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CASE REPORT

REMOVABLE FUNCTIONAL SPACE MAINTAINER FOR AESTHETIC REHABILITATION OF MISSING ANTERIOR TEETH. A CASE REPORT

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ABSTRACT

Delayed tooth eruption (DTE) is the most commonly encountered deviation from normal eruption time. Eruption is a physiologic process that strongly influences the normal development of the craniofacial complex. Often, DTE might be the primary or sole manifestation of local or systemic pathology. A delay in eruption can directly affect the accurate diagnosis, overall treatment planning, and timing of treatment for the orthodontic patient. Thus, DTE can have a significant impact on a patient's proper health care. Delayed eruption with Congenitally missing teeth (CMT) are rarely seen andfew missing teeth are usually called hypodontia. Besides an unfavourable appearance, patients with missing teeth may suffer from malocclusion, periodontal damage, insufficient alveolar bone growth, reduced chewing ability, inarticulate pronunciation and other problems. Treatment might be usually expensive and multidisciplinary. Hereby we are presenting a case with delayed eruption and missing teeth in lower anterior region and its management.

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INTRODUCTION

The terms "depressed" and "impaired" eruption have been used synonymously with delayed, late, or retarded eruption. "Late eruption" was used by Rasmussen would describe these conditions best. Primary or idiopathic failure of eruption is a condition described by Profitt and Vig, whereby nonankylosed teeth fail to erupt fully or partially because of malfunction of the eruption mechanism. This occurs even though there seems to be no barrier to eruption, and the phenomenon is considered to be due to a primary defect in the eruptive process. Terms such as arrested eruption and no eruption have been used interchangeably to describe a clinical condition that might have represented ankylosis, impaction, or idiopathic failure of eruption.[1] Congenitally missing teeth (CMT), or as usually called hypodontia, is a highly prevalent and costly dental anomaly. Besides an unfavourable appearance, patients with missing teeth may suffer from malocclusion, periodontal damage, insufficient alveolar bone growth, reduced chewing ability, inarticulate pronunciation and other problems.[2]It is one

Esthetics itself is an important factor and its problems might affect patients' self-esteem, communication behaviour, professional performance and quality of life.[4] Patients with missing permanent teeth may suffer from complications such as malocclusion (which itself can lead to mastication problems), periodontal damage, lack of alveolar bone growth, reduced chewing ability, inarticulate pronunciation, changes in skeletal relationships and an unfavourable appearancemost of which need rather costly and challenging multidisciplinary treatments.[4,5]Hereby we present a case report outlining the treatment of a patient with delated eruption of the permanent teeth as well as congenitally missing teeth.

CASE REPORT

A 11-year-old girl (Fig 1) reported to the department of Pediatric and Preventive dentistry with a chief complaint of missing teeth in the lower front tooth region. On eliciting history of presenting illness, there was no history of trauma reported.

Fig. 1. Showing frontal image of a 11 year old girl

Intraoral examination revealed unerupted 32, 33, 42,43, 44. (Fig 2, Fig 3, Fig 5) Radiographic examination revealed erupting 33,43,44 and missing 32, 42. (Fig 4) Based on the history and clinical examination, the diagnosis of congenitally missing 32 and 42 along with delayed eruption in relation to 33, 43, 44 was made. Informed consent and assent for the treatment procedures was taken from the patient's parents. Maxillary and mandibular impressions were made using alginate. Fabrication of the removable appliance was done on the mandibular arch which consisted of functional space maintainer in relation to 32, 33,42, 43, 44 (Fig 6). Esthetics was restored after the insertion of space maintainer. Follow up was done where the appliance was trimmed to accommodate the erupting permanent tooth.

Fig. 2. Intraoral photograph of the Maxillary arch

Fig. 3. Intraoral photograph of the Mandibular arch

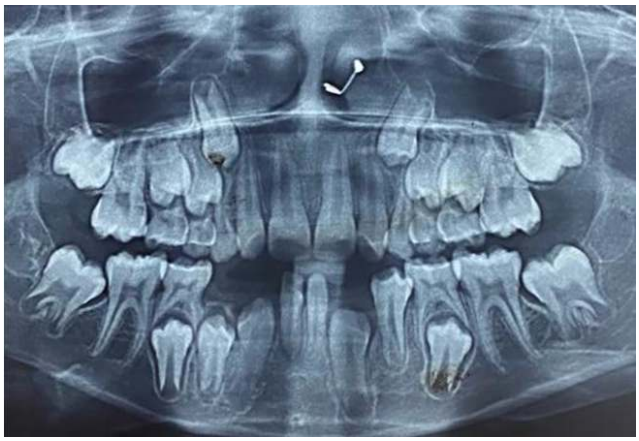

Fig. 4. Showing Orthopantomogram of patient

Fig. 5. Pre operative photograph showing missing teeth in mandibular arch

Fig. 6. Post operative photograph showing removable functional space maintainer

DISCUSSION

Accurate diagnosis of DTE is an important but complicated process. When teeth do not erupt at the expected age, a careful evaluation should be performed to establish the etiology and the treatment plan accordingly. The importance of the patient's medical history cannot be overstated.[1] A wide variety of disorders has been reported in the literature to be associated with DTE. Family information and information from affected patients about unusual variations in eruption patterns should be

methodically and must begin with the overall physical evaluation of the patient. Although the presence of syndromes is usually obvious, in the mild forms, only a careful examination will reveal the abnormalities. Right-left variations in eruption timings are minimal in most patients, but significant deviations might be associated with (for example) tumors or hemifacial microsomia or macrosomia and should alert the clinician to perform further investigation.[7] Loss of anterior teeth often causes esthetic compromise and poor self-esteem. The importance of restoring esthetics of a growing child should never be underestimated for an appropriate psychological unfolding of the child.[8] The prosthetic treatment should always be aimed towards providing good occlusal stability, esthetics, phonation and mastication. These factors instill greater self confidence in the child and help him gain acceptance. In case of removable appliances, there is essentially one design with various modifications.[9] The main advantage of fixed over removable appliance is the elimination of patient factor. To improve patient acceptance, esthetic functional fixed appliance is reliable. The removable space maintainers cover large area of oral tissue which sometimes cause irritation to soft tissues and discomfort. However, removable space maintainers are cost-effective and with proper patient and parents counseling coupled with strong motivation, removable space maintainers fairly justify for the viable treatment options.[8]

Among previously reported techniquesBonanato and colleagues recommended a partial autogenous adhesive prosthesis to reestablishesthetics and function after the avulsion of permanent mandibular central incisors.[10] Although this procedure is simple and inexpensive, its durability may be questionable, despite reinforcement by the addition of polyethylene fibres. Göllner and colleagues reported the use of a palatal orthodontic implant in a 12-year-old patient. Tüzüner and colleagues reported a case in which trauma to the primary dentition caused root malformations and subsequent mobility of the permanent teeth.

The permanent teeth were extracted, and the crowns were used to fabricate a removable appliance. Of course, the success of a removable appliance is greatly dependent on patient cooperation. In addition to the potential for appliance breakage, there would be concerns about the development of mucosal inflammation and papillary hyperplasia, along with a loss of stability and consequent uneven distribution of masticatory forces. In our case appliances were designed to reduce such undesirable side effects while maintaining the superior esthetics, preventing poor positioning of the tongue during speech and mastication. It is easily fabricated and fairly robust, as long as the patient avoids hard foods and practices proper hygiene. It prevents both mesial inclination of the adjacent teeth and mesial migration of the posterior teeth and lateral incisors.11Untilcompletion of the growth period, follow up for every 6 months is advised in order to trim the removable space maintainer with respect to eruption of the permanent successors. In our case removable partial denture was given for function and aesthetics, once all teeth erupt multidisciplinary treatment is advised in which orthodontics is involved for fixed orthodontic therapy for the closure of spaces in between the mandibular anterior teeth due to missing lateral incisors. Distalization of the Mandibular teeth can be ruled out from the treatment plan as the molar relation is class I.

CONCLUSION

In a growing patient missing mandibular lateral incisors and delayed eruption of the mandibular canine and premolar as seen in our case, a removable space maintainer is a simple and affordable option for temporary rehabilitation until definitive treatment can be concluded. It provides an immediate improvement in esthetics, phonation, and mastication. Follow up for every 6 months until completion of the growth period is crucial. But multidisciplinary treatment is required for managing such case.

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