ABSTRACT

CASE PRESENTATION: A 33-year-old female reported with multiple missing teeth, inability to masticate and serious esthetic issues. After history, general, clinical and radiological evaluation, an onlay maxillary and mandibular denture was considered as the most feasible treatment at that point of time. Conventional clinical and laboratory protocols were followed for the fabrication of the onlay dentures. The patient was recalled for follow-ups for 3 months after the denture insertion and reported with a satisfactory outcome.

DISCUSSION: The dental implants and supplementary augmentation techniques have created a new option for treatment of patients with oligodontia. But in some instances, the conventional methods of prosthetic rehabilitation e.g. Onlay dentures. Complete Dentures etc. are advised.

CONCLUSIONS: Removable prosthetics is an interim restoration for successful rehabilitation of patients at young age with added advantages of greater self-esteem, better social acceptance, re-establishment of the masticatory function and aesthetics when other advanced treatment modalities are not feasible.

KEYWORDS
Oligodontia, Overlay Denture, Onlay Denture Multiple Impacted Teeth, Overdenture, Partial Anodontia

1) INTRODUCTION

Tooth agenesis is a common developmental anomaly that appears in 2.2% to 10% of the general population; excluding agenesis of third molars. Different terminologies have been used to describe the agenesis of teeth in the primary or permanent dentition. Hypodontia is used to describe the agenesis of one or few teeth; whereas the term ‘Oligodontia’ is used to describe agenesis of six or more teeth excluding the third molars and ‘Anodontia’ is the total absence of teeth.

Oligodontia usually occurs in cases diagnosed with various syndromes involving oro facial structures. But in some rare cases, it may occur as a non-syndromic isolated familial trait linked to mutations of the MSX1 and PAX9, or as a sporadic finding. Non-syndromic oligodontia has been found either sporadic or familial in nature. Syndromic and non-syndromic form of Oligodontia can be differentiated by ruling out the presence of associated symptoms.

In oligodontia, associated with loss of function and esthetic compromise, psychological development is an important concern in the oral rehabilitation of growing patients. The main objective of prosthetic management is to improve esthetics, function and re-establishing the psychosocial status of the patient. This case report presents a case of oligodontia involving both primary and permanent dentition in a young female patient prosthetically rehabilitated with an onlay removable prosthesis.

2) CASE REPORT

A 33-year-old female, reported in the outpatient clinic of Department of Prosthodontics and Crown & Bridge, with a chief complaint of multiple missing teeth and desired replacement of her missing teeth and thereby a better facial appearance. Patient had given a history of negative impact on her appearance and esthetics that resulted in low self-esteem and anxiety during social interactions.

The possibility of any systemic, endocrinologic or embryologic issues were ruled out by elaborated history and previous medical reports. No history had given regarding any pre or post-pregnancy complications. The patient did not give any history of trauma involving the facial structures and tooth extractions. She had retained deciduous dentition and had continuous dentition and delayed eruption of permanent teeth in childhood. The patient was the 2nd child of parents with non-consanguineous marriage. The patient's family history revealed that her siblings have no physical, mental, or any dental abnormalities which needed medical attention.

The patients' dental history showed delayed eruption of permanent teeth which needed radiological evaluation at the age of 15 years. The radiograph showed multiple impacted teeth and the surgical exposure of the impacted teeth was attempted to accelerate the rate of eruption. But the eruption rate was too slow and no further treatment was done after the surgical intervention. Later on, patient was given a complete denture and a denture wearer from 19 years.

General examination showed that the patient was with a normal physique, adequately nourished. She had no signs of any physical or skeletal disfigurement and showed normal hair growth, eyebrows, fingers, nails, skin, and sweat glands, ruling out ectodermal dysplasia as the etiology.

On clinical examination extra-oral examination revealed no facial asymmetry or deformations. Inadequate upper lip support with slight concave profile and TMJ problems found during external palpation. Intra-oral examination revealed multiple missing teeth in relation to 11, 12, 15, 17, 22, 27, 34, 35, 36, 37, 44, 45, 46, 47, partially erupted in relation to 13, 16, 23, 24, 25, 26, retained 75 and rotation in relation to 43. Shallow palatal vault was found with inadequate sulcus depth (especially in the maxillary anterior region), and severely resorbed mandibular posterior ridge (posterior to 33 & 43).

Blood investigation showed T3, T4, TSH, Serum calcium, phosphorous and complete blood picture were in normal range. The ALP levels were within normal limits and Hb level was 11.3 gm/dL. An OPG was advised for the radiological evaluation of the dental status prior to the further advanced diagnostic tools.

The OPG showed multiple impacted teeth in the maxillary and mandibular teeth which were completely deviated from the path of eruption. (Fig. 3)

Figure 1 Pre-operative Frontal View
Figure 2 Pre-operative Full Smile
2.1) PROSTHETIC MANAGEMENT:

After considering the previous treatment outcomes, and prioritizing the patient's unwillingness towards invasive surgical procedures, an onlay denture enclosing & providing space for the partially erupted teeth was planned. In this case dental implant treatment was not advised due to multiple impacted teeth which were not removed due to high possibility of pathological fracture and severe resorption of the mandibular ridges. Fixed partial prosthesis was contraindicated at this point of treatment due to lack of feasible abutments. Crown preparation and finish line placement was expected to be difficult in partially erupted teeth. Within the limitations, an onlay complete denture with respect to maxillary arch and a removable partial denture with respect to mandibular arch were planned as the most acceptable treatment at that point of time. Conventional protocol was followed for the fabrication of the complete and partial denture. Prior to the prosthetic phase, patient was referred to Department of Conservative Dentistry and Endodontics, for necessary restorative procedures, removal of sharp undercuts which were expected to interrupt the smooth insertion and removal of the dentures and fluoride application on the partially erupted teeth to control future caries attack. The preliminary impressions were then made by irreversible hydrocolloid impression material (Imprint Alginate Powder, DPI) followed by border molding (Green stick Tracing Sticks, DPI) and secondary impression using poly vinyl siloxane elastomeric impression material (Aquasil Light Body, Densply, Germany). The casts were poured, retrieved for the occlusal rim fabrication (Fig.5a & Fig.5b)) and the maxillomandibular relation was recorded (Fig. 6a & Fig.6b) followed by the articulation of the casts. Teeth selection was done on the same appointment and the patient was recalled for the try-in. The phonetics, esthetics, and the VDO were checked during try-in and the patient was satisfied with the facial appearance. (Fig.7) Conventional methods of acrylisation was followed. The dentures were carefully retrieved, trimmed and polished for the final insertion of the prostheses. (Fig.8a & Fig.8b) During the final appointment, the denture was delivered after relieving the pressure points using articulating papers and pressure indicating paste. (Fig.9, Fig.10) Post insertion instructions were given to the patient and she was scheduled for follow up visits every fifteen days for next 3months. Patient reported with slight discomfort during first two follow-ups which was corrected and polished, later on reported with no complaints regarding the dentures.

3) DISCUSSION

Oligodontia as well as hypodontia (lack of one or more permanent teeth) are highly heritable conditions associated with mutations in the AXIN2, MSX1, PAX9, EDA, and EDAR genes. The incidence of oligodontia is reported to vary from 0.08-0.16%. The pattern of tooth absence is influenced by the gene affected, as well as the type of mutations within the specific gene. Although several potential and verified environmental factors in tooth agenesis have been identified, genetic defects play a major role in the etiology (Graber, 1978; Burzynski and Escobar, 1983; Vastardis, 2000). Non-syndromic tooth agenesis has wide phenotypic heterogeneity and is classified as either sporadic or familial, which can be inherited in an autosomal-dominant, autosomal-recessive, or X-linked mode (Burzynski and Escobar, 1983).

But in this case apart from multiple impactions of permanent teeth, no other feature of any syndrome was diagnosed and it seems that the lack
of eruptive force might be a reason for the same.

Congenital missing teeth may create dental and facial disfigurement, which can lead to social withdrawal, especially in adolescent years. Prosthodontic treatment of oligodontia patients is, therefore, important for functional, esthetic and psychological reasons. Treatment of such patients requires a fully integrated interdisciplinary approach of orthodontists, oral and maxillofacial surgeons and prosthodontist. A number of factors must be taken into account at the time of treatment planning, which include age of the patient, number and condition of retained teeth, number of missing teeth, condition of supporting tissues, the occlusion and interocclusal space. Common methods of treatment employed include, pre-restorative orthodontics which is frequently required to move teeth to a favorable position, restoration with removable and fixed partial dentures and restoration with implant supported prostheses. Increased experience with oral implants and supplementary augmentation techniques has created new option for treatment of patients with oligodontia.

4) CONCLUSION
In the case reported above, the prosthetic rehabilitation using onlay complete dentures had lot of benefits including better social acceptance, improved self-esteem and restoration of normal functional demands of the patient such as mastication efficiency. These conditions should be evaluated carefully for the presence of associated symptoms and treated at the earliest with multidisciplinary approach. Removable prosthodontics is an interim restoration for successful rehabilitation of these patients at young age with added advantages of greater self-esteem, better social acceptance, re-establishment of the masticatory function and aesthetics when other advanced treatment modalities are not feasible.

REFERENCES: