

## PARAPREMOLAR: A CASE REPORT AND LITERATURE REVIEW

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### ABSTRAK

Parapremolar adalah gigi supernumerary yang terletak di area premolar. Bentuk yang paling umum adalah variasi suplemental atau bentuk yang menyerupai gigi premolar. Etiologi parapremolar tidak jelas, tetapi beberapa teori telah diajukan untuk menjelaskan kejadiannya; teori-teori ini meliputi teori atavisme, teori dikotomi, dan teori hiperaktivitas lamina dental. Kombinasi faktor lingkungan dan genetik juga dapat berkontribusi terhadap etiologi parapremolar. Seorang wanita berusia 43 tahun dirawat karena gigi impaksi. Radiografi panoramik diambil untuk menentukan posisi gigi impaksi. Radiografi panoramik menunjukkan bahwa gigi 48 impaksi mesioangular IA, dan ada temuan insidental gigi parapremolar tertanam dengan posisi distoversi di sekitar daerah apikal gigi 46. Gigi parapremolar adalah gigi supernumerary yang ditemukan di sebelah gigi normal dan terletak di dekat gigi premolar normal. Gigi parapremolar tertanam jarang menimbulkan keluhan dan biasanya ditemukan pada pemeriksaan radiografi. Gigi parapremolar tertanam tanpa komplikasi harus dipantau secara berkala.

**Kata Kunci:** Parapremolar, Gigi Impaksi, Gigi Supernumerary.

### ABSTRACT

*Parapremolars are supernumerary teeth located in the premolar area. The most common form is a supplemental variation or a form resembling a premolar tooth. The etiology of parapremolars is unclear, but several theories have been proposed to explain their occurrence; these theories include the theory of atavism, the theory of dichotomy, and the theory of dental lamina hyperactivity. A combination of environmental and genetic factors may also contribute to the etiology of parapremolars. A 43-year-old woman was treated for impacted teeth. A panoramic radiograph was taken to determine the position of the impacted tooth. The panoramic radiograph showed that tooth 48 was mesioangularly impacted IA, and there was an incidental finding of an embedded parapremolar tooth with a distoversion position around the apical region of tooth 46. Parapremolar teeth are supernumerary teeth found next to normal teeth and located near normal premolar teeth. Embedded parapremolar teeth rarely cause complaints and are usually found on radiographic examination. Embedded parapremolar teeth without complications should be monitored periodically.*

**Keywords:** Parapremolar, Impacted Teeth, Supernumerary Teeth.

## **INTRODUCTION**

The development of teeth occurs through a complex process called odontogenesis, which involves morphological and physiological stages in the formation of teeth. If the process does not proceed properly, it can cause abnormalities in tooth growth, such as supernumerary teeth or anodontia (1). Supernumerary teeth are additional teeth that grow beyond the normal number of teeth, which is 20 for primary teeth and 32 for permanent teeth. Supernumerary teeth can be found in almost all parts of the dental arch and can be single or multiple, unilateral or bilateral, and in the maxilla or mandible (2).

The prevalence of supernumerary teeth ranges from 0.2 to 0.8% in deciduous teeth, 0.5 to 5.3% in permanent teeth, and 0.9% in mixed dentition. Supernumerary teeth have varying distributions; they can be single, multiple, unilateral, or bilateral. In addition, supernumerary teeth can be found in various locations such as the upper and lower jaws. Supernumerary teeth can erupt or be seen on routine radiographic examination (3). Radiographic examinations that can be used to evaluate supernumerary teeth include periapical and panoramic images, which are useful for determining the diagnosis. Radiographic examinations can provide complete data on the shape, number, location, and relationship of supernumerary teeth to surrounding tissues, allowing dentists to consider appropriate treatments, such as orthodontic treatment or extraction of the supernumerary teeth (4). A number of clinical complications can be caused by supernumerary teeth, including malalignment, crowded teeth, delayed eruption, and midline diastema (5).

Cases involving one or two supernumerary teeth usually occur most frequently in the anterior maxilla. Meanwhile, cases involving multiple supernumerary teeth usually occur in the mandibular premolar region (6). Supernumerary teeth can be categorized based on their chronology, topography, and morphology. Based on chronology, supernumerary teeth can develop during the deciduous tooth period, the permanent tooth period, or the mixed dentition period. Based on their topography, supernumerary teeth are defined as mesiodens, paramolar, distomolar, and parapremolar. Based on morphology, supernumerary teeth are defined as additional teeth that are supplemental, conical, tuberculate, and odontoma in shape. Supplemental teeth are duplicates of normal teeth and appear at the end of the dental arch, for example, the second premolar or lateral incisor of the upper jaw. Conical teeth are supernumerary teeth that are cone-shaped or peg-shaped, most often appearing between the

upper central incisors. Tuberculate teeth are supernumerary teeth that have more than one cusp or tubercle, most often found on the palatal side of the upper jaw central incisors. Odontomas are the rarest form, having a compound or complex form (7).

Parapremolars are supernumerary teeth located in the premolar area. The most common form is the supplemental variation (8). The etiology of parapremolars is unclear. Several theories have been proposed to explain their occurrence; these theories including the theory of atavism, the theory of dichotomy, and the theory of dental lamina hyperactivity. A combination of environmental and genetic factors may also contribute to the etiology of parapremolars (9). The purpose of this article to describe supernumerary parapremolar teeth which was incidentally found on radiographic examination.

## **CASE REPORT**

A 43-year-old woman came to Soelastri Dental Hospital with the main complaint of a crooked tooth on the lower right side. The patient had been experiencing this complaint for a long time, sometimes feeling pain and discomfort when eating. The patient admitted to having had the tooth filled with composite resin. The patient had no history of allergies to food, weather, or medication, denied having a history of systemic disease, and did not take any regular medication. The patient had the lower right molar filled, other than the one complained of, and had had an upper molar extracted. The patient did not smoke or consume alcohol. Her facial appearance was normal and did not show any skeletal abnormalities or other abnormalities indicative of any syndrome. Extraoral examination revealed no abnormalities. Intraoral examination showed tooth 48 in an impacted position. The diagnosis for the patient's tooth was a mesioangular Class IA impacted tooth 48. The treatment plan was odontectomy.



Figure 1. Intraoral view of the patient

Supporting examinations were performed to determine the position of the teeth and surrounding tissues. The supporting examination performed was a panoramic radiograph. The panoramic radiograph showed that tooth 48 was impacted and there was a radiopaque area on the crown of the tooth in the form of tooth-coloured restorative material (Figure 2). Additionally, there was an incidental finding of unerupted premolars with a distoversion position around the apical region of tooth 46. Tooth 48 underwent odontectomy under local anaesthesia. The patient's supernumerary teeth were not treated as they did not cause any complaints for the patient. The patient was educated about the position of the embedded tooth and the importance of regular observation.



Figure 2. Panoramic radiograph examination of the patient

## **RESULT AND DISCUSSION**

The embedded teeth are a pathological condition in which teeth fail to erupt completely or do not erupt at all because their position is obstructed by other teeth, bone, or surrounding soft tissue. Local causes of tooth impaction include mechanical obstruction from adjacent teeth, overly dense bone, soft tissue, cysts, tumors, or supernumerary teeth. In addition, systemic factors such as genetics, anaemia, congenital syphilis, malnutrition, and endocrine dysfunction can also influence the occurrence of tooth impaction (10). The teeth most commonly affected by embedding are the third molars of the lower and upper jaws, the upper canine teeth, the lower premolars, and supernumerary teeth (11).

Parapremolars are supernumerary teeth found alongside normal teeth and located near normal premolars. Mandibular parapremolars are one of the most common supernumerary teeth, along with teeth that appear in the premolar region. Parapremolars can be found as a single supernumerary tooth, two or more premolars located bilaterally, or even associated with

other types of supernumerary teeth, such as mesiodens located between two central incisors (12). The presence of supernumerary parapremolars has been reported in many populations. Studies show that 8–10% of supernumerary teeth are parapremolars teeth (13).

Impacted mandibular premolars are usually located buccally and generally next to or below the root of the molar tooth, in a vertical, horizontal, or oblique position. The etiology of premolar impaction includes lack of space, cysts, retention of deciduous teeth, infection, trauma, anomalies, and systemic conditions. In this case, supernumerary teeth are impacted distally at the apical region of the mandibular molar. This can occur due to the parapremolar tooth lacking space for eruption, exacerbated by hereditary factors (14). Genetic factors play a significant role in the occurrence of supernumerary tooth anomalies, as they are often found in family members of the patient. This anomaly is usually also found in the parents (father/mother) and other family members of the patient (15).

Parapremolar teeth are usually detected during routine radiographic examinations, making panoramic radiography an important tool for identifying supernumerary teeth. In this case, supernumerary teeth were discovered incidentally because the patient was undergoing radiographic examination as a supporting examination for odontectomy treatment. Panoramic radiography is one of the supporting examinations that can help detect supernumerary teeth. However, panoramic radiography still has several limitations, such as geometric distortion and superimposition. Panoramic radiographs cannot provide an accurate assessment of the morphology of supernumerary teeth, their location, and their relationship to surrounding vital structures such as the mandibular canal (16). As in this case, panoramic radiographs only show the position of supernumerary teeth in the lower right inferior premolar but cannot identify the direction of tooth growth and the distance between the tooth crown and the alveolar crest. Therefore, additional radiographs such as occlusal radiographs and Cone Beam Computed Tomography (CBCT) are useful when attempting to further investigate the presence of supernumerary teeth and thus confirm the diagnosis (17).

The treatment of embedded parapremolar teeth can be performed by extraction using the open method and orthodontic treatment. Extraction of embedded parapremolar teeth in the lower jaw must be performed carefully to prevent the risk of mandibular canal injury. In this case, the patient had no complaints, did not want orthodontic treatment, and considered the risks of surgery, so no action was taken other than observation. Embedded parapremolar teeth

can be categorized as premolar teeth that may cause complications and those that do not cause complications. Parapremolar teeth without complications should be monitored regularly. If embedded supernumerary premolar teeth are accompanied by complications, inhibit eruption, or cause malposition of permanent teeth, they should be extracted immediately using surgical methods (18). Extraction of parapremolar teeth can be delayed if the parapremolar is close to the cusp of a developing permanent tooth or if the formation of supernumerary teeth is still in its early stages, thus posing a high risk of recurrence (19).

### **CONCLUSION AND SUGGESTION**

Parapremolars are supernumerary teeth found next to normal teeth and located near normal premolars. Embedded parapremolars teeth rarely cause complaints and are usually found on radiographic examination. Embedded parapremolars teeth without complications should be monitored periodically.

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