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CASE REPORT

# A Combined Interdisciplinary Expertise for the Treatment of Patients with Worn-out Dentition: Report of Two Cases

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## ABSTRACT

The gradual wear of the occlusal surfaces of teeth is a normal process during the lifetime of a patient. However, severe occlusal wear can lead to pulpal pathology, occlusal disharmony, impaired function, and esthetic disfigurement. Full mouth rehabilitation is re-establishing a state of functional efficiency in which the teeth and their periodontal structures, the muscles of mastication, and the temporomandibular joint mechanisms all function together in synchronous harmony. Patients with worn out dentition and collapsed occlusion require extensive dental procedure to achieve aesthetics, appropriate function and comfort. This clinical report describes a patient with worn out dentition. Patient underwent interdisciplinary approaches. Endodontic treatment was taken up first so as to take care of all the exposed teeth due to occlusal wear, followed by periodontal rehabilitation for pocket elimination and finally by prosthetic reconstruction.


**Keywords:** Esthetic, Full mouth rehabilitation, Function stability, Regeneration, Worn out dentition.

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## INTRODUCTION

Gradual wear of the occlusal surfaces of teeth is a normal process during the lifetime of a person. Badly worn teeth present a real restorative challenge[1] as a result of pulpal involvement, occlusal disharmony, impaired function, and esthetic disfigurement. The dental treatment in today's era is rewarding for both dentist and patient. This giant leap in dentistry is subjected to the hands joined together by various specialized disciplines, thus emphasizing that the collaborative team approach gives an added essence toward a successful treatment plan for complex oral rehabilitation.

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## CASE REPORTS

This case report presents two cases that needed comprehensive treatment for oral rehabilitation.

### Case I

A 60-year-old female patient reported to the Department of Periodontology with severe worn-out dentition and collapsed occlusion (Figs 1A and B). Examination revealed that severe attrition caused sensitivity to hot and cold and loss of vertical height. Gingival health was compromised and presence of moderate-to-deep pockets was observed.

### Treatment

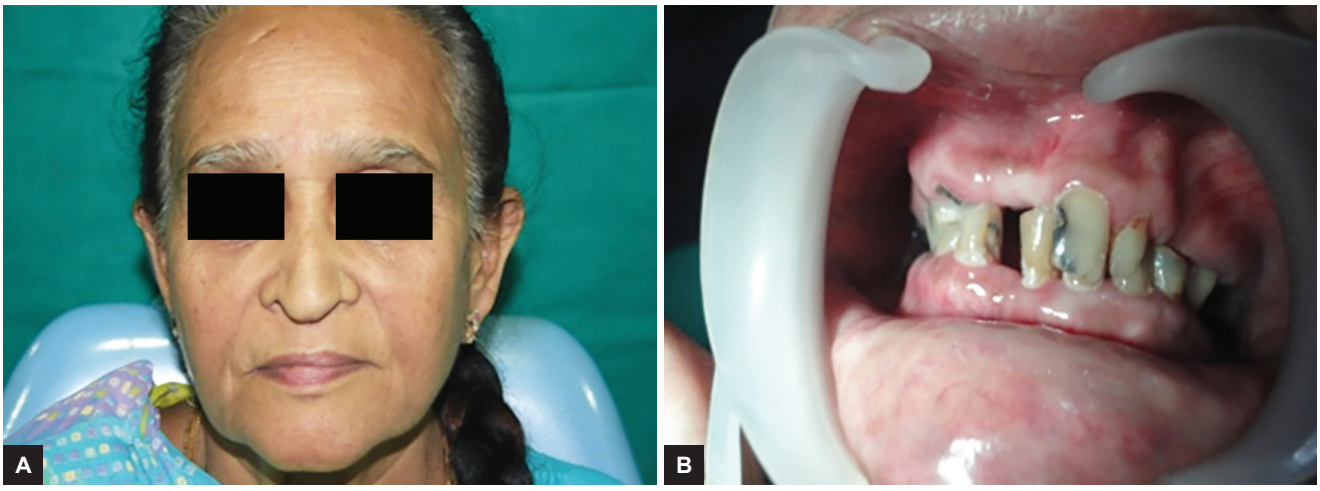
After a detailed clinical examination, it was decided that the endodontic treatment should be carried out first in relation to teeth having pulpal exposure, followed by periodontal treatment and finally by prosthetic rehabilitation.

### Endodontic Approach

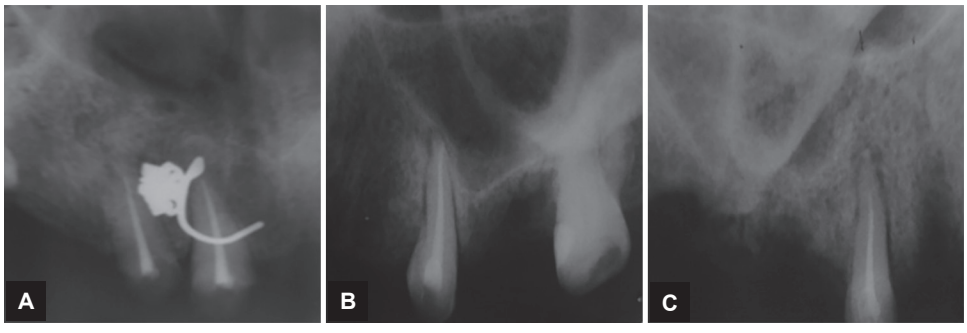
Conventional root canal treatment was done in relation to 22 and 23 (Fig. 2A) due to deep proximal caries with pulp involvement, and intentional root canal treatment done in relation to 13 and 25 due to severe attrition (Figs 2B and C).

### Periodontal Approach

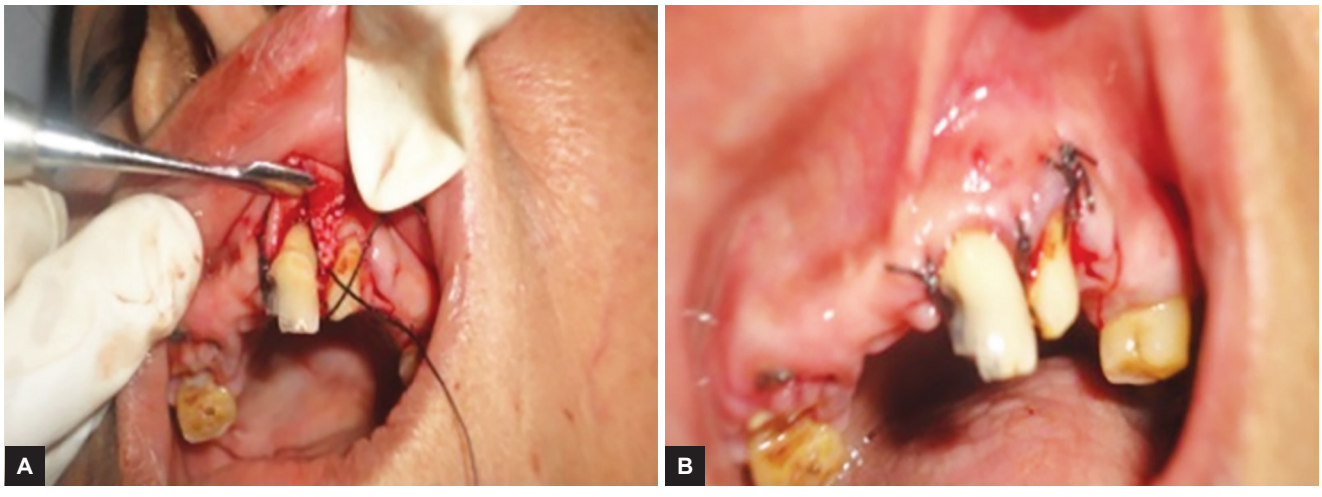
After 1 month of endodontic intervention, the patient was referred back to the Department of Periodontology. The patient underwent scaling and root planning, and after 1 month of SRP, patient was recalled for periodontal surgical intervention. Flap surgery was carried out for the treatment of periodontal pockets present (Figs 3A and B) and a healthy gingival status was achieved.



**Figs 1A and B:** (A) Preoperative view; and (B) preoperative intraoral view



**Figs 2A to C:** (A) RC treated 22 and 23; (B) Radiographs: RC treated 13; and (C) RC treated 25

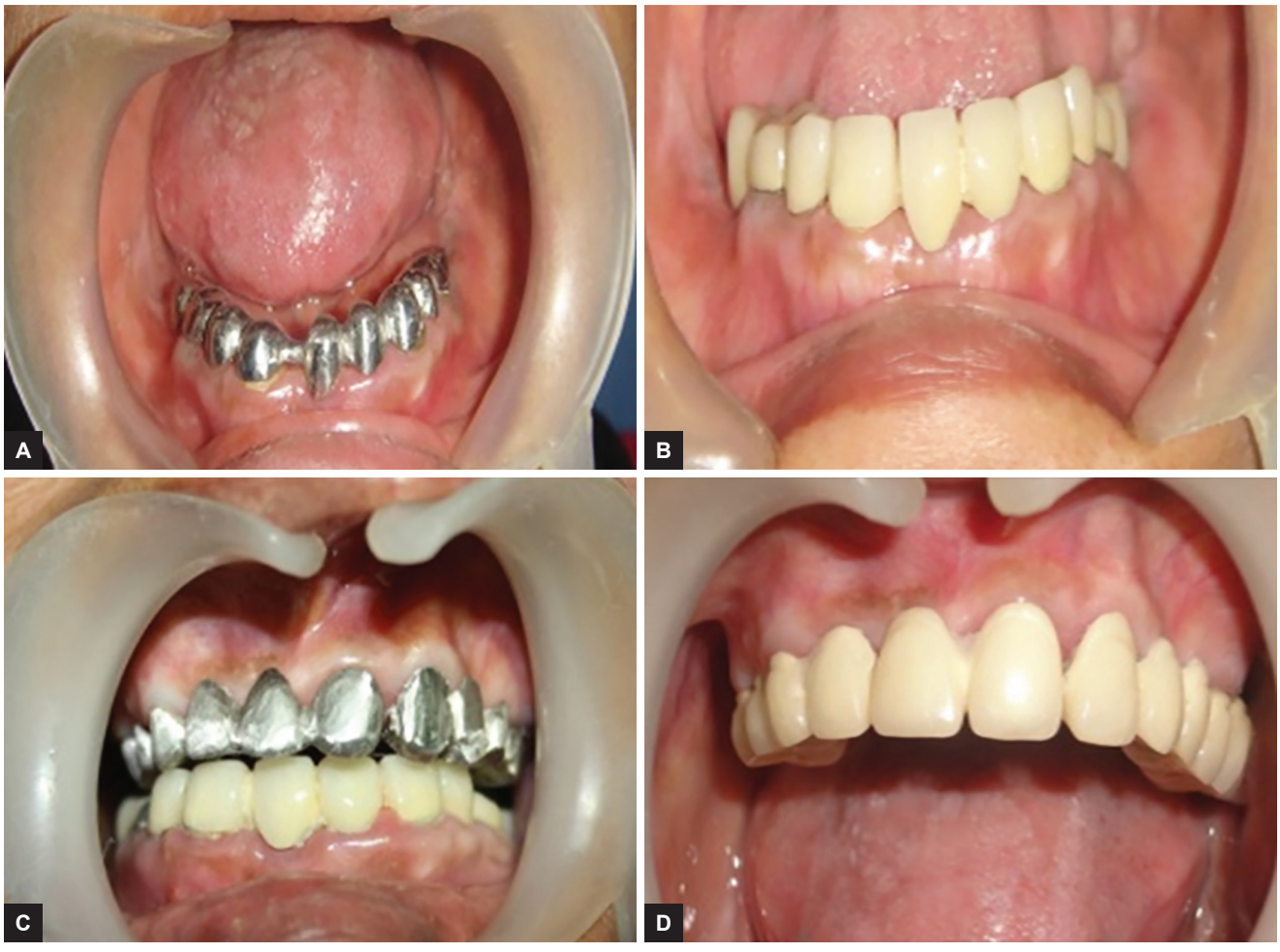


**Figs 3A and B:** (A) Intraoperative view showing reflection and debridement; and (B) suture being placed

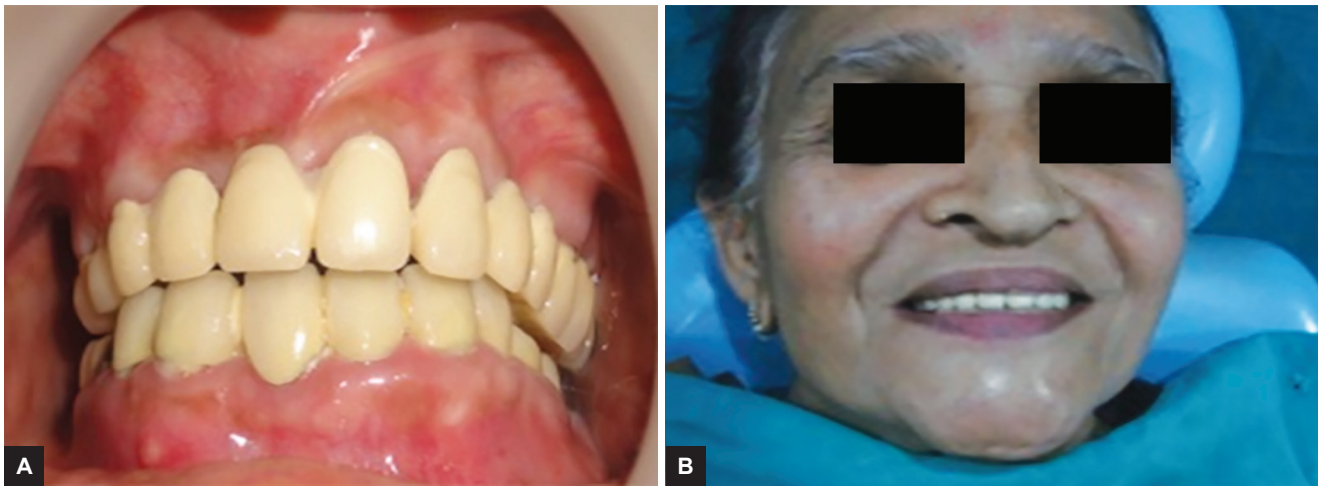
## Prosthodontic Approach

After completion of periodontal surgical intervention and achieving a healthy periodontal status, prosthetic treatment was carried out. The steps for prosthodontic rehabilitation were as under:

- Impression was made for the upper and lower arch to get a diagnostic cast and bite registration was done.
- With the help of the face bow, this record was transferred to the articulator and mounted.
- Patient was recalled for crown preparation. After the crown preparation, impression was made with the two-stage technique and bite registration was done.
- After lab procedure, metal try-in was done (Figs 4A to D) and finally, porcelain fused to metal bridge was cemented in relation with both the upper and lower arches, achieving an aesthetically balanced occlusion (Figs 5A and B).



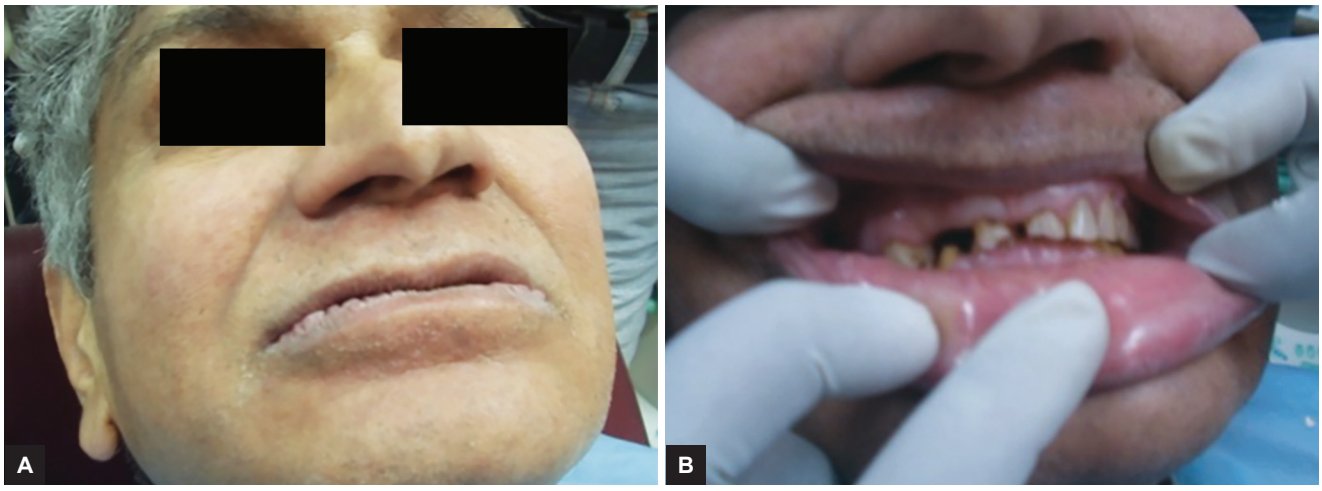

**Figs 4A to D:** (A) Intraoperative view showing metal try-in with the lower arch; (B) intraoperative photograph showing fabrication of the bridge with the lower arch; (C) intraoperative view showing metal try-in with the upper arch; and (D) intraoperative view showing fabrication of the bridge with the upper arch




**Figs 5A and B:** (A) Postoperative; and (B) postoperative

## Case II

A 57-year-old male patient was referred to the Department of Periodontology with complain of sensitivity to hot and cold. Detailed history and examination revealed that there was attrition and loss of vertical dimension along with sensitivity to hot and cold (Figs 6A and B). It was observed that gingival was red in color, soft edematous in consistency, with bleeding on probing. Shallow-to-moderate pockets were present as well along with generalized attrition. Full-mouth IOPAs were taken and blood investigations were done.



**Figs 6A and B:** (A) Preoperative view; and (B) preoperative front view

### Endodontic Approach

In this case, root canal treatment was done in relation to 11 and 21 due to exposure of severely attritioned teeth. Tooth 11 was symptomatic and tender on vertical percussion, whereas tooth 21 was extremely sensitive due to attrition.

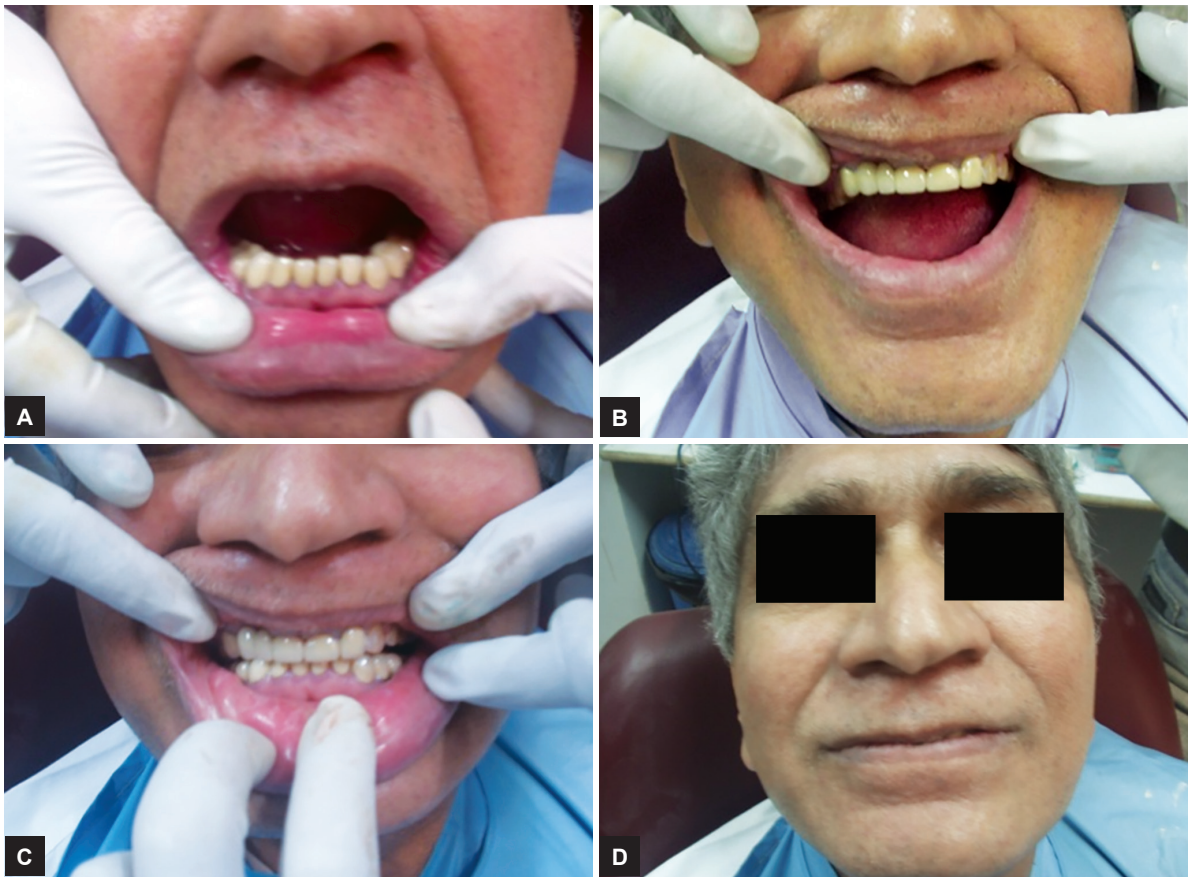
### Periodontal Approach

After completion of endodontic intervention, the patient underwent scaling and root planning. After 1 month of SRP, the patient was recalled for periodontal surgical intervention.

### Prosthodontic Approach

After completion of periodontal surgical intervention, as the condition of periodontium improved, prosthetic rehabilitation was carried out.

The prosthetic steps were same as discussed for case I in order to achieve a balanced occlusion with esthetic harmony (Figs 7A to D).



**Figs 7A to D:** (A) Intraoperative view showing the fabrication of bridge with the lower arch; (B) the fabrication of bridge with the upper arch; (C) postoperative intraoral view; and (D) postoperative extraoral view

## DISCUSSION

The ever-expanding demand for cosmetic dentistry has not only helped the dental profession, but has also created more demand and training for clinicians.[2] More often than not, patients tend to be more informed and have more demands, both realistic and unrealistic. Thus, the challenge a clinician faces everyday becomes how to balance the functional, scientific, and anatomic aspects of dentistry with the more abstract artistic side to arrive at a treatment result that will not only satisfy the cosmetic goal of the patient but also the long-term goal of the clinician concerning proper and stable occlusion.

To execute an esthetic and functional treatment, the clinician must be armed with not only the traditional diagnostic tools, such as radiographs, properly mounted study and diagnostic models, and wax-up, the clinician also must be armed with a critical eye and imagination that allows him or her to envision the desired result before even starting the treatment.[3] Worn-out dentition has been categorized as follows: (1) excessive tooth wear with loss of vertical dimension of occlusion; (2) excessive tooth wear without loss of vertical dimension of occlusion and with adequate interalveolar space for reconstruction of dental material; (3) excessive tooth wear without loss of vertical dimension of occlusion and with extremely limited space for reconstruction of dental materials.[4]

Restoration of severely worn-out dentition was the main objective in both the cases. The vertical dimension was mentioned at the existing vertical dimension of occlusion, since it remains constant because tooth wear is compensated by continuous active eruption of the dentition at a rate equal to the loss of incisal and occlusal tooth substance, provided there is no pathology.[5]

Under favorable condutions, it is observed that the bone gets continuously replaced at the free borders of the alveolar process with growing age, though this continuous bone apposition involved to compensate the occlusal wear can seriously reduce the interalveolar space.[6]

Thus, maintaining the biologic width before the final restoration becomes very important. It could be achieved by surgical/orthodontic procedures to expose the healthy tooth structure.

## CLINICAL SIGNIFICANCE

Fine correlation between esthetic and functioning depends on multidisciplinary approaches to rehabilitate. Various aspects are considered to achieve lost vertical dimension, tooth structure, and physiologic neuromuscular position and to regain the function with improved esthetics.

## CONCLUSION

This article projects the significance of proper and logical treatment planning as well as clear communication between the dentists and the patients regarding the outcomes of the planned dental treatment. An esthetically functional result can only be achieved if the clinician communicates well with the patient and plans a logical treatment sequence along with other related dental specialities. The complex case can be simplified if it is broken down and addressed separately, thereby providing a treatment outcome as per the expectations of a patient.

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