MINIMALLY INVASIVE MANAGEMENT OF NON-SYNDROMIC OLIGODONTIA INAN ADULT – A CASE REPORT

Dr. Surya Rengasamy, Dr. Nithiyarajan Nambirajan , Dr. Vidyashree Nandini V, Dr. David Charles P

*-Senior lecturer

**-Postgraduate student

+- Professor and head

Department of Prosthodontics and Implantology,

SRM Kattankulathur Dental College and Hospital,

Kancheepuram District, Tamil Nadu, India

Abstract:

Oral rehabilitation of oligodontia requires interdisciplinary approach and better outcome can be obtained if treated at a younger age. This article describes a case of non syndromicoligodontia in an adult who reported with midline diastema, overerupted maxillary central incisors, retained laterals and canines and missing permanent teeth. Collaborative efforts of prosthodontic, periodontic and endodontic procedures were carried out to establish a better smile line and esthetics.

Keywords: oligodontia, hypodontia, agenesis, prosthetic treatment

Introduction:

Anodontia is a condition wherein the teeth are congenitally missing.Hypodontia refers to a condition wherein, the missing of teeth are less than five permanent teeth. Oligodontia is the agenesis of six or more teeth excluding the third molars[1]. The etiology of congenital absence of teeth can be due to heredity or developmental anomalies. Oligodontia usually occurs due to mutation of MSX1 and PAX9 gene[2,3]. Various syndromes associated with oligodontia are ectodermal dysplasia, Rieger's syndrome, oto-palato-digital syndrome, Down's syndrome, Pierre Robin syndrome, EhlerDanlos syndrome, Witkop

syndrome, oro-facial-digital syndrome, oculo-facial-cardio-dental syndrome or incontinentiapigmenti. It can also occur isolated with no systemic conditions which is called as non-syndromic oligodontia which occurs in 0.16%[4] .When associated with syndromes, concomitant presence of systemic features affecting the skin, hair and nails are seen[5].Congenitally missing maxillary lateral incisors, second premolars, and mandibular central incisors are commonly seen in oligodontia cases[6]. Other oral findings include delayed eruption, retained deciduous teeth, enamel hypoplasias, increased free-way space and cleft lip/palate, diastema, and deep bite[7,8].

This condition requires comprehensive treatment planning with good coordination between various disciplines of dentistry like endodontics, periodontics, orthodontics, prosthodontics and if detected at an early age pedodontics and surgery also offer help in rehabilitation.

Case report:

A 26 year old male patient reported to the department of prosthodontics with the chief complaint of unaesthetic smile and required immediate solution. On examination, there was absence of 8 permanent teeth (12, 13, 15, 22, 23, 24, 31, 41) and also presence of retained deciduous teeth (52,53,62,63,55,71). 11 and 21 were supraeruptedwith midline diastema; due to the supraeruption, the marginal gingiva on the central incisors were placed inferiorly as compared to the adjacent teeth (**Fig. 1**). Ortho-pantamographrevealed absence of permanent maxillary laterals and canines, mandibular central incisors (**Fig. 2**). History revealed no genetic or familial association of anodontia. No abnormality was seen in either hair or nails, perspiration was normal and no congenital clefts of lip or palate was seen. So, the condition was diagnosed as non-syndromic oligodontia as it was not associated with any other clinical systemic signs and symptoms. The patient

Fig. 1 Pre-treatment intra-oral view of 11, 21 with RD 52,53,62,63

Fig. 2 Radiograph of the patient

was not willing to go in for extensive and long term treatment options. The patient requested he required a pleasant smile for an impending wedding.

The treatment plan involved esthetic correction with minimally invasive procedures without extraction of retained deciduous 52, 53, 62 and 63. Mock wax up of 52, 53, 11, 21, 62, 63was done to evaluate the final outcome. (**Fig.3**) Correction of smile line was done by reducing the level of 11 and 21 after root canal treatment and tooth preparation was completed to receive temporary crowns. (**Fig.4**) Cast was made from the diagnostic mock wax up model for template fabrication. The template was made using clear thermoplastic sheet in-order to make direct composite veneers in 52, 53, 62, 63. (**Fig.5**) Trial was done with bis-acryl provisional material (Pro-Temp, 3M ESPE, USA). Direct composite veneering (Filtek,3M ESPE, USA)was done in 52, 53, 62, 63. Gingival architecture was corrected byosteoplasty and gingivectomy in 11 and 21 and new temporaries were fabricated for 11 and 21 to the new level of gingival zenith. (**Fig.6**) After 3 weeks of healing, final impression was made with putty wash technique using polyvinyl siloxane impression material (Aquasil, Dentsply, USA). Metal ceramic crowns were fabricated for 11 and 21 and cemented with Type I glass ionomer cement(GC Gold Label 1 Glass Ionomer, GC,Japan) to achieve an optimal esthetics. (**Fig.7**)The patient has been followed up for two years.

Fig. 6 Gingivectomy with osteoplasty done in 11,21

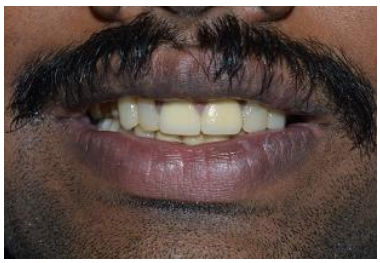

Fig. 7 Post-operative view of patient after cementation of metal ceramic crowns in 11,21

Discussion:

Non-syndromic familial oligodontia in most caseshas been shown to be inherited as autosomal dominant trait. MSX1and PAX9 genes play a key role in early tooth development. All mutations of PAX9 identified to date have been associated with non-syndromic form of tooth agenesis[2,3]. In this case, there is no systemic syndrome associated so it was concluded as non-syndromic type of oligodontia.

Congenital missing teeth can create dental and facial disfigurement which can lead to social withdrawal and psychological stress. Oral rehabilitation of oligodontia patient is therefore important for functional, esthetic and psychological reasons. Treatment options depend on the age, number of missing teeth, severity of the condition and patient's perceived need for care. Multidisciplinary approach enhances the success of the final aesthetic outcome especially if detected at an early age. In this case, the patient was an adult and mainly concerned with correction of smile in the maxilla, warranted immediate aesthetic care with minimally invasive procedures. So it was decided to go with non-extraction of retained deciduous teeth and veneering with composite. Ideally, orthodontic correction by intrusion anduprighting of steep inclinedand supraerupted incisors should be done to correct the occlusal plane[9]. As the patient wanted the treatment to be done in a short span of time, correction of plane was done by reduction of crown height after endodontic treatment and correction of gingival contour by osteoplasty and gingivectomy. Metal ceramic crowns were given instead of all ceramic as the patient wanted a less expensive option. Meticulous planning involving interdisciplinary team approach will provide success of the final outcome[9,10],. Interdisciplinary approach of endodontics and periodontics together with prosthodontics helped in restoring the smile line and gingival contour providing better aesthetics with a minimally invasive approach

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