



Case Report

Double toothed mandibular third molar – A rare anomaly – case report

Abhishek Bhattacharjee^{1*}, Rudresh K B², Prashanth R³, Abhishek Khatua⁴, Vinod Kumar⁵

^{1, 4&5}Post graduate student, ²Professor, ³Reader, Department of oral and maxillofacial surgery, Vokkaligara Sangha Dental College and Hospital, Bengaluru.

ABSTRACT

Abberant morphoanatomy of tooth are not uncommon, like fusion, gemination, conresence, dilacerations, talons cusp, dens in dente, dens evagenatus, taurodontism and supernumerary tooth. But gemination or fusion of mandibular third molar is a rare anomaly. Which has been documented in very few case reports. As gemination and fusion mostly occurs in the maxillary anterior tooth region. Here we present a case of gemination in mandibular 3rd molar with its clinical, radiographic and management perspective.

KEYWORDS: twinning, gemination, morphodifferentiation, genetics.

INTRODUCTION

Morphoanatomic alteration in teeth is mostly grouped according to the site of occurrence, it can either be in the crown, root, root canal of the tooth, variation in number, form and size of teeth. Gemination and fusion are two entities which are very close to each other and both are very difficult to diagnose [1] the exact etiology of these developmental anomalies are still not clearly understood however various theories have been proposed. Gemination and fusion have been given a single word to define i.e double teeth as they have a very close entity [2]. Association with a supernumerary tooth makes it even more difficult to diagnose. The investigations however follows a general pattern like periapical radiographs, orthopantomogram, cone beam computed tomography of the corresponding tooth [1], [2].

CASE REPORT

A 30 year old male patient reported to the department of oral and maxillofacial surgery with a chief complain of pain in the left lower back tooth region since 10 days. Patient gave a

history of teeth extraction in the left lower back tooth region five years back. On clinical examination of the oral cavity 36 and 37 was missing and 38 was fused with a premolar like tooth in its lingual aspect. The occlusal surface of the tooth appeared to be continuous, but on the lingual surface, the two crowns were separated by a distinct groove which caused the incomplete division of the tooth. Deep dental caries was present in 38 (**figure 1**). An intra oral periapical radiograph was taken, which revealed a radio opaque crown like structure was attached to 38. The pulp chamber appeared to be continuous for both the crowns.

Enamel and dentin like structures could be appreciated in the mesial aspect of 38. The root of fused supernumerary tooth was overlapping the mesial root of 38. The pulp chamber of the tooth appeared normal (**figure 2**). Based on clinical and radiographic findings, a differential diagnosis of germination in relation to 38 or fusion of 38 with a supernumerary tooth was made. Patient was sent for endodontic opinion, but due to anomalous root morphology the endodontic prognosis was suspected to be poor, so surgical removal of the tooth was planned. Surgical removal of the tooth was carried out under local anesthesia.

Figure1: Clinical appearance of 38 with fused supernumerary tooth



Figure 2: Radio opaque crown like structure seen at mesial surface of 38



The extracted tooth consisted of two crown like structures which were fused at the lingual aspect of 38. The premolar like supernumerary tooth root was fused with 38, so all together 3 roots were present in this double tooth (**figure 3**). The tooth was sectioned in serial slices buccolingually (**figure 4**). It was found that both the teeth had a fused

crown, common pulp chamber, but again from the pulp chamber three separate root canals were trifurcating. Based on clinical, radiographic and analysing the pulp chamber and canal morphology the diagnosis of fused tooth 38 with a supernumerary tooth was made.

Figure 3: Extracted fused tooth with 3 roots



Figure 4: After serial buccolingual sectioning, a common pulp chamber was present



DISCUSSION

Gemination is an incomplete attempt to divide. The partial division is arrested before tooth development is complete this results in a single tooth with a bifid or trifid crown and the total number of tooth is normal [1]. This is one of the rare dental anomaly [2],[3]. Fusion is another dental anomaly which has close resemblance to gemination. Fusion is a union of two tooth at enamel, dentin, cementum or pulp level during different stages of odontogenesis of two or more separately developing contiguous tooth germ[4],[5]. Since both this anomaly has morphologic closeness, Brooke and winter proposed that this anomalies to be **double teeth**, connate teeth[1],[6].

Mader also showed the clinical a likeness of fusion and gemination and put forward the term fused teeth which are joined together by dentin [6]. Overall frequency is approximately 0.5% in primary dentition and 1% in permanent dentition. Incidence of Germination is 0.5% and that of fusion is 0.05% [7]. Prevalence of fusion is 0.19% and Germination is 0.22% these anomalies is mostly seen in the maxillary anterior tooth region [1]. These anomalies are mostly unilateral, 68.84% [5],[7]. Incidence is similar for males and females [2]. According to Kapadan et al the prevalence of double teeth in primary dentition in different countries were 0.1 - 4.1% and boys had more than girls [7].

Occurrence of these anomalies in the mandibular molar is very rare [2]. Normal anatomy of mandibular third molar may vary in different individual [4]. Mandibular third molar usually has 4 cusp but variation in number of cusp is not uncommon [8] and generally present with two roots, but according to a study conducted by Guerisoli et al 0.19% of mandibular third molar among 114 teeth showed three root morphology, Sidow et al reported that 5% of cases showed three rooted morphology among mandibular third molar [4].

Etiology of double teeth is still not clearly understood. Many other factors has been attributed for the etiology. Environmental influences, hereditary, genetics, trauma , systemic disease, hypovitaminosis, lack of space in dental arch , inflammatory causes [5], [9] .Most accepted theory of fusion is thought to be the physical pressure producing close contact between two developing teeth (adjacent dental follicle) before calcification [2]. In fusion, the pulp chambers and root canals may either be joint or separated and this depends on the stage of tooth development(morphodifferentiation) mostly seen in nolla stage 6 , Grover and Lorton claims that local metabolic interference which occurs during morphodifferentiation of the tooth germ [2], [6] .The process of tooth gemination or fusion involves epithelial and mesenchymal germ layes, radical differences are considered to predispose to fusion [2].

Vastardis reported a strategy that can be affected to investigate the underlying cause of human tooth agenesis. He identified a defective gene that affects the formation of second premolar and third molar. He proved by family study, other genetics defects also contribute to the wide range of phenotypic variability of tooth agenesis. Clinically differentiation between gemination or fusion is difficult [10]. Milazzo and Alexander have for this purpose proposed of a differential diagnosis suggested count of teeth, clinically if there is an extra tooth in the arch it represent Gemination and if one tooth is missing from the full complement of teeth then it is said to be a fusion of teeth [11].

These aberrant analogue of tooth predispose it to higher caries incidence, malocclusion, changes in length of dental arch, periodontal disease, hyper or hypodontia of the successive tooth, poor esthetics [4]. But in cases where a supernumerary teeth is involved It can also have a possibility that a supernumerary teeth may have fused with the normal tooth in which their clinical appearance resembles to gemination. Radiographically or by sectioning of teeth , it has been seen that in cases of fusion two separate root canals will exist but in case of gemination single large root canal exists [6] and a single large pulp chamber. In the present case a single large root canal was seen and there was no decrease in number of teeth.

But according to some authors fusion can take place between the pulp canal of 2 teeth, in such cases it becomes very difficult to diagnose. Management for geminated molar varies according to patient. Generally Germination and fusion are asymptomatic and does not require any intervention. If tooth is not carious or esthetically not a concern for patient then it could be retained [12] .Extraction of these teeth if these are carious, periodontically poor prognosis, orthodontically required, unesthetic for patient.

Surgical extraction is normally the treatment of choice [5] as the tooth has a large crown roots are mostly 3-4 in numbers which are mostly flared. Which entangles more bony structures. Sometimes selective grinding of the tooth is also an option [6]. As in these case third molar was grossly carious and endodontic treatment was not feasible due to canal morpholog.

CONCLUSION

Double teeth in the posterior mandibular dentition is an uncommon dental aberration in permanent dentition. Any anomalies makes the treatment difficult. Clinical examination with radiographic evaluation is a must for planning proper treatment.

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*Corresponding author: Dr Abhishek Bhattacharjee
E-Mail: drabhishekbhattacharjee10@gmail.com