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Case Report

Aesthetic rehabilitation of a nonsyndromic oligodontia patient - A conservative treatment approach

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ABSTRACT

Oligodontia, a developmental dental anomaly, characterized by the congenital absence of more than six permanent teeth except the third molarsleading to functional, aesthetic,and psychological problems, when the anterior region is involved.

This case report describes a multidisciplinary treatment approach of a 21 year old female patient with missing 6 permanent teeth. Microdontia with respect to mandibular canine was observed and retained deciduous mandibular canine was seen on intraoral examination. The first phase of treatment wasextraction of maxillary central incisors followed by alveoloplasty. The second phase of treatment included intentional pulp space therapy followed by prosthetic restoration of the missing teeth with fixed partial denture as a quick solution for the patients who reject more time-consuming procedure.

1. Introduction

The focus of dentistry in the present times is not only the prevention and treatment of diseases but on meeting the demands for better aesthetics. Aesthetic dentistry is emerging as one of the most progressive and challenging branches of this field. Basically, the smile is dependent on the musculature and the presence of the teeth. But every person is not fortunate enough to have a beautiful smile. The answer to the above problem is the aesthetic dentistry which has developed leaps and bounds with the latest technologies and materials. The goal in the creation of aesthetic dental restorations is to stimulate or improve upon the appearance of the natural dentition. The successful aesthetic restorations must integrate harmoniously with the whole of the face, not just with the surrounding teeth.[1]

The aesthetic and functional rehabilitation of a missing anterior teeth is one of the greatest challenges that the dentist faces. The procedure becomes cumbersome when the missing teeth cannot be replaced due to unwillingness of the patient to experience time consuming procedures.[2] The conventional fixed partial denture can be considered a viable alternative in such situations.

Oligodontia has been reported to be the most common developmental dental anomalies. Generally, prevalence of oligodontia happened 1.37 times more frequently in females than in males. Mandibular second premolars were missing more frequently than maxillary lateral incisors or maxillary second premolars. Also, maxillary lateral incisors were found to be absent more frequently bilaterally than unilaterally, whereas the contrary was true for maxillary first and second premolars and mandibular second premolars.[3]

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Individuals with oligodontia are characterised by congenitally missing teeth, delayed eruption, microdontia, retained deciduous teeth, enamel hypoplasia, diastema, and deep overbite.[4] Remaining teeth can vary in size, shape, and rate of development. Permanent teeth are more affected than the primary teeth.[5] Phonetics and masticatory functional disorders occur most frequently, nevertheless, aesthetic, physiological, and psychological problems may also arise beginning at an initial age.[3] Treatment options include Orthodontic alignment of teeth and space closure before prosthetic therapy, removable Partial dentures, Implant-supported restorations, or combinations of this approaches.[6]

This case report explains the management of a non-syndromic oligodontia patient with fixed dental prosthesis of maxillary and mandibular anterior region.

2. Case Report

A 21year old female patient reported to Department of Prosthodontics, A.J Institute of dental sciences, Mangalore with the chief complaint of unpleasant smile and forwardly placed front teeth. Extra-oral examination revealed facial asymmetry, incompetent lips with open bite and lip trap with mild decrease in lower facial height. The nasolabial angle was decreased with nasal septum deviation. The midline spacing between the two central incisors was found to be 8-9mm with a deep bite. A deep men to-labial sulcus and increased activity of the mentalis muscle was evident in the skin overlying the chin upon lip closure. Hyperactive upper lip was seen. (Figure 1)

Fig. 1:

Intra-oral examination revealed proclination with respect to 11 and 21. Missing teeth in relation to maxillary lateral incisors and third molars, mandibular central incisors and lateral incisors. Microdontia with respect to right and left mandibular canines. Retained deciduous canine was observed in the lower left region. (Figure 2)

Fig. 2:

On physical examination no abnormalities were detected to suggest any syndrome. Since oligodontia is the frequent finding in ectodermal dysplasia, this was evaluated in the differential diagnosis. Sweating, patient's nails and skin appeared normal, and hence ectodermal dysplasia was excluded.

Multiple missing teeth, increased horizontal and vertical overlap, midline diastema of 8-9 mm with 80% incisor display on smiling, which necessitated long term orthodontic correction, Frenum was within the normal limits.

Diagnostic records included an orthopantomogram (OPG) and mounted study models. OPG (Figure 3) revealed missing maxillary and mandibular lateral incisors, mandibular central incisors, and maxillary right and left third molars. The Mandibular canines were conical in shape and mesiodistal diameters of the teeth were reduced. Radiographic examination revealed a sound abutment and adequate crown-root ratio with no deficiency in the residual ridge.

Fig. 3:

Based on the clinical and radiographic findings, the patient was offered with following treatment options-orthodontic alignment of teeth and space closure before prosthetic therapy, removable partial dentures, conventional fixed dental prosthesis, Implant-supported prosthesis, or combinations of these options. The implant-supported prosthesis was excluded due to surgical intervention and due

to time constraints orthodontic treatment was not opted by the patient.

Therefore, treatment plan included extraction in relation to 11,12 and mandibular retained deciduous canine followed by recon touring of maxillary bone on buccal aspect to reduce maxillary bone prominence. Intentional Root canal therapy in relation to 33 and 43. Six-unit FPD in relation to 13,12,11,21,22 and 23 with 13 and 23 as abutments and five-unit FPD in relation to 44,43,42,31,32,33 with 33, 43 and 44 as abutments was planned. The patient had stable occlusal contacts on static and dynamic occusion. There fore approximately 2.5 mm vertical and horizontal overlaps was planned for prosthesis.

2.1. Clinical procedure

After oral prophylaxis, Intentional RCT in relation to 33 and 43 was performed. A preliminary maxillary and mandibular arch impression was made with irreversible hydrocolloid impression material. Diagnostic wax-up was done on maxillary and mandibular casts mounted in mean value articulaor. A putty index of maxillary and mandibular anterior teeth wax up was done.

Extraction of 11,21 and retained deciduous canine followed by alveoloplasty of maxillary anterior region was done under local anesthesia. (Figure 4), Post extraction instructions were given to the patient and patient was recalled after 1 week for suture removal.

Fig. 4:

Subsequently after 2 weeks when healing was satisfactory tooth preparation was done in relation to 13, 23,33,43 and 44. One step putty light body impression of maxillary and mandibular arch was made. Temporization was done using Protemp temporary restorative material (Figure 5). After 4 days metal try-in was done. After 2 days final prosthesis was cemented.(Figure 6) One year successful clinical follow up of the patient was done. (Figure 7)

Fig. 5:

Fig. 6:

Fig. 7: One year follow-up

3. Discussion

Oligodontia is defined as developmental absence of six or more teeth which can affect permanent dentition. In patients with Oligodontia, several other dental and oral symptoms can be observed. However aesthetic and psychological problems require special attentionas they are often associated with low self-esteem and problems with social acceptance.[3]

In above case, the patient presented with concerns about appearance due to proclined anterior teeth and had a high smile line with spacing in the maxillary anterior segment which was aesthetically challenging to the dentist and required vigilant management.

Extraction of maxillary central incisors and lower lateral incisor, followed by root canal therapy of lower canines with prosthetic rehabilitation. The patient totally agreed with this type of treatment. The demand for the dentist to achieve superiority in aesthetics and function has driven modern developments in materials and restoration fabrication.[7]

Choice of extraction of maxillary anterior teeth followed by alveoloplasty in this case was time-saving for the patient, minimizing the cost of treatment and gave patient some confidence to smile. Facial symmetry in the aesthetic zone in maxillary teeth was obvious.

This procedure is simple, easy, and less time consuming than any other approaches. It is an affordable and quick solution for the patients who reject more extensive treatments. Further studies are needed to evaluate the long term usefulness of the procedure.

4. Conclusion

Achieving a pleasing result, functionally and aesthetically was possible over the close cooperation of specialists and meticulous planning from the onset of treatment to a final aesthetic outcome.

The treatment outcome of this case achieved an excellent symmetry with aesthetics using PFM crown and bridge replacing extracted maxillary central incisors.

This technique can successfully be used as a short or long term substitute for replacement of missing anterior tooth in a young or adult patient.

5. Conflict of Interest

None.

6. Source of Funding

None.

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