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Multidisciplinary Approach for Adult Orthodontic Care

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Introduction

Over the past two decades there has been a paradigm shift in the approach to treatment planning for dental patients. The practice of dentistry is changing from a single specialist or general dentist to a team approach. This approach enables the utilisation of skills and expertise of clinicians of different specialities and defines the term inter-disciplinary treatment, where the patient is benefitted the most. This approach is benefited for the patients with mutilated dentition and congenitally defects also because it idealises the dentition to an aesthetically and functionally acceptable result.^{1,2}

The aim of this case report is to present and describe the orthodontic treatment of an adult patient with peg shaped maxillary lateral and congenitally missing mandibular central incisor and who also presented with generalised spacing and periodontally compromised teeth. Our goal is to provide an adequate aesthetic and functional reconstruction of the occlusion while restoring his periodontal health.

Diagnosis and Etiology

A 21 year old, male patient reported to the OPD of Department of Orthodontics and Dentofacial Orthopaedic, Subharti Dental College, Meerut, India. The patient reported with a chief complaint of spacing and missing teeth in lower anterior tooth region. While taking history, the patient revealed that lower central incisors were congenitally missing and there was no history of trauma or extraction.

On clinical examination, it was found that the patient had convex profile, competent lips, Class I molar and canine relation, an overbite of 2mm and a peg-shaped upper left lateral incisor. Cephalometric analysis revealed that the patient had Class I skeletal bases with an orthognathic maxilla and mandible and average growth pattern.

The patient was referred to the department of Periodontology, where he was subjected to full mouth ultrasonic scaling and strict oral hygiene maintenance instructions were given. The prognosis of both lower lateral incisors was checked and it was found that the prognosis of left lower lateral incisor (32) was poor.

Problem List

- Missing mandibular central incisors
- Proclined upper incisors and lower incisors
- Peg shaped maxillary lateral incisor (22)
- Rotations and spacing

Treatment Objectives

- Correction of inclination of upper and lower anterior teeth
- Consolidation of spacing and correction of rotations
- Rehabilitation of lower anterior teeth and esthetic crown build-up of maxillary left peg lateral incisor

Treatment Plan

According to the periodontal consultation, extraction of mandibular left lateral incisor was planned. Levelling & alignment, space closure and rehabilitation of missing teeth and composite build-up of peg lateral was planned.

Treatment Progress

Treatment commenced with extraction of the left lower lateral incisor as it was periodontally compromised. Fixed orthodontic treatment was started using pre-adjusted edgewise appliance with MBT prescription of .022" x .028" slot. Levelling and alignment was done with round 0.014 and 0.016 NiTi, followed by rectangular 0.016 x 0.022 SS, 0.017 x 0.025 SS, 0.019 x 0.025 NiTi, 0.019 x 0.025 SS wire. Riding pontic was used to maintain the space for the missing mandibular incisors. Closed vertical loop was used to close the space in maxillary arch, leaving a space of 2mm for esthetic build-up of the upper left lateral incisor.

After achieving the desired space closure, the patient was referred to the department of conservative dentistry where he was given an aesthetic restoration (composite build-up) of the upper left lateral incisor.

Further the patient was referred to the department of Prosthodontics for prosthesis of missing lower anteriors. The active treatment time was 10 months. After fixed appliance removal, a fixed retainer was placed in the maxillary arch. The patient was recalled for periodontal examination every 6 months.

Treatment Results

The inclination of upper anterior teeth was corrected and the spacing in maxillary anterior region was consolidated. Rotation correction was achieved and ideal overjet and overbite was achieved. Missing mandibular incisor was replaced with a fixed prosthesis. There was a great improvement in the esthetics of his smile and his confidence level also increased.

Discussion

Aesthetic and function was a prime concern in the treatment of this adult patient. Our main concerns in this case were missing lower anterior

teeth, peg shaped upper left lateral incisor, proclination and generalised spacing. Because the missing teeth were in the display zone of the patient's smile, prosthetic replacement was included in the treatment plan. In an adult patient, who is particular about his appearance, riding pontic as space maintainers is a good option during treatment. So after colour matching, the mesio-distal width and height was determined and the bracket was bonded on the acrylic tooth. Thus we were able to improve the psychosocial status of the patient during the treatment progress. A closed vertical loop was chosen for the closure of space because there was a generalised spacing in the maxillary anterior region.^{3,4}

The patient was then referred to the department of Conservative Dentistry for crown build-up of upper left peg-shaped lateral incisor. Taking the patient's opinion and the cost into consideration, the minimally invasive direct composite build up of the peg-lateral was done. Finally after debonding, the patient was referred to the department of Prosthodontics for rehabilitation of lower anterior region. The patient was given different choices with all the information regarding this. He decided to go for all ceramic crowns. For the same, more crown cutting is required. So the concerned Prosthodontist recommended for intentional root canal treatment of the teeth adjacent to the missing teeth. After root canal treatment, the rehabilitation of space was done with all ceramic crowns (Zirconia).

Conclusion

The amalgamation of specialities of Endodontics, Prosthodontics and Periodontology with Orthodontic care gave a satisfactory result in this case. Careful interdisciplinary planning delivers wonderful results. We were able to restore the patients function, esthetics, and quality of life. The patient was pleased with his appearance.

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