CASE REPORTS

MICRODONTIA AND HYPODONTIA IN A FAMILY - A CASE REPORT

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ABSTRACT

We have presented here a Dental anomalies, hypodontia/oligodontia and microdontia in a family which reported to us at Armed Forces Institute of Dentistry Rawalpindi. A father along with his two sons presented to us with complaints of small sized dentition and gaps between teeth. On examination it was found that all three of them had concomitantly occurring hypodontia and microdontia which had functional and esthetic implications. It was then planned to adopt multidisciplinary approach to treat the patients involving orthodontics, restorative dentistry and prosthodontics.

Keywords: Hypodontia, Microdontia, Oligodontia.

INTRODUCTION

Microdontia is a condition in which one or more teeth are smaller than normal. Microdontia can be true generalized, relative generalized or localized. Generalized form of microdontia can be related to diseases like ectodermal dysplasia, Downs syndrome, Silver Russel syndrome etc. It can also develop because of exposure to ionizing radiation or chemotherapy during tooth development[1,2]. On the other hand hypodontia is an inherited condition characterized by developmentally missing teeth. It has local, genetic, systemic and iatrogenic causes like cleft lip and palate, MSX1 gene, hypoparathyroidism and exposure to chemotherapeutic agents during development[3,4]. Here we are presenting a case of combined combined hypodontia and microdontia in three members of a family.

CASE REPORT

A father with his two sons reported to the Orthodontics department of Armed Forces Institute of dentistry Rawalpindi with complaint of small sized teeth with spacing. On examination of the father who was 45 years old, we found that his maxillary arch had a complete set of dentition till the second molars but his teeth were microdontic due to which he had a huge midline diastema and spacing present in the anterior segment of the arch. The mandibular arch of the father had missing lateral incisors and second molars on both sides. There was generalized spacing and microdontia present in the mandibular arch. On occlusion his teeth showed a class II subdivision right relationship with #16 and #46 in crossbite. His generalized oral hygiene was poor with calculus deposits and staining (fig-1). The elder son who was 13 years old had 7 missing teeth in the maxillary arch which were #12, 14, 15, 22, 24, 25 and 27 and had retained #54, 64 and 65. In the mandibular arch also 7 teeth were missing which were #34, 35, 37, 44, 45, 46, 47 and had retained #74, 75, 84 and 85. All his teeth were microdontic and there was generalized spacing. Moreover the occlusal surfaces of his teeth had undergone attrition as well. He had an edge to edge incisor relationship. His oral hygiene was satisfactory with mild calculus deposits along the gingival margins of anterior teeth. His molar relationship on the left side was class I whereas it could not be established on the right due to missing #46 (fig-2). The younger son who was 12 years old had 4 missing maxillary teeth which were #15, 17, 25 and 27 with no retained deciduous teeth. In the mandibular arch 6 missing teeth were #34, 35, 37, 44, 45, and 47 and #75 and 85 were retained deciduous teeth. He also had microdontic teeth with generalized

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spacing in both the maxillary and mandibular arches. He had a class II subdivision right molar relation like his father. He had pit and fissure caries in # 46, otherwise his oral hygiene was satisfactory (fig-3).

DISCUSSION

The prevalence for microdontia in the primary dentition ranges from 0.1% to 0.9% with no specific gender predilection, in permanent dentition the prevalence is from 3.5% to 6.5% with more predisposition in the females of about 3:2. The teeth mostly affected are the mandibular second molars followed by maxillary lateral incisors and then the maxillary second premolars. Oligodontia is a more severe form of hypodontia which is an absence of six or more teeth and its prevalence is about 0.19%. Anodontia is complete absence of teeth, primary or permanent and it's very rare, usually occurs as a part of a syndrome and rarely as an isolated entity[5,6]. The prevalence of microdontia is about 1.90% and 3.77% in men and women respectively. Microdontic teeth may be conical or tapering in shape. In many cases microdontia and hypodontia coexist and an association between them has been found in the literature. Gungor and Turkkahraman found that people with hypodontia had smaller sized teeth than normal population and that deciduous teeth are overretained in cases when succedaneous teeth are absent[7]. Microdontia and hypodontia tends to run in families as has been found in our patients, father and sons from the same family. Moreover in the family that presented to us we found a worsening of the condition in the successive generation as the father had microdontia and only a few missing teeth wheras the sons had both microdontia as well as oligodontia. There is a genetic predisposition. Genes found to be mutated in such cases are MSX 1, PAX-9, AXIN-2[7-9]. Treatment of such patients starts with orthodontic repositioning of teeth in the correct mesiodistal, buccolingual and apicocoronal positions to accommodate restorative management or opening or closure of spaces accordingly. Restorative management includes direct restorations like composite build ups or indirect restorations like crowns, veneers, dentures or dental implants to replace missing teeth[10,11].

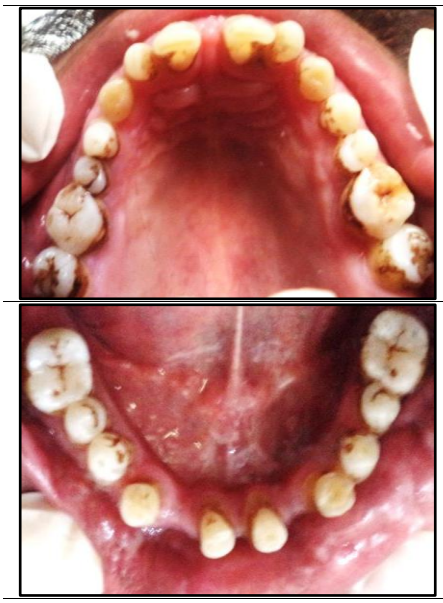

Figure-1: Upper and lower occlusal view of Fathers dentition.

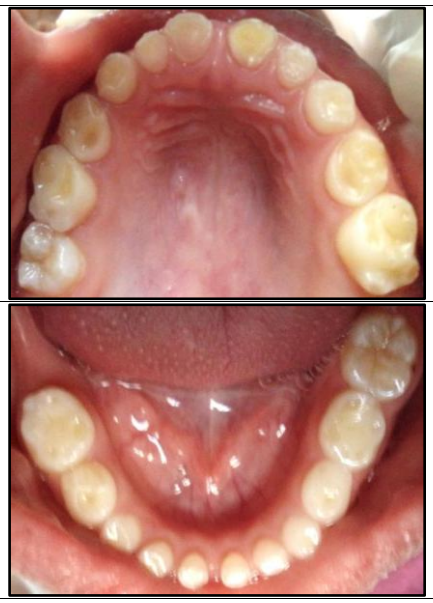

Figure-2: Upper and lower occlusal view of elder sons dentition.

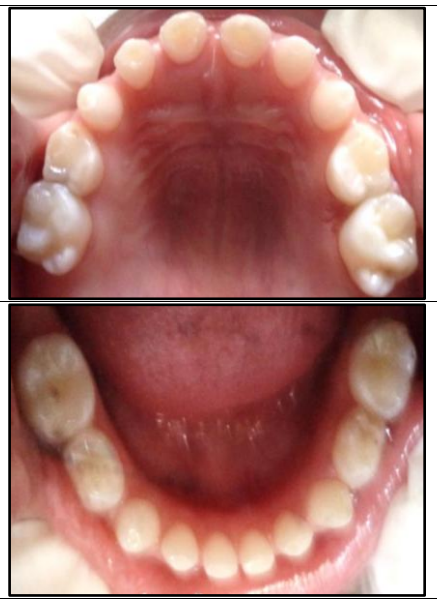

Figure-3: Upper and lower occlusal view of younger sons dentition.

CONCLUSION

Management of a patient with hypodontia and microdontia involves multiple specialities of dentistry. The dentist should also try to identify any medical condition in consultation with a

medical specialist as such patients often have an underlying medical problem. The ultimate aim of the interdisciplinary team should be restoration of esthetics and function of the patient.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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