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CASE REPORT

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A supernumerary maxillary tooth: its topographical anatomy and its clinical implications

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A supernumerary tooth was detected in the left maxilla during an osteology teaching session with undergraduate medical students. Supernumerary teeth have previously been detected in individuals who have approached a dental surgeon with a complaint and who have then been diagnosed by X-ray. Asymptomatic cases are frequently not diagnosed in time and it is only the malalignment or delayed eruption of the tooth which raises the suspicion that this type of dental anomaly is present. The present paper highlights the anatomico-radiological study of a supernumerary maxillary tooth in a bone specimen and describes its clinical implications. Precise anatomical details of the supernumerary maxillary tooth might be of significant clinical interest to dental and maxillofacial surgeons in drawing up a plan for orthodontic treatment and may thus minimise the possible complications involved.

Key words: fourth molars, supernumerary tooth, mesiodens, anomalous maxillary tooth

INTRODUCTION

Teeth present in excess of the normal number teeth are referred to as "supernumerary teeth". Supernumerary teeth are present in both primary and permanent dentition but are 5 times less frequently seen in primary dentition as compared to permanent dentition [4, 10, 15]. The prevalence of supernumerary teeth varies from 0.15% to 1.9% [8, 10, 15]. Approximately 90% of supernumerary teeth are found in the maxilla [8].

Research reports have shown that supernumerary teeth occur more frequently in the maxilla as compared to the mandible [6]. Supernumerary teeth are known to develop as a result of hyperactivity of the dental lamina [5, 8]. They may or may not erupt. Those cases where the supernumerary teeth do not erupt require radiological evaluation. In contrast to most of the earlier studies that describe radiological findings, the present paper reports the anatomical evaluation of a supernumerary tooth. On eruption, the supernumerary tooth might interfere with the alignment of the neighbouring teeth. Anatomical and radiological evaluation of supernumerary teeth might be of importance to dental and maxillo-facial surgeons.

CASE REPORT

During routine osteology teaching of undergraduate medical students in the department of anatomy, we detected a supernumerary tooth in the left maxilla near the maxillary tuberosity. The features of the skull were indicative of male sex. The supernumerary tooth was found to be 0.5 cm above the upper 3rd molar and situated at a distance of 0.4 cm

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anterior to the lateral pterygoid plate. It had partially erupted and measured 0.9 cm and 0.7 cm in its maximum transverse and vertical dimensions, respectively. The supernumerary tooth in the present case could be termed the 4th molar, as it was positioned close to the 3rd molar.

Further, the specimen was photographed (Fig. 1) and a skiagram taken (Fig. 2). The photographs together with the skiagram revealed that the root of the 3rd molar was very close to the supernumerary 4th molar tooth. However, the position and alignment of the 3rd molar were not disturbed. On examination of the external features of the supernumerary 4th molar tooth, it was found to be smaller in size than the last molar and was partially erupted. It was directed posteriorly and was bizarrely shaped. No other abnormalities were observed.

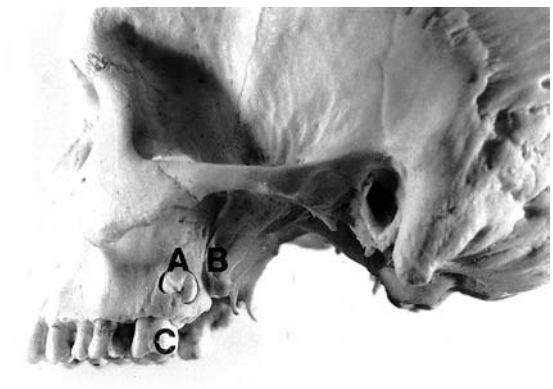

Figure 1. Photograph of bone specimen showing: A — the partially erupted supernumerary 4th molar tooth; B — the pterygoid plate; C — the 3rd molar tooth.

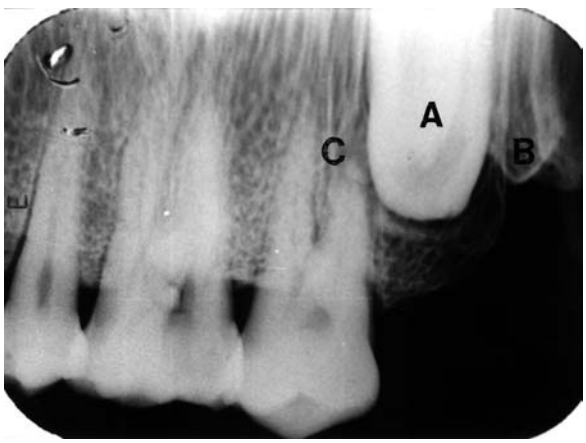

Figure 2. X ray photograph (high resolution) showing: A — the supernumerary 4th molar tooth; B — the pterygoid plate; C — the root of the 3rd molar tooth.

DISCUSSION

The supernumerary teeth located in the region of the central incisors or posterior to it are termed "mesiodens" [10, 15]. In the present study the supernumerary tooth was not located near the incisors. The skiagram (Fig. 2) showed that the root of the 3rd molar was very close to the supernumerary tooth. The partially erupted supernumerary 4th molar tooth had not disturbed the alignment of any other tooth. The 4th molar in the present case was at the permanent dentition stage, as evident from the age of the individual. This is quite consistent with earlier reports that the incidence of supernumerary teeth is more frequent at the permanent dentition stage [4, 10, 15].

Earlier studies have reported the presence of 4th, 5th, 6th and even 7th molars [1]. The 4th molars have been reported to be blunt, multicuspid and smaller than the 3rd molars [13]. Cassetta reported that 8 of the 13 supernumerary molars were tuberculated and 5 were conical in shape [3]. In the present case, the 4th molar was bizarre in shape. This observation is in agreement with an earlier finding by Sugimara et al. [14], where, in a study of 13 distomolars, 8 resembled the premolar, 3 were conical and 2 were bizarre in shape.

Supernumerary teeth that have normal morphology have been termed "Supplementary Teeth" but they have also been reported to be rudimentary in shape and smaller in size [7]. In the present case, the 4th molar was smaller in size, located above the 3rd molar, partially erupted and faced posteriorly. A partially erupted supernumerary tooth of this kind may be supposed to have caused difficulties to the individual. The close proximity of supernumerary tooth to the root of the 3rd molar is a finding that warrants special attention. The supernumerary tooth could have approached the nasal cavity, causing complications. Considering the fact that the course of the maxillary nerve was very close to the position of the supernumerary tooth, there might have been an involvement of the maxillary nerve, resulting in associated symptoms. Such observations justify pre-operative radiological assessment.

It may be noted that only 25% of supernumerary teeth erupt and this underlines the importance of this type of dental anomaly [11]. In the present case the supernumerary 4th molar tooth had partially erupted. Supernumerary teeth have also been found to interfere with the eruption and alignment of other teeth. They may cause complications such as di-

lacerations of the developing roots, root resorption and loss of tooth vitality [9]. The development of dentigerous cysts has also been reported in between 4% and 9% of cases [2].

Supernumerary teeth may be found in the primary, mixed or permanent dentition stages. The management of supernumerary teeth depends on the developmental stage of dentition. Surgical extraction of an unerupted tooth is not advised if it is found in the primary dentition stage, as it erupts into the oral cavity and extractions might damage or displace the developing primary incisors [12]. Extraction is advocated only if it is in the mixed or early permanent dentition stage [12]. Extraction of supernumerary teeth at an early stage of mixed dentition might help in the better alignment of the rest of the teeth and reduce unnecessary orthodontic treatment. If extraction is performed at a later stage of permanent dentition, there is a chance of malalignment. Intra-operative or pre-operative complications are reduced if surgical intervention is carried out at an earlier stage. Even 6 months following its removal, clinical and radiological reassessment is required [9].

The presence of a supernumerary tooth requires the correct clinical and radiographic approach for early detection and treatment. Surgical removal is recommended before it can affect the development and eruption of other permanent teeth. The present paper is a humble attempt to describe the anatomical details of a supernumerary maxillary tooth in a bone specimen, which might be helpful in radiological evaluation.

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