

Oral rehabilitation of non- syndromic generalized microdontia with idiopathic enamel hypoplasia by Orthodontic & Prosthodontic treatment modalities: A case report

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Citation of this Article: Dr Preetika Yadav, Dr. Mandeep Singh Viridi, “Oral rehabilitation of non- syndromic generalized microdontia with idiopathic enamel hypoplasia by Orthodontic & Prosthodontic treatment modalities: A case report”, IJDSIR- July - 2020, Vol. – 3, Issue -4, P. No. 263 – 266.

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Treating a patient with generalized microdontia with idiopathic enamel hypoplasia is important from psychological as well as functional point of view. Treatment plan is to restore aesthetics, improve function, correct mal alignment and to eliminate the adverse social impact done with minimally invasive approach.

Keywords: generalized microdontia, enamel hypoplasia, malocclusion, full rehabilitation

Introduction

True generalized microdontia with idiopathic enamel hypoplasia in non syndromic patient is a rare combination to see. Teeth appear smaller than normal. Microdontia can cause dimensional changes compressing the arch decreased vertical height of face. Occurrence of Enamel hypoplasia is due to disturbance in organic matrix phase, and subsequently affecting the mineralization.² Defect only involves enamel characterized by a lack of tooth contact, a rapid breakdown of the occlusal surfaces and a yellowish brown stains where the dentin is exposed.³

So the plan of treating such condition is to improve aesthetics, restore proper function, correct mal alignment finally eliminating the adverse social and psychological impact of patient done with minimally invasive approach. This paper reports a case with non syndromic generalized idiopathic enamel hypoplasia with true microdontia.

Case report

A 13 year old female patient reported to our department with the chief complaint generalized sensitivity in all teeth on intake of cold foods since 6 yrs. Parents and patient noticed yellowish teeth since the time permanent teeth erupted. Only permanent dentition was affected

Patients oral hygiene regimen involved brushing daily using fluoridated toothpaste and soft brittle toothbrush in horizontal scrub method. No genetic links revealed.

Intraoral examination revealed full set of permanent dentition with generalized yellowish discoloration and attrition of molars causing reduction in vertical dimension, poor oral hygiene, generalized microdontia, malpositioned 12, partially erupting 17, 27, 37, 47. non of

the tooth was effected with dental caries. Extra oral examination showed convex profile with competent lips Class 1 malocclusion with anterior deep bite and mal positioned upper right lateral incisor was observed.

Radiographic investigation included an oral pantomograph which depicted a generalized loss of enamel thickness in relation to incisors, premolars and molars.

Treatment plan

The child's parents emphasized on her deprived social interaction and incapacitating smile .

patient was in growing stage so the treatment was carried out in 2 phases. Firstly Temporary phase than followed by transitory phase. Temporary phase was further divided into 4 phases

Complexity of the condition requires interdisciplinary approach for optimal treatment outcome. The treatment objective was prioritized to conserve the tooth structure, increase the lost vertical dimension to a comfortable position (physiological neuromuscular position), to restore masticatory function and improve aesthetics.⁴



Fig 1: preoperative pictures



Fig 2: Preoperative OPG view

Phase 1

Patient was placed on intensive oral hygiene program including scaling and chlorhexidine oral mouth wash was recommended.

Phase 2

Face bow transfer done and the models were mounted on a semi adjustable articulator which implicated an increase of verticle height by 2 mm. Stainless steel crowns for all 1st permanent molars were prepared using minimal preparation technique making only proximal clearance and cemented with type 1 GIC on all four permanent first molars.⁵ This treatment provided the necessary full coverage and protected them from further attrition and wear. It also provided an added advantage of increase in vertical length by 2 mm of occlusion facilitating easy rehabilitation of anterior teeth.⁶

Considering patient's age and partial eruption status of 2nd permanent Molar, further correction was planned at later stage. On after 4 weeks the patient was recalled and reported no discomfort so we moved to next phases



Fig:3 Stainless steel crowns placement and increased in vertical dimension

Phase 3

Segmental arch technique to correct malaligned right maxillary lateral incisor by placing MBT mini brackets on 11,12,13,14 and 0.014 wire was placed for 1 month.



Fig 4: bracket placement in one quadrant to correct malalignment of right lateral incisor.

Phase 4

Metal ceramic crowns were placed in all premolars & all ceramic crowns delivered in anterior segment .



Fig 5: Postoperative pictures



Fig. 6: Post operative OPG

Discussion

Treating a patient with generalized microdontia with idiopathic enamel hypoplasia is important not only from functional point but also from psychological point of view. So aim of the treatment plan is to restore aesthetics, improve function, correct mal alignment and to eliminate the adverse social impact done with minimally invasive approach. In most cases full coverage is desirable for posterior teeth due to extensive loss of enamel and also to

prevent further loss of tooth structure.⁷ In present case because of the patients deep bite and desire to provide full coverage to all teeth.PFM crowns are a good option to provide both full coverage and strength, they are economical for treating all the teeth, with the possibility of having to retreat them in the future, made this treatment alternative less desirable.⁸Stainless steel crowns are most effective for restoring posterior teeth as they are extremely durable ,cheap, subject to minimal technique sensitivity during placement.⁹ In present case SSCs were used to treat all 4 permanent 1st molars. This treatment provided necessary full coverage and aided correction of patient's deep bite which made it easier to restore the anterior segment. Segmental arch technique is used to correct the teeth in segments it provided a light continuous force for long time and continuous wire replacement is not required. The results obtain by segmental bracketing are more consistent and require less retention phase. The entire treatment duration was approximately 7 months. Systemic and sequential interdisciplinary approach was followed to attain both functional and esthetic goals to the satisfaction of the patient. This boosted the patient a self confidence and also increased her responsibility to maintain adequate levels of oral hygiene.¹³

Conclusion

Paediatric dentist are the first to see children with such kinds of dental anomalies and it is imperative that treatment requires an comprehensive overall planing that includes a rough draft of future treatment needs, Since they are not conditions caused by neglect and cannot yet be preserved, so it's the dentists behalf's to use their best skills to alleviate the psychosocial conflicts.

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