

Multiple submerged primary molars. A case report

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بنت سعودية تبلغ من العمر ١٠ سنوات تم التشخيص أن لديها عدد من الأرحاء اللبنية الغائرة وكان غوران هذه الأرحاء بين الشديد والمتوسط وهي (٨٥، ٨٤، ٧٥، ٥٥) وتطابق الأسنان كان غير طبيعي وطيفيا - 0 الأرحاء الغائرة كانت ثابتة بشكل جيد بالرغم من وجود امتصاص للحذور في صورة الأشعة -٠ يعتقد أن وجود الأرحاء الغائرة يمنع بزوغ الضواحل الامامية الدائمة -٠ ثم خلع الأرحاء الغائرة تحت التخدير الموضعي وأظهرت المتابعة لمدة ١٨ شهرا بزوغ الضواحل الامامية الدائمة بشكل طبيعي.

A 10-year-old Saudi girl was diagnosed with moderate to severe submergence of multiple primary molars (55, 75, 84 and 85). Occlusion was dysfunctional. All the submerged teeth were firmly in place although there was radiographic evidence of resorption of roots. The submerged teeth were apparently preventing eruption of the premolars. The submerged teeth were extracted under local anaesthesia and eighteen months follow-up showed a normal eruption of the premolars.

Introduction

Achieving a functional and stable occlusion should be the primary goal of a practising dentist. Many conditions can disturb the developing occlusion. One such condition is submergence of a primary molar, for which various terms have been used such as arrested eruption, incomplete eruption, shortened tooth, ankylosis and infraocclusion. The most commonly used terms are ankylosed tooth, infraocclusion and submerged tooth.¹

Submerged teeth are those that stop their relative occlusal movement in the dental arches during or after the period of active eruption. Though this condition is relatively common, it is neither frequently recognised by the general practitioner nor treated when clinically necessary. This paper presents the etiology, diagnosis and the treatment of submerged primary molars.

Case Report

A 10-year-old Saudi girl child was referred from the Primary Health Centre (PHC) to the Pedodontic Clinic of the Ministry of Health Dental Center Al-Hassa, for dental caries management. Her medical history was unremarkable and she had visited the dentist regularly.

The patient was fully assessed clinically and radiographically. Intra oral examination, showed a mixed dentition stage, initial caries in teeth 36 and 46, pink tooth in 64 and submerged 55, 75, 84 and 85. There was no mobility of the submerged primary molars. The submergence was moderate to severe. All the submerged primary molars were out of occlusion (Figures 1 and 2).

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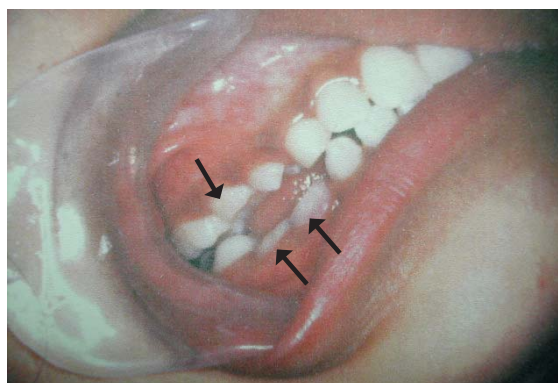


Fig. 1. Submerged 55, 84 & 85 which are out of occlusion.



Fig. 2. Submerged 75 which are out of occlusion.

Orthopantomograph (OPG) was taken to assess the amount of root resorption of primary teeth and the presence of premolars and it revealed the presence of all the premolars with two thirds of root development, complete root resorption in 55, 65 and 84, ectopic root resorption of 85 and radiographic obliteration of the periodontal ligament space in 75 and 85, suggesting ankylosis of these two teeth (Figure 3).

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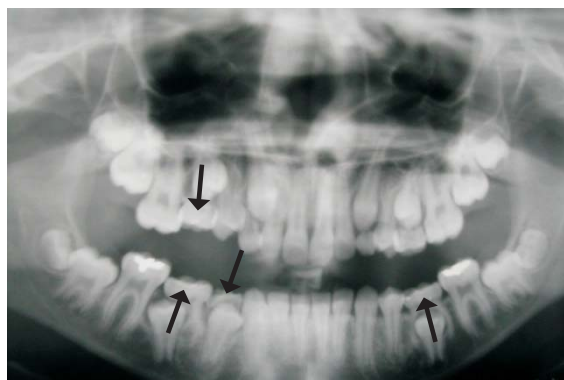


Fig. 3. OPG showing multiple submerged primary molars with obliteration of periodontal ligament space (Pre-operative).

Diagnosis of submerged primary molars was made on the basis of clinical presentation and radiographically observed ankylosis. The patient and the parent were unaware of the multiple submerged primary molars. The condition and the possible consequences were explained to them and the submerged primary molars were extracted under local anaesthesia. Slight difficulty was experienced during extraction. Eighteen months follow-up showed the normal eruption of all the premolars (Figure 4).



Fig. 4. OPG showing normal eruption of all the premolars (Post-operative).

Discussion

The exact etiology of submerged teeth is still obscure. Biederman² discussed the three possibilities; a genetic or congenital developmental gap in the periodontal membrane, excessive masticatory pressure or trauma and disturbed local metabolism. Via³ suggested that the occurrence of submerged primary teeth is a familial tendency and probably is a heritable trait. It has been suggested often that there is a

relationship between congenital absence of the permanent successors and the submergence of primary teeth.^{4,5,6} Steigmann and Matrai⁷ disagreed with this and in the present case, submergence was also found to be associated with the presence of the permanent successors. It is generally agreed that most of the submerged teeth are ankylosed.^{8,9} Ankylosis of the primary teeth is related to the intermittent resorptive and reparative process of the roots. Ankylosis is not always clinically or histologically demonstrable in all cases. Ankylosis of the primary teeth does not occur unless there has been a trauma.

Clinically, the diagnosis of submerged tooth is not difficult since it is below the level of occlusal plane when compared to the adjacent normal teeth. A tooth is considered to be submerged if its intact marginal ridges are more than 0.5 mm below the intact marginal ridges of the adjacent normal teeth.¹⁰ The opposing tooth in the area is out of occlusion. The affected tooth is not mobile in spite of the advanced root resorption. Depending on the surface area of ankylosis, varying degree of firmness of the primary teeth will result before exfoliation. Extensive bony ankylosis will interfere with normal exfoliation and the eruption of the underlying permanent tooth. There are chances for the adjacent teeth to migrate into the space created by the severely submerged tooth resulting in space loss and locking the tooth in process. Other clinical signs that may be present with submerged primary molars are described by Ekim and Kofman.¹¹ The diagnosis of ankylosis can also be made by percussing the suspected tooth and the adjacent normal teeth with a blunt instrument and comparing the sounds. The ankylosed tooth elicits a solid sound whereas, the normal tooth has a cushion sound because of the distribution of the load from the blow by an intact periodontal membrane. Since the sound interpretation varies from person to person, this technique is not sensitive.

Radiographs are valuable in diagnosing the ankylosis. They reveal the obliteration of the periodontal ligament space which prevents the occlusal movement of the affected tooth. Hence, the submerged tooth will remain static, while the adjacent teeth continue to move occlusally and therefore falls below the level of occlusal plane and out of functional occlusion.

It is quite common to see a single submerged tooth although there have been reports of multiple submergence of primary molars.^{12,13} Henderson¹⁴ has observed that cases with one or

two ankylosed teeth are more likely to have other teeth become ankylosed.

Treatment of submerged primary teeth depends on the degree of submergence, presence or absence of a successor and the relationship of the adjacent and opposing teeth. Several treatment options have been discussed. The simplest classification of slight, moderate and severe seems to be the most useful to the clinician in planning the treatment.¹¹ The conservative approach and the usual treatment recommendation for submerged primary tooth that has a successor is to observe and await for normal exfoliation and eruption of the successor. The second option is to extract the tooth and to insert a space maintainer depending on the proximity of eruption of the succedaneous premolar. In the case of a moderately submerged primary molar which is out of occlusion, a restorative procedure to maintain the function can be undertaken. It is necessary to restore normal contacts with adjacent teeth to prevent space loss and supraeruption of the opposing tooth. This may be achieved by fitting a stainless steel crown, acrylic resin crown or building up the occlusal surface with composite resin.^{15,16} In case of a severely submerged primary tooth, one option is extraction with or without subsequent space maintenance. The other possibility may be to observe the condition without intervention unless further consequences occur.¹⁷ Extraction is recommended by many authors,^{18,19} preferably as early as possible. Failure to observe the submerged teeth periodically may lead to occlusal complications. Early recognition and prompt treatment are essential to obtain an excellent final result.

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