

# MANAGEMENT OF A RARE CASE OF PEG MANDIBULAR CENTRAL INCISOR

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## ABSTRACT

Developmental disturbances of teeth may result from disturbances in any developmental stage of teeth which may be unknown, genetic or environmental factors. Depending upon time and location of disturbance, changes are evident in the normal number, size, shape and structure of tooth. Non-syndromic microdontia is rarely noted, especially in permanent mandibular incisors. This is one such case report of a 9 year old female patient in whom management was done with prime concern of restoring the esthetics conservatively by using strip crown.

## INTRODUCTION

The development of human dentition is multifactorial, i.e. interaction between genetic, epigenetic and environmental factors. "Mismatch between molecular and cellular components during dental development results in developmental disturbances" (Brook, 2009). Developmental disturbances are manifested as changes in size, shape or number of teeth. Microdontia is used to describe teeth which are smaller than normal, i.e., outside the usual limits of variation. Kaplan (1987)<sup>2</sup> defined microdontia as a small tooth with >3.5 standard deviation below the sex-specific mean mesio-distal tooth size. It is of three types: 1) true generalized microdontia, 2) relative generalized microdontia and 3) microdontia involving a single tooth<sup>1</sup>. The prevalence rate of microdontia ranges from 0.16% to 4.3%<sup>3</sup>. Single tooth microdontia affects most often maxillary lateral incisor and third molar. The most common one being the maxillary lateral often referred as "peg lateral"<sup>1</sup> where the proximal sides converge or taper together incisally forming a peg-shaped or cone-shaped crown. Prevalence ranges from 0.8 to 8.4%<sup>2</sup>.

Permanent mandibular central incisor is rarely affected by tooth shape anomalies of crown and root<sup>4</sup>. It can be associated with syndromes such as William's syndrome, Gorlin-Chaudhry-Moss Syndrome, Ullrich-Turner syndrome, Chromosome 13, Rothmund-Thomson syndrome, Hallermann-Streiff syndrome, Orofaciodigital Syndrome (Type 3), Oculo-mandibulo-facial syndrome, Tricho-Rhino-Phalangeal and Brachiooculo-facial syndrome<sup>5</sup>. This paper presents a case report of a non-syndromic conical mandibular right central incisor

### Case Report:

A 9 year old girl reported to the Department of Pediatric and Preventive Dentistry with the chief complaint of cone-shaped sharp lower front tooth associated with unaesthetic appearance. Family history revealed that she was born to non-consanguineous parents. No one in her family had congenitally missing or small

teeth. On interacting, the patient was found to be hyperactive. The parent revealed that the patient was hyperactive since her childhood, but no medical evaluation had been done so far for association with any syndrome. Clinical examination showed normal skin, nail, and hair. Intraoral hard tissue examination revealed a mixed dentition stage. Findings on intraoral examination were: Conically shaped 31 (Fig 1); Retained 82; Lingually erupted 42; Dental caries in 73 and Secondary caries in 84, 85.

Based on the findings, the diagnosis was made as non-syndromic peg-shaped mandibular incisor. The mandibular peg incisor was neither pulpally nor periodontally compromised. So, the principle aim of management is aesthetics. Thus, conservative treatment was planned, i.e. celluloid strip crown.

The strip crown size appropriate to the size of tooth was selected (upper right B2). The excess material was trimmed off with curved festooning scissors. V cuts were given in the proximal sides of the crown and a hole is punched on the palatal aspect to allow vent for the composite resin to flow through during crown placement. The interproximal surfaces were reduced using tapered diamond bur, producing a knife-edge cervical margin. The incisal edge was reduced to 1 mm and all the line angles are rounded slightly. The selected crown was trial fitted such as the gingival margin extends 1 mm into gingival sulcus. Etching was done for 20 secs, rinsed thoroughly and then air dried. Bonding agent was painted and light cured. The selected crown was carefully packed with resin to avoid entrapment of air bubbles and the positioned over the prepared tooth so that it extends 1 mm below the gingival margin. The excess resin was removed from the gingival margin and vent area with an explorer. Light cure the resin for 30 secs. The crown form was removed by slicing it on the lingual surface with a sharp scaler and peeling it away from the composite resin crown.

Fig 2 shows the completed strip crown which was esthetically pleasing. A review done after 6 months (Fig 3) revealed intact crown and parent was highly satisfied



*Fig 1*



*Fig 2*



*Fig 3*

## DISCUSSION

Anomalies of tooth number, structure, and morphology can occur within human dentition secondary to genetic and epigenetic influences. These aberrations can manifest as microdontia, macrodontia, hypodontia, and oligodontia<sup>9</sup>. Koch et al.<sup>10</sup> defined tooth size as abnormal, when dimensions deviate two standard deviations from average. This size abnormality can manifest either as macrodontia or microdontia. The deciduous dentition appears to be affected more by maternal intrauterine influences; while the permanent teeth seem to be more affected by the environment<sup>5</sup>. Single tooth microdontia is a common condition. One of the most common forms of localized microdontia is that which affects the lateral maxillary incisors, called a “peg lateral.”<sup>5</sup>. Peg-shaped teeth are anterior teeth in the primary or permanent dentition with a crown diameter that decreases markedly from cervical margin to incisal edge, thus resulting in the characteristic peg shape. There are only a few published cases of isolated non syndromic peg shaped mandibular central incisors<sup>6,7,8,9,10</sup>. Various treatment options have been suggested and done so far in the management of peg shaped incisors. Before any therapeutic decision, three main biological, esthetic, and functional objectives (bio-esthetic-functional triad) are considered<sup>11</sup>. In the present case, only esthetics is the concern. Esthetic treatment approaches include resinbased composite using a silicone guide, cellulose acetate crown and incremental method to implement a free hand modeling technique; composite indirect veneers, acrylic laminate veneers and orthodontic treatment<sup>12,13</sup>. Since anterior tooth is involved and esthetics is of prime concern, we chose strip crown as the treatment because of its advantages such as

good esthetics, simple to use, repairability and provides great parent and patient satisfaction<sup>14</sup>. Moreover, strip crowns need adequate tooth structure for retention and patient cooperation<sup>14</sup>, both of which were present in this case.

## CONCLUSION

Microdontia affects esthetics particularly if it involves the anterior teeth. Timely rehabilitation plays a pivotal role in restoring the aesthetics, thus improving the self-esteem and overall quality of life of the patient.

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