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HYPODONTIA AND ITS INTERDISCIPLINARY MANAGEMENT- A REVIEW.

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ABSTRACT

Hypodontia is the rightful term always used to refer the condition of missing teeth while oligodontia and anodontia are used to describe in more severe forms of tooth agenesis(absence), such as in conditions with the absence of more than six teeth or maybe entire dentition.
Ortho- prostho management of dental agenesis one much in talk, furthermore an interdisciplinary approach is more cost effective, patient satisfaction and with best treatment outcome. The present review focuses on the ortho- prostho approach to manage an hypodontia supporting the idea of inter departmental treatment plan work up.

Key words: Interdisciplinary, Ortho-prostho, Hypodontia, Cleft lip and palate

INTRODUCTION

Orthodontics can be of considerable assistance in complications arising from periodontal and orthodontic treatment. An orthodontist's principle for periodontal objective with so-called facilitative care is not just to reduce but further prevent any periodontal destruction . With this synergistic orchestration, the prosthetic foundation is more stablazised with the improved esthetic contour of the gingiva and, most importantly any unnecessary removal of the alveolar bone further

avoiding the pathologic contours due to the malaligned teeth is eliminated prior to reaching upto the stage of osseous surgery (1). Hypodontia is the most prevalent dentofacial anomaly among the human race (2). Its occurrence is sometimes quoted as part of different recognised genetic syndrome and nonsyndromic isolated traits (3).

Hypodontia is the rightful term always used to refer the condition of missing teeth while oligodontia and anodontia are used to describe in more severe forms of tooth agenesis(absence), such as in conditions with the absence of more than six teeth or maybe entire dentition (3,4).
Ortho- prostho management of dental agenesis one much in talk, furthermore an interdisciplinary approach is more cost effective, patient satisfaction and with best treatment outcome. Our team has extensive knowledge and research experience that has translated into high quality publications(5–24).

PREVALENCE

Clear association is being established among hypodontia in the deciduous and permanent dentitions, which reported that children with primary teeth hypodontia showed absence of their corresponding successor teeth (25). Among the primary dentition, the deciduous maxillary lateral and mandibular central incisors account for 50% to 90% of affected teeth (2). more cases presented with unilateral hypodontia were likely to be present with one or two teeth missing. No significant sex difference in prevalence has been reported from any of the populations (26). Among the permanent dentition, the mandibular second premolars and the maxillary lateral incisors were most likely to be missing (27). Also another study provides evidence of age and increased hypodontia possibility. Recent findings suggested an increased case of hypodontia with mandibular arch reporting more missing teeth (28), which also shows higher female predilection that is 1.4 times more than males (28,29).

ETIOLOGY

A sequence and series of genetically controlled molecular interactions are involved in the development of teeth (28–30)-(31). Numerous factors are involved which includes the fibroblast growth factor (Fgf), wingless related integration site (Wnt), bone morphogenic protein (Bmp), and hedgehog (Hh) families. These factors take part in the signaling of epithelial-mesenchymal interactions of tooth development (32). Alterations in one or more of the signaling pathways may affect dental development and can play an important role in causing conditions such as hypodontia.

There are theories which are being accepted by certain authors, one among these says that the most mesial tooth in each field (the anterior, premolars and molars) was supposed to be more genetically stabilized and as a result was seldom not developed or has the least chance of being the missing tooth (33), while the teeth at the end of these each field were less genetically stable and thus has

increased risk factor to be missing (34). This theory was hypothesized based on the fact that the last of each field were “vestigial bodies” and they became obsolete during the evolution process (35). Vastardisas stated that as humans evolve, the size of their jaws and the number of teeth appearing is decreasing (36). Genetics also has its role in the process of tooth development. Over 300 different types of genes are expressed during the tooth morphogenesis each playing its part and a defect in even one can lead ro hypodontia (37)-(38,39). Well genetics are not the only one which ends the debate over hypodontia environmental factors are also a part of it. A defect caused during the intrauterine life of a fetus can later affect the developmental (40),(41)

FUNCTIONAL AND PSYCHOLOGICAL IMPAIRMENT

Most common complaints among the patients are spacing between the teeth, poor aesthetics, and awareness of missing teeth (42). And those who had no complaints at the time of a clinic visit are because of the lack of knowledge or retained primary teeth which masks the problem for time being. It was observed that patients with hypodontia had more chewing difficulties if the deciduous teeth which masked the missing permanent teeth had been exfoliated (43).

As humans we are likely to have a negative impact on the social and educational development with missing teeth or malaligned teeth (44). Ultimately, hypodontia carries an aesthetic, functional, psychosocial, and financial burden for affected individuals (4).

Thus it becomes important to have treatment plans to manage the missing teeth or hypodontia in patients since it can be a complex problem and not merely absence of a tooth. The requirement for an interdisciplinary approach, which usually comes at a financial cost to both the patient and their family is always put forward (33).

MANAGEMENT OF HYPODONTIA

A case of an unilateral cleft lip and palate with dental malocclusion with maxillary transverse deficiency and missing teeth was managed with an orthopedic expansion.The missing lateral incisors were replaced with a space opening, bone grafting, and single tooth implants (45),(46). It was further reported that the patients who had not received grafting and orthodontic realignment are the patients who presented the greatest prosthodontic challenge (47,48),(49)

Comprehensive treatment of these defects requires the collaborative efforts of surgeons, orthodontists, prosthodontists, and laboratory technicians(50). Precise periodontal and orthodontic treatments must be carefully coordinated with the restorative plan to ensure sufficient space and tissue architecture for the definitive restorations (51),(49)

The priority of any orthodontic therapy is to improve the facial profile, esthetic and functional occlusion to be established (52),(53). The entire treatment outcome served to retain as many natural teeth as possible and avoid the alternative of extractions and replacement with prosthesis (46,54). Orthodontic and orthopedic treatment in coordination with prosthetic restoration at the appropriate time may benefit the stomatognathic function, normal growth (53,55).

CONCLUSION

In conclusion to the above case reports quoted we can come up with the fact the ortho-prostho approach worked best for a patient suffering with severe facial deformity which also increased patients satisfaction and the treatment outcome. Clinicians need to look apart from their department providing the patient with utmost treatment benefits and that requires thorough diagnosis, treatment planning and muti-disciplinary approach.

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