely Worn and Discoloured Dentition: A Case Report

Dr. Jayesh Jain<sup>1</sup>, Dr. Chethan M D<sup>2</sup>, Dr. Nandeeshwar D B<sup>3</sup>

<sup>1</sup>Postgraduate, Department of Prosthodontics and Crown & Bridge, Bapuji Dental College and Hospital, Davangere, Karnataka, India

<sup>2</sup>Professor, Department of Prosthodontics and Crown & Bridge, Bapuji Dental College and Hospital, Davangere, Karnataka, India

<sup>3</sup>Principal, Head of the Department, Department of Prosthodontics and Crown & Bridge, Bapuji Dental College and Hospital, Davangere, Karnataka, India

Corresponding Author: Dr. Jayesh Jain

DOI: <https://doi.org/10.52403/ijhsr.20250326>

## ABSTRACT

Full mouth rehabilitation aims to restore function, aesthetics, and comfort for patients with compromised dentition. This case report presents the comprehensive treatment of a 54-year-old male patient with severe dental attrition and discoloration, which significantly affected his oral health and overall well-being. The patient reported generalized tooth wear, hypersensitivity, and dissatisfaction with the aesthetic appearance of his teeth. Clinical examination revealed a loss of vertical dimension of occlusion (VDO), extensive dentin exposure, and occlusal instability. A phased multidisciplinary approach was implemented, including occlusal stabilization and definitive prosthetic restorations using all-ceramic crowns. Final occlusal adjustments were performed using T-Scan analysis to ensure optimal occlusal balance and function. Post-treatment, the patient exhibited significant improvements in masticatory function, aesthetics, and sensitivity relief, demonstrating the effectiveness of a well-structured rehabilitation plan. This case underscores the importance of personalized treatment strategies in managing severe dental wear and discoloration, enhancing both functionality and patient confidence.

**Keywords:** Full mouth rehabilitation, worn dentition, discoloured teeth, occlusal reconstruction, prosthodontics

## INTRODUCTION

Severe dental wear and discoloration can significantly impact a patient's oral health and quality of life. Full mouth rehabilitation is a challenging yet rewarding approach that involves restoring the vertical dimension of occlusion (VDO), improving aesthetics, and ensuring long-term functionality. This case highlights the management of a patient presenting with severely worn and discoloured dentition using a combination

of prosthodontic and restorative techniques.<sup>1,2</sup>

## CASE PRESENTATION

A 54-year-old male patient presented with complaints of generalized tooth wear, sensitivity, and dissatisfaction with the appearance of his teeth (Fig. 1). His medical history was non-contributory, and no parafunctional habits, but he had a personal history of areca nut chewing for 24 years. Clinical examination revealed severe

generalized attrition, a significant loss of VDO, yellowish-brown discoloration, and extensive dentin exposure, leading to pronounced hypersensitivity. The patient also exhibited malocclusion with reduced occlusal stability and a missing tooth irt 36. Radiographic evaluation, including an orthopantomogram (OPG) and intraoral periapical X-rays, confirmed the absence of periapical pathology and adequate bone support for prosthetic intervention. A comprehensive treatment plan was developed to restore function and aesthetics.<sup>3,4,5</sup> Initially, diagnostic

impressions were obtained, and a diagnostic wax up was performed to evaluate possible aesthetic outcomes. A facebow record was obtained to ensure precise articulation of maxillary and mandibular models on a semi-adjustable articulator (Fig. 2). Occlusal stabilization was initiated using a removable occlusal splint to assess the patient's adaptation to an increased VDO (Fig. 3). Deprogramming with a Lucia jig was performed to obtain a reproducible centric relation, followed by a new centric bite record using bite registration paste (Fig. 4).<sup>1,2</sup>



Fig 1: Preoperative images;



Fig 2: Facebow record;



Fig 3: Occlusal splint



Fig 4: Deprogramming



Fig 5: Diagnostic wax up



Fig 6: Teeth preparation

A diagnostic wax-up was meticulously designed on semi-adjustable articulators, guided by Broadrick's occlusal plane analyser, to establish an optimal occlusal scheme and aesthetic framework (Fig. 5).<sup>6,7,8,9</sup> After patient approval of the planned aesthetics, teeth preparations were carried out following PMS philosophy, ensuring adequate clearance for definitive restorations while preserving tooth structure (Fig. 6). Provisionalization was performed using milled PMMA crowns at the planned raised VDO to allow functional adaptation and aesthetic evaluation over a trial period (Fig. 7). The patient reported significant improvement in comfort and phonetics,

confirming the feasibility of the proposed occlusal changes.<sup>10</sup>

The final restorations consisted of anterior layered zirconia crowns, which provided superior aesthetics and translucency, while posterior monolithic zirconia crowns were chosen for their strength and durability (Fig. 8). Final occlusal refinements were performed using T-Scan analysis to ensure precise occlusal contacts and even distribution of forces, minimizing the risk of premature contacts and occlusal overload.<sup>11</sup> The patient expressed satisfaction with the improved aesthetics and functionality, reporting the complete resolution of hypersensitivity and enhanced mastication efficiency.



Fig 7: Provisionalisation with milled PMMA crowns

A structured maintenance phase was implemented to ensure long-term stability. The patient was provided with a custom night guard to prevent excessive occlusal forces during sleep. Scheduled follow-ups at 3, 6, and 12 months were planned to

monitor occlusal stability, reinforce oral hygiene practices, and make minor refinements as needed. At the 3-month follow-up, the patient exhibited excellent adaptation to the restorations, with no reported complications.<sup>12,13</sup>



Fig 8: Definitive restorations with zirconia crowns

## DISCUSSION

This case emphasizes the importance of careful diagnosis, occlusal planning, and an interdisciplinary approach in full mouth rehabilitation. Patients with severe attrition and discoloration require a comprehensive evaluation to determine the extent of enamel and dentin loss, occlusal disharmony, and

functional impairments. Restoring lost vertical dimension is crucial in such cases, as an improper increase can lead to temporomandibular joint discomfort, muscle fatigue, and failure of restorations. The use of deprogramming with a Lucia jig played a vital role in achieving an accurate centric relation record, ensuring a stable foundation



for occlusal reconstruction.<sup>1,2</sup> The Broadrick's occlusal plane analyser assisted in designing a balanced occlusal scheme to optimize function and aesthetics.<sup>6,7</sup> Provisionalization using milled PMMA crowns allowed the patient to adapt to the new occlusion before the final restorations, ensuring patient comfort and successful treatment outcomes.<sup>13,14</sup>

The choice of materials was critical in achieving durability and aesthetics. Anterior layered zirconia crowns provided excellent translucency and natural appearance, while posterior monolithic zirconia ensured high strength and resistance to wear. The integration of T-Scan analysis for final occlusal adjustments further enhanced treatment precision, preventing high occlusal forces that could lead to restoration failure. Additionally, long-term success depends on an effective maintenance protocol. Regular follow-ups allowed for early identification of any occlusal discrepancies, minor refinements, and reinforcement of oral hygiene practices. The use of a night guard further helped in preventing parafunctional damage to the new restorations.

This case underscores the significance of a structured, phased approach in full mouth rehabilitation, emphasizing digital technologies and precision-driven prosthodontic techniques. A well-planned treatment sequence and adherence to occlusal principles ensure predictable outcomes and patient satisfaction in complex rehabilitative cases.

## CONCLUSION

Full mouth rehabilitation is essential for patients with severe tooth wear and discoloration. A systematic approach incorporating occlusal adjustments, provisional restorations, and definitive prostheses ensures a functional and aesthetic outcome with long-term success. The inclusion of a structured maintenance phase is crucial in preserving treatment results and preventing future complications.

## Declaration by Authors

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

## REFERENCES

1. Dawson PE. Functional occlusion: from TMJ to smile design. Elsevier Health Sciences; 2006 Jul 31.
2. Okeson J. Management of Temporomandibular Disorders and Occlusion. New York State Dental Journal. 2003 Aug 1;69(7):61.
3. Turner KA, Missirlian DM. Restoration of the extremely worn dentition. J Prosthet Dent. 1984;52(4): 467-74
4. Crothers AJ. Tooth wear and facial morphology. J Dent. 1992; 20(6): 333-41.
5. Mann AW. Examination, diagnosis, and treatment planning in occlusal rehabilitation. J Prosthet Dent. 1967 Jan 1;17(1):73-8.
6. Lynch CD, McConnell RJ. Prosthodontic management of the curve of Spee: use of the Broadrick flag. J Prosthet Dent. 2002 Jun 1;87(6):593-7.
7. Thimmappa M, Katarya V, Parekh I. Philosophies of full mouth rehabilitation: A systematic review of clinical studies. J Indian Prosthodont Soc. 2021 Jan 1;21(1):19-27.
8. Bloom DR, Padayachy JN. Increasing occlusal vertical dimension—Why, when and how. Br Dent J. 2006 Mar;200(5):251-6.
9. Gopi Chander N, Venkat R. An appraisal on increasing the occlusal vertical dimension in full occlusal rehabilitation and its outcome. J Indian Prosthodont Soc. 2011 Jun; 11:77-81.
10. Tunkiwala, A. Full Mouth Rehabilitation: A Contemporary Approach. J Prosthodont Restor Dent. 2019;9(2):85-97.
11. Bozhkova TP. The T-SCAN system in evaluating occlusal contacts. Folia Med (Plovdiv). 2016 Apr 1;58(2):122.
12. Moslehifard E, Nikzad S, Geraminpanah F, Mahboub F. Full-mouth rehabilitation of a patient with severely worn dentition and uneven occlusal plane: A clinical report. J Prosthodont. 2012; 21(1): 56-64.
13. Moshaverinia A, Kar K, Aalam AA, Takanashi K, Kim JW, Chee WW. A multidisciplinary approach for the

rehabilitation of a patient with an excessively worn dentition: A clinical report. *J Prosthet Dent.*2014; 111(4): 259-63.

14. Donovan, T. E., & Cho, G. C. Contemporary clinical approaches to restoring severely worn dentition. *J Calif Dent Assoc.* 2012;40(6):441-7.

How to cite this article: Jayesh Jain, Chethan M D, Nandeeshwar D B. Full mouth rehabilitation of a patient with severely worn and discoloured dentition: a case report. *Int J Health Sci Res.* 2025; 15(3):177-181. DOI: <https://doi.org/10.52403/ijhsr.20250326>

\*\*\*\*\*