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Case Report

MANDIBULAR THIRD MOLAR FUSED WITH A SUPERNUMERARY TOOTH: REPORT OF A RARE CASE.

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Abstract:

Fusion is a developmental anomaly defined as the union of two normally separated tooth buds. Depending on the stage of development, fusion may be either complete or incomplete. The significance of this particular case was that this fusion occurred in a posterior permanent mandibular tooth with a supernumerary tooth which was impacted, while such a manifestation is more reported in maxillary anterior teeth; either in the primary (0.5%) or permanent (0.1%) dentition. The genetic basis for this anomaly is probably autosomal dominant with reduced penetrance. The clinical features, radiographic findings and the various etio-pathogenic possibilities of this unique tooth anomaly are discussed. In addition, the essential findings for differential diagnosis include number of teeth, radiography and clinical features are discussed.

Keywords : Fusion; supernumerary teeth, Tooth anomaly

Introduction :

Supernumerary teeth are additional teeth in the normal series, which may occur in any region of the dental arch although they are more frequent in the maxilla than in the mandible [1]. They are considered uncommon, occurring with a frequency of 0.3% to 3.8% in the population and classified according to their position and form. According to their location they are named as mesiodens, distomolar or distodens, paramolars and mesiomolars [2]. Fusion is a developmental anomaly in tooth morphology which may be due to union of two separate tooth buds. Depending on the stage of tooth development, union may be complete or incomplete and the tooth may have separate or fused root canals. Grahnen and Granath have reported that fusion of teeth is more common in deciduous than in the permanent dentition. In addition to affecting two normal teeth, fusion may also occur between a normal tooth and a supernumerary tooth such as the mesiodens or the distomolar [3]. Fusion is a rare occurrence in the mandibular posterior teeth, with overall prevalence to be approximately 0.5% in deciduous teeth and 0.1% in permanent dentition and 0.02% bilateral in both dentitions [4].The genetic basis for the anomaly is probably autosomal dominant [5,6]. Radiographically, the dentins of the fused teeth always appear to be joined in some region. Fused teeth may contain separate pulp canals or may share a common pulp canal [6].

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Case Presentation:

A male patient aged 42 years reported to a private clinic with complaint of severe pain and swelling in the lower left molar region since one month. On clinical examination of the oral cavity, there was presence of a partially erupted mandibular right third molar with pericoronitis. A large decayed cavity was present on the occlusal surface of the partially erupted crown.

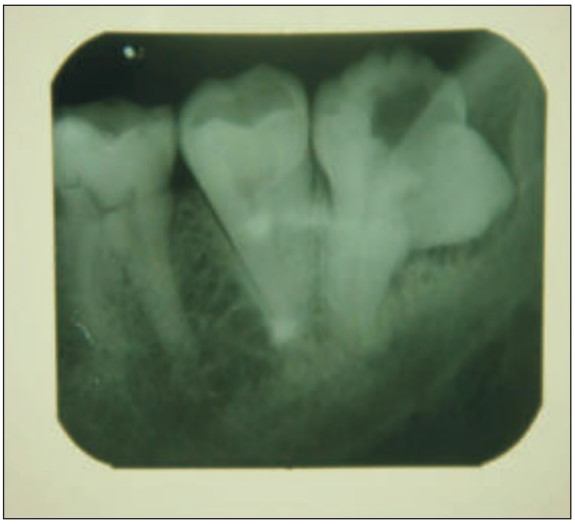

Figure 1: Intra oral periapical radiograph showing the distance of the tooth from the inferior alveolar canal.

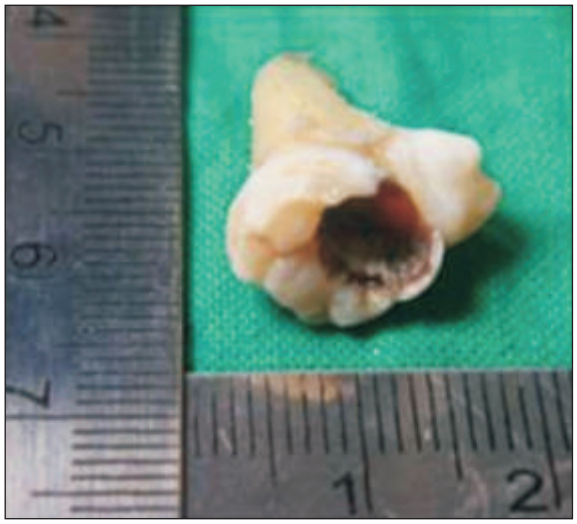

Figure 2: Supernumerary tooth resembling premolar fused to the mandibular third molar.

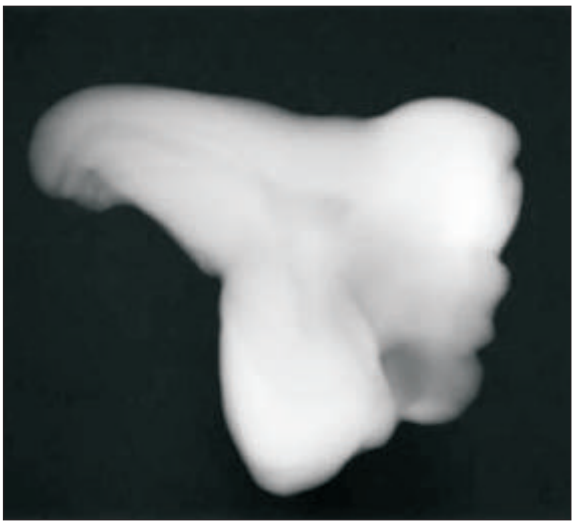

Figure 3: Digital radiography of the specimen using RVG showing Y shaped root canal ending in 2 distinct pulp chambers.

Intra oral periapical radiograph showed a partially impacted right mandibular third molar (48) fused with a supernumerary tooth distally at cemento-enamel junction (CEJ). It also revealed large crown in relation to 48, occlusal aspect of which showed a radiolucent area covering nearly half of the crown. Distal aspect of the crown showed a tooth like projection with equal radio opacity to that of enamel. There was reduced inter-radicular space in between the second and third molar (47 and 48).The apical third of 48 showed dilacerations and the distal aspect of the crown showed arch shaped radiolucency indicating pericoronitis. Apical root of 48 was at a distance of around 4mm from inferior alveolar canal wall (Fig.1).

Provisional diagnosis of pericoronitis associated with fused supernumerary tooth to the third molar was considered.

The fused tooth was removed in entirety by surgical procedure under local anesthesia and the healing of the socket was uneventful.

Gross examination of the tooth specimen showed two crowns, one was the normal mandibular 3rd molar with well developed crown having normal anatomic morphology and the other was a supernumerary tooth fused distally near the CEJ with less developed crown (Fig. 2) having morphology resembling the mandibular second premolar with two cusp placed lingually and buccally. It had a single root ending with dilacerations towards the distal side. Digital image of the extracted specimen showed a relatively large crown with scalloped coronal area and presence of Y shaped root canal ending in 2 distinct pulp chambers. Dentine in relation to the cuspal part appeared to be confluent with the crown of the tooth. Acute dilacerations were observed in the apical region (Fig. 3).

Discussion:

The majority of fused teeth are probably asymptomatic. However, fused teeth may cause clinical problems .Teeth that are fused together produce dental structure that are

wider than adjacent teeth and may cause clinical problems like spacing, crowding, periodontal conditions, alteration in the root canal morphology etc

However, when "normal" tooth is fused with a supernumerary tooth, more arch length is required and crowding or even impaction of the tooth may result which was seen in the present case [7].

The etiology of fusion is still an enigma and many different views have been put forth. Shafer et al speculated that pressure produced by some physical force prolongs the contact of the developing teeth causing fusion. Lowell and Solomon believe that fused teeth result from some physical action that causes the young tooth germs to come into contact, thus producing necrosis of the intervening tissue and allowing the enamel organ and dental papilla to fuse together. Many authors have also suggested hereditary involvement as an autosomal dominant trait with reduced penetrance [8]. Environmental factors have also been implicated in the aetiology of fusion. Genetic predisposition and racial differences have also been reported as contributing factors [9].

The fact that fusion is usually the cause of reduced number of teeth in the dental arch helps to differentiate it from gemination; with the exception of such unusual cases, in which fusion is between a supernumerary and normal tooth.

Fusion in the posterior permanent dentition is an uncommon condition and is extremely rare, but they are important dental anomalies that could affect any tooth in the mouth. Identification of the condition and radiographic evaluation is mandatory prior to the treatment for the successful outcome.

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