Abstract
The exact aetiology of supernumerary teeth is still unknown even though many theories have been proposed to explain their presence. Abnormal reactions to a local traumatic episode, environmental factors or a developmental anomaly, and certain syndromes have been implicated as causative factors. Although a single supernumerary tooth or few teeth have been widely reported in the literature, multiple supernumerary teeth are not a common occurrence. Multiple supernumerary teeth affecting all four quadrants of the jaw is a rare dental anomaly which generally is an accidental finding on routine dental radiography. This article reports the case of non-syndromic multiple supernumerary teeth, affecting all four quadrants in a 23-year-old male, who presented to the Faculty of Dental Sciences, University of Peradeniya for routine dental treatment without any significant medical or dental abnormality. A brief review of the literature on multiple supernumerary teeth is also presented.

Key Words: Radiography; Unerupted teeth; Non - Syndrome; Supernumerary teeth.

Introduction
Supernumerary teeth or hyperdontia are defined as the existence of an excessive number of teeth in relation to the normal dental formula and may or may not mimic the normal shape\(^1\,^2\). They may occur singly, multiply, unilaterally or bilaterally and in one or both jaws. Rarely these may occur in all four quadrants of the jaw bone as in the index cases. Supernumerary teeth can be classified according to their form and position as shown in Table 1\(^2\,^4\).

While impaction of single tooth is not uncommon, development of multiple impacted teeth is a rare condition and is often found in association with syndromes or developmental anomalies such as Gardner’s syndrome, cleidocranial dysplasia, trichorhino phalangic syndrome and cleft lip and palate\(^3\,^4\). However, supernumerary teeth can occur in patients without any associated syndromes or developmental anomalies.

<table>
<thead>
<tr>
<th>Classification based on form</th>
<th>Classification based on position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conical (supernumerary peg shaped teeth)</td>
<td>Mesiodens (present in the incisor region)</td>
</tr>
<tr>
<td>Tuberculate (more than one cusp or tubercle)</td>
<td>Paramolar (present beside a molar)</td>
</tr>
<tr>
<td>Supplemental (resemble to normal teeth)</td>
<td>Distomolar (present distal to the last molar)</td>
</tr>
<tr>
<td>Odontome (a mass of dental tissue)</td>
<td>Parapremolar (present beside a premolar)</td>
</tr>
</tbody>
</table>

Table 1. Classification of supernumerary teeth
The exact aetiology of supernumerary teeth is still unknown. Several reasons such as abnormal reactions to a local traumatic episode, environmental factors, development anomaly, and supernumerary teeth associated syndrome have been implicated as causative factors. However, many theories have been proposed to explain their presence; i.e.: ‘The dichotomy theory’ of tooth germs states that the tooth bud splits into two equal or different sized parts, resulting in two teeth of equal size or one normal and one dimorphic tooth respectively. Further, the theory of hyperactivity of the dental lamina, the autosomal recessive inheritance or linked to the X chromosome, are accepted widely\(^5,6,7\).

The presence of supernumerary teeth can cause problems for development of a normal dentition such as, failure of eruption of adjacent permanent teeth, crowding and rotation, occlusal problems, dental malformations, displacement and ectopic eruption, formation of diastema, root resorption of adjacent dentition, dilaceration of adjacent dentition and loss of vitality, formation of dentigerous cysts or they can even be just asymptomatic\(^4,8\).

The unerupted asymptomatic supernumeraries are better kept as they are, without surgical intervention, to prevent the damage to the vital anatomical structures such as inferior dental nerve or mental nerve. It was suggested that a periodical radiographic observation is needed to detect early formation of any cystic degeneration associated with the unerupted teeth. Then, it is advisable to remove these supernumerary teeth immediately, if it starts to show any pathologic change. Further, it is necessary to carry out further clinical examination to rule out possible syndromes.

**Case Report**

A 23-year-old male patient visited the department of Restorative dentistry with a complaint of pain in relation to the decayed teeth in left upper and lower posterior region. The patient was generally healthy, and his family’s medical and dental history was noncontributory, and the extra oral examination was normal. Intraoral examination confirmed that the upper left first molar (#26) and lower left second molar (#37) had deep dentinal caries. (Figure 1 a, b).

The Intra-Oral-Periapical (IOPA) radiographs relevant to both carious teeth were obtained as a baseline investigation prior to dental treatment. Routine intraoral radiographs revealed the presence of multiple supernumerary teeth located in both upper and lower arches (Figure 2 a, b). The dental panoramic tomography (DPT) was required as a compulsory investigation to identify all the unerupted supernumerary teeth. The DPT radiograph revealed a total of fourteen (14) supernumeraries in all four quadrants and all of them were unerupted. The DPT showed no other abnormality or evidence of cystic degeneration around any of the unerupted supernumeraries (SUE) (Figure 3) and dental formula is charted in Table 2.

![Figure 1. (a, b) Carious upper left first molar (#26) and lower left second molar (#37)](image-url)
Non-Syndromic Multiple Unerupted Supernumerary Teeth  
A Case Report

Figure 2. (a, b) The Intra-Oral-Periapical (IOPA) radiographs in relation to both carious teeth

Figure 3. The DPT showing a total of fourteen (14) supernumeraries involving all four quadrants and all of them being unerupted.

Table 2. Chart showing location of unerupted supernumeraries ($S^{UE}$)

Based on the history, clinical examination and radiographic investigations, it was confirmed as Non-Syndromic Multiple Supernumerary Teeth.

All the teeth were vital except the upper left first molar (#26). Indirect pulp capping and temporary filling was done for the lower left second molar (#37) and it was decided to do the endodontic treatment for the non-vital upper left first molar (#26). It was suggested to the patient that a follow-up DPT would have to be taken every two years to identify any cystic degeneration associated with these unerupted teeth. Further, the patient was clinically examined to confirm and rule out syndromes.

Discussion
Non-Syndromic multiple supernumerary teeth itself is a rare condition and involvement of the all four quadrants of the jaw is very rare. The lower arch premolar region is the most common site of occurrence of supernumerary teeth. This case shows the presence of (fourteen (14) multiple supernumerary teeth in the premolar area of
all four quadrants. The occurrence of non-syndromic supernumerary teeth is more common in the maxilla than in the mandible\(^{10}\), and in males than in females\(^1\), in permanent dentition than in primary dentition\(^{12}\), and unilaterally than bilaterally\(^{12}\). Non-syndromic supernumerary teeth might be related to heredity factor; therefore a thorough family\(^\prime\)s history should be carefully investigated.

Published research on prevalence of supernumerary teeth shows variations according to the location from where the data had been collected. The prevalence of supernumerary teeth in permanent dentition ranges from 0.15\% to 3.8\%\(^{13,14}\). It is less common in the deciduous dentition with a reported incidence of 0.3\% to 1.7\% of the population\(^{13,14}\). However, where multiple supernumerary teeth are taken to mean five or more supernumerary teeth, the prevalence has been reported as less than 1\%. The incidence of multiple supernumeraries is lower than that of single and double supernumeraries. According to the reported literature, 68.6\% were single supernumeraries, 20.3\% were double and 11.1 \% multiple supernumeraries. Approximately 75\% of supernumerary teeth are impacted and asymptomatic, and most of these teeth are diagnosed coincidentally during radiographic examination\(^{15}\).

Early diagnosis is important in order to minimize the risk of complications resulting from unerupted supernumerary teeth. Surgical intervention is recommended if they have caused delay or non-eruption of permanent teeth, displacement of permanent teeth, root resorption of adjacent teeth due to the pressure and if there are signs of cystic formations.

Symptomatic multiple unerupted supernumeraries may have to be surgically removed after appropriate education of the patient and parent about the risk of damage to adjacent teeth and vital anatomical structures. For asymptomatic supernumerary teeth, long term radiological follow up is recommended for early diagnosis of any pathologic changes in relation to the unerupted teeth. If patients who visit for routine dental consultation with multiple supernumeraries are associated with other dental anomalies and syndromes those related clinical problems must be prioritized before treating the complications arising from presence of the supernumerary teeth.

**Conclusion**

It is rare that a dental surgeon may witness asymptomatic multiple supernumeraries involving all four quadrants. While it could be associated with syndromes, when it is not it is usually an incidental radiographic finding especially in the case of unerupted asymptomatic teeth. The treatments are controversial and are generally reserved for symptomatic teeth. Periodic radiological examination is essential to identify any pathologic change or other related problems.

**References**


Non-Syndromic Multiple Unerupted Supernumerary Teeth
A Case Report


