

## RESTORING A BEAUTIFUL SMILE- A CASE REPORT

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### Abstract

Developmental disturbances that arise at the time of tooth formation might result into various anomalies like variation in tooth size, shape which would result in poor dental as well as facial esthetics. This report describes the esthetic labial and lingual reduction of fused tooth in a 11 year old female patient followed by composite restoration. After one month follow up it was observed that the patient was satisfied with the esthetics.

**Key Words:** Fusion, Root canals, Smile, Esthetics.

### Introduction

Developmental anomalies of the dental origin form a major category of dental variations. Anomalies in tooth number, size, shape and morphology are a common occurrence. Fusion is a rare development anomaly being found.

The union of two normally separated tooth germs is termed as fusion. It might be of two types i.e. complete, with formation of one abnormally large tooth, or might be incomplete with the union of crowns or the union of only roots. The prevalence of the anomaly has been found to be less than 1% in the Caucasian populations<sup>1-3</sup> although a higher prevalence has been reported in both Japanese<sup>4</sup> as well as American Indians.<sup>5</sup>

Its occurrence has been found to be more in the primary dentition i.e. 0.5% when compared with permanent dentition i.e. 0.1%.<sup>6</sup> The prevalence of bilateral fusion in the permanent dentition is less frequent than unilateral fusion and is reported to be around 0.05%.<sup>7</sup> Although the etiology is not known, a force or the physical pressure produces contact of developing teeth<sup>8</sup> which results in the subsequent fusion and necrosis of the intervening tissues. Depending on the developmental stage of the tooth at which it occurs, fusion can be complete or incomplete. If this occurs before beginning of the process of calcification the union will be said to be complete with the formation of a single large tooth.<sup>9</sup>

Complete fusion can be characterized by a single pulp chamber, a single root canal, a single pulp chamber and two separate root canals or a separate pulp chamber as well as the root canals.<sup>10,11</sup> If the contact of the teeth occurs later, when one of the portions of the tooth crown has been completed, then there might be union of the roots only. These teeth may have either separate or fused root canals. The dentin, however, is always found to be confluent in cases of true fusion.<sup>9</sup>

Radiographically, a fused tooth will have two root canals as well as pulp chambers.<sup>12</sup> When fusion arises, the total number of teeth in the whole of the dental arch will be reduced unless and until a supernumerary tooth is involved in it.

### Case Report

A patient aged 11 years of age reported to Department of

Pedodontics & Preventive Dentistry with a chief complaint of having large tooth in the upper left front tooth region of the oral cavity. This patient (Figure 1) had no relevant medical or dental histories which were completely non contributory. (Figure 2)



Figure 1: Patient's photograph



Figure 2: Labial View

Intraoral clinical examination revealed that an abnormally large left central incisor (in comparison to the size of the lateral incisor) without any definite incisal edge pattern but the lips were found to be incompetent with a hesitation to smile. The patient's dental history was found to be negative without any history of trauma or irradiation to that area. The family history revealed no similar developmental anomalies. A generalised gingivitis was peculiarly observed around the surfaces of the tooth as cleaning of the lingual area as

well as the other areas was found to be difficult due to its anatomical as well as morphological variation of the maxillary tooth. The aesthetics was a determining factor when choosing the mode of treatment. Radiographic examination was also taken into account to frame and form the diagnosis and evaluate the unerupted developing dentition. (Figure 3 & Figure 4)



Figure 3: IOPAR of the patient of the right maxillary central incisor

Occlusal, periapical, and panoramic radiographs revealed a maxillary left upper permanent central incisor with root canal and pulp chamber that was found to be morphologically and anatomically consistent.



Figure 4: OPG of the patient

### Treatment

The oral prophylaxis was done followed by labial and lingual reduction of 1 mm on both sides of 21 after thorough oral prophylaxis and proper isolation was augmented and labial and lingual reduction was done to about 1mm after which isolation, etching, application of bonding agent and composite restoration was done at the respective areas of the tooth surfaces to achieve esthetics (Figure5).



Figure 5: Post operative photograph of the patient.

### Discussion

Fusion is said to be the incomplete attempt of two tooth buds to fuse into one entity. This clinical report describes a conservative approach to restoring esthetics, function, and occlusion in cases of dental fusion and congenitally missing lateral incisors.

Many approaches have been suggested to restore cases of dental fusion to enhance esthetic display. These include extraction of the fused tooth, followed by orthodontic therapy, a resin-bonded retainer with possible future implants, endodontic therapy with periodontal surgery to reduce the root diameter and narrow the emergence profile, followed by a cast post and metal-ceramic crown and endodontic therapy and veneering with tooth-colored and pink composite.<sup>13</sup>

The advantage of a porcelain veneer versus a less conservative approach is that it achieves excellent esthetics without extensive tooth removal. A minimally invasive procedure allows the preservation of the enamel to optimize the adhesive bonds of the luting agent between the tooth as well as the ceramic restoration.<sup>14</sup> Hence labial reduction was done in the maxillary right central incisor followed by composite laminate.

### Conclusion

Prompt diagnosis and appropriate treatment plan are the two utmost essential components to achieve success in cases of developmental anomalies of teeth.

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