

Non-Syndromic Supplemental Tooth: A Case Series

Reena Rani¹, Ritu Namdev¹, Sameer Dutta¹, and Meenu Dhiman²

¹Department of Pedodontics and Preventive Dentistry,
Post Graduate Institute of Dental Sciences,
Rohtak, Haryana, India

²Department of Conservative Dentistry & Endodontics,
Post Graduate Institute of Dental Sciences,
Rohtak, Haryana, India

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ABSTRACT: Supplemental tooth refers to an extra tooth resembling a tooth of the normal series of dentition. Supplemental teeth are less common than supernumerary teeth and are often overlooked because of their normal shape and size. Such teeth may cause many complications like displacement, delayed eruption, and root resorption of adjacent teeth, esthetic problems and even cyst formation. The present case series displays varying degree of impact of supplemental teeth on permanent dentition and thereby emphasizes upon the importance of early diagnosis and treatment planning. A rare case of supplemental maxillary lateral incisor showing an unusual talon cusp is also presented.

KEYWORDS: Maxillary incisor, Non-syndrome, Supernumerary teeth, Supplemental teeth, Talon cusp.

1 INTRODUCTION

Supernumerary teeth are defined as those in excess when compared to the normal series. Their reported prevalence ranges between 0.3–0.8% in the primary dentition and 0.1–3.8% in the permanent dentition of Caucasian population [1], [2]. Supernumerary teeth may occur as single or multiple, unilaterally or bilaterally and either in maxilla and/or mandible. Supernumerary teeth are estimated to occur in maxilla 8.2 to 10 times more frequently than the mandible and most commonly affect the premaxilla [1], [2]. Males are affected approximately twice as often as females [1]. It is found that approximately 25% are erupted, while rest remain unerupted.[3].

Supernumeraries are classified according to their shape as supplemental (eumorphic) and rudimentary (dysmorphic) [2]. The supplemental supernumerary refers to a duplication of teeth in the normal series and is found at the end of a tooth series. The most common supplemental tooth is the permanent maxillary lateral incisor, but supplemental premolars and molars also occur [4]. Most of the supernumerary teeth are asymptomatic. However, they may lead to a number of problems like over-retained primary teeth, delayed or ectopic eruption of permanent teeth, displacement and rotation of adjacent teeth, crowding, development of an abnormal diastema [4-6] and less frequently formation of primordial or follicular cysts [2] and root resorption of adjacent teeth [1]. Therefore, prompt diagnosis followed by extraction alone or in combination with orthodontic correction in order to establish a good occlusion is usually required.

The case report documents three cases of non-syndromic male patients with supplemental teeth in maxillary incisor region and a rare case of supplemental lateral incisor with talon cusp.

2 CASES REPORT

2.1 CASE REPORT 1

A 9 year old boy reported to department of Pedodontics, Post Graduate Institute of Dental Sciences, Rohtak with the chief complaint of unesthetic appearance in upper front region. Familial, medical and traumatic history was non-contributory. The extraoral examination did not reveal any abnormality. Intraoral examination showed presence of a supplemental maxillary incisor positioned apically and laterally to 21, causing rotation of 21 (Figure1a). The supplemental tooth was figured out on the basis of alignment of the incisors corresponding to mid-palatine raphe and facial midline. The distal most central incisor on left side was confirmed as supplemental tooth. Since the supplemental tooth caused rotation of 21, therefore, extraction of the supplemental twin (Figure1b), followed by orthodontic alignment of permanent maxillary incisor using 2X4 appliance was planned (Figure1c). Oral prophylaxis was performed and extraction of supplemental tooth was done under local anaesthesia. Bands were placed on 16 and 26 and metallic MBT brackets were bonded to 11, 12, 21 and 22. In 7 months rotation of 21 was corrected (Figure1d, 1e).

2.2 CASE REPORT 2

A 12 years old boy reported with the chief complaint of displaced upper front teeth. Patient's medical, traumatic and family history was non contributory. No abnormality was detected on extraoral examination. Intraoral examination showed permanent dentition with presence of a supplemental supernumerary tooth in between the maxillary central incisors (Figure2a). Supplemental tooth was similar in morphology and smaller in size compared to the maxillary central incisor. Left maxillary central incisor and canine were positioned out of the arch because of insufficient space (Figure2b). An orthopantomogram showed the presence of a single supplemental tooth in between the maxillary central incisors (Figure2c). Extraction of supplemental tooth was done under local anaesthesia. A midline diastema existed between the maxillary central incisors after extraction (Figure2d). An orthodontic intervention leading to proper alignment and closure of midline diastema over a period of 10 months was performed (Figure2e, 2f).

2.3 CASE REPORT 3

A 10 years old boy presented with a chief complaint of malaligned upper front teeth. Medical and family history was unremarkable. There was no history of previous trauma and extraoral examination revealed no abnormality. Intraoral examination showed mixed dentition with presence of a supplemental supernumerary tooth in between 11 and 12 (Figure1a). The supplemental tooth was similar in morphology and size to maxillary lateral incisor but showed the presence of talon cusp on lingual surface. Right maxillary lateral incisor (12) was positioned out of the arch because of the extra tooth (Figure1b). Periapical radiographs were done to confirm the presence of supplemental tooth with talon cusp (Figure1c). Extraction of supplemental tooth under local anaesthesia was done (Figure1e). Orthodontic treatment was scheduled but unfortunately, the patient did not report back for further treatment.

3 DISCUSSION

The exact etiology of supernumerary teeth remains obscure. Various theories have been put forward by different researchers including hereditary, atavism i.e. reversion to a more primitive type of dentition, continued proliferation of remnants of the dental lamina producing a "third dentition" and the dichotomy theory (most credible) [4]. According to the dichotomy theory, tooth bud splits into two parts of equal or unequal sizes. Gemination, which is assumed to be a similar, but incomplete process, lends support to the dichotomy theory [7].

All the patients reported to us were males. Two supplementary teeth were present unilaterally and one in the midline. As supernumerary teeth without any associated disease or syndrome may be rare to find, a general physician was consulted to rule out any syndromic association for all the three patients.

Use of a panoramic radiograph for accurate diagnosis of a supernumerary is usually recommended. However, in our case the teeth were fully erupted and the occlusion was deranged only on the affected side. This eliminated the need for an extensive radiological examination that would otherwise lead to unnecessary ionic exposure.

One patient presented with a rare case of supplemental lateral incisor with a talon cusp. Very few case reports are present documenting the occurrence of supernumeraries with talon cusp [8]. Permanent maxillary lateral incisors are most

commonly affected by talon cusp. Etiologically, talon cusp may be a result of an outfolding of enamel organ or hyperproductivity of dental lamina during morphodifferentiation stage of tooth formation [8].

Treatment of supernumerary teeth depends on their type, position in the arch and their potential impact on adjacent teeth. Therefore, their management requires a more comprehensive treatment plan [4]. Evidence seems to suggest that a short course of orthodontic treatment in the mixed dentition may improve function and aesthetics, provide psychological benefits and remain relatively stable once the appliance is removed [9]. Such a treatment also helps in preventing more serious orthodontic problems from developing and redirects skeletal growth [9]. The 2X4 appliance used in case 1 is versatile, easy to use and well tolerated by all patients. This appliance, when used correctly, will give a controlled approach to tooth movement in all three dimensions and predictable outcome [9].



Figure1- (a) Pre-operative picture showing presence of a supplemental tooth apical and lateral to 21 in case 1. (b) Rotated 21 after removal of supplemental tooth. (c) 2X4 appliance placement to correct rotation of 21. (d) Post-operative picture showing frontal view. (e) Post-op occlusal view.



Figure2: (a) Pre-operative picture showing Supplemental tooth in between maxillary central incisors in case 2 . (b) - Pre-operative occlusal view showing 21 and 23 located out of the arch . © Orthopantomogram showing presence of supplemental tooth in between maxillary central incisors . (d) Removal of supplemental tooth resulting in midline diastema . (E) Orthodontic treatment carried out to correct malalignment and midline diastema . (f) Post-operative picture showing proper alignment of 21 and 23 and closure of midline diastema



Figure3: (a) Pre-operative picture showing supplemental tooth lingual to 12 in case 3. (b) Pre-operative occlusal view showing 12 located out of arch and supplemental tooth with talon cusp. (c) Radiograph showing supplemental lateral incisor with talon cusp. (d) Post-operative frontal view after removal of supplemental tooth . (e) Post-operative occlusal view

4 CONCLUSION

Supplemental teeth without syndromic association can occur rarely. Complications related to the phenomenon can be minimized by early detection and by following a comprehensive treatment protocol.

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