CLINICAL CASES

Dent. Med. Probl. 2016, 53, 4, 566–569
DOI: 10.17219/dmp/64496

© Copyright by Wrocław Medical University and Polish Dental Society
ISSN 1644-387X

VIGNESH PALANISAMY^{B, D}, ASHWIN RAO^{E, F}, ARATHI RAO^F

Clinical Management of Primary Mandibular First Molars with Atypical Morphology: Report of Two Cases

Postępowanie kliniczne w dwóch przypadkach pierwszych mlecznych zębów trzonowych o nietypowej budowie

Department of Pedodontics and Preventive Dentistry, Manipal College of Dental Sciences, Mangalore,
Manipal University, India

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation;
D – writing the article; E – critical revision of the article; F – final approval of article

Abstract

Though variations in dental development are not uncommon, dental anomalies are rarer in primary dentition than in permanent dentition. Diagnosing such anomaly remains a challenge for the clinician. Primary mandibular first molars usually have two roots – mesial and distal.

This article is a report of two cases with atypical crown and root morphology of the primary mandibular first molars. Both cases discussed had a bilateral crown and root variations where 3 roots were found in the primary mandibular first molars. All the teeth reported in this case report had a broader occlusal table resembling a primary maxillary molar, which posed a challenge during the dental treatment and required certain modifications from the routine procedures. The article focuses on diagnosis and modifications in the routine clinical procedures to be followed for such cases. The article also emphasizes the importance of preoperative radiographs in alerting the clinician to the presenting clinical challenge (*Dent. Med. Probl.* 2016, 53, 4, 566–569).

Key words: primary molar, tooth root, dental anomalies.

Słowa kluczowe: mleczny ząb trzonowy, korzeń zęba, nieprawidłowości zębowe.

Variations in dental development are not uncommon, however diagnosing such anomaly remains a challenge for the clinician. Tratman [1] stated that dental anomalies are rarer in primary dentition than in permanent dentition. Primary mandibular first molars usually have two roots – mesial and distal.

The following are two case reports where the first molars had three roots and a broader occlusal table resembling a primary maxillary molar, which posed a challenge during the dental treatment and required certain modifications of the routine procedures.

Case Report 1

A 4-year-old male patient reported to the dental clinic with a complaint of multiple decayed teeth. The patient's medical and family histories were noncontributory. On clinical examination, the patient had deep dentinal caries in the lower molars. The first primary molars were broader in dimension than normally seen. Routine diagnostic radiographs were made which revealed deep dentinal caries approximating the pulp in 74 and 84. Both the first primary molars had three roots – mesial, distal and lingual (Fig. 1, 2).

Fig. 1. Case 1 – pre-operative radiograph 74

Fig. 2. Case 1 – pre-operative radiograph 84

Fig. 3. Case 1 – modified access cavity

Tooth 74 was anesthetized and, under rubber dam isolation, the pulp chamber was accessed. A rectangular access was created assuming that the supernumerary root was adjacent to the distal root, but the rectangular access did not include the orifice of the supernumerary root. Hence, the access was modified accordingly to remove the roof of the pulp chamber completely, which resulted in a trapezoidal-shaped access opening (Fig. 3). Formocresol pulpotomy was performed and a stainless steel crown was given in the next appointment.

Similarly, tooth 84 was anesthetized and restored with resin modified glass-ionomer cement (RMGIC).

Case Report 2

A 4.5-year-old male patient came to the department for a regular dental checkup. The patient's medical and family histories were noncontributory. On examination, the patient had multi-

Fig. 4. Case 2 – atypical occlusal surface 84

Fig. 5. Case 2 – pre-operative radiograph 84

Fig. 6. Case 2 – pre-operative radiograph 74

ple decayed teeth in the lower molars. The occlusal surfaces of 74 and 84 were larger than the normal dimensions (Fig. 4). Routine diagnostic radiographs were made which showed 74 and 84 had three roots with dental caries involving dentine (Fig. 5, 6). Tooth 84 had a moderate dentinal cavity which was restored with RMGIC.

Discussion

Mandibular primary first molars usually have two roots – mesial and distal. Some cases present with an additional root which remains unnoticed except when routine radiographs are made. The prevalence of a supernumerary root in mandibular primary first molars is estimated at 5% in Taiwanese [2] and 9% in Chinese [3] populations, whereas the occurrence of bilateral mandibular three-rooted primary teeth is only 1% [2]. According to Song et al. [4], the probability of the

Table 1. Recommendations for dental treatment

Procedure	Conventional technique	Recommended modifications
Radiograph	paralleling technique	tube shift technique
Local anesthesia	buccal Infiltration	1. inferior alveolar nerve block (or) 2. buccal infiltration with articaine
Rubber dam	2A clamp	13A clamp
Access opening	rectangular	trapezoidal
Stainless steel crown	lower first primary molar crown	larger sized upper first molar crown of the opposite side
Extraction	apical pressure, buccal-lingual traction	minimal buccal-lingual traction

tooth posterior to a mandibular primary first molar with three roots is greater than 94.3%, but in our cases the primary mandibular second molars had two roots.

According to the AAPD, radiographs for children with primary dentition should be planned according to the individual [5]. Radiographs are made when the proximal surfaces cannot be clinically visualized or probed. In our first case, tooth 84 was clinically intact except for proximal discoloration distally which on radiograph showed proximal radiolucency approximating pulp and eventually required pulp therapy.

In all the teeth mentioned, the crown morphology was atypical where the buccolingual width was more than the mesiodistal width with five cusps. In case 1, achieving sufficient anesthesia for pulp therapy failed with local infiltration (buccally) with 2% lidocaine, following which an inferior alveolar nerve block was given, which explains the difficulty in anesthetizing the lingual root. Articaine can be used as an alternate local anesthetic if local infiltration is preferred because of its better bone penetration [6]. Rubber dam was applied for isolation in all of the above cases. Ideally, clamp 2A should be used for primary first molars, but in our case, since the occlusal table was broader, clamp 13A was used. The broader occlusal table also posed difficulty during stainless steel crown adaptation. Hence, a larger sized maxillary first molar crown of the opposite side was used for the mandibular first molar of the opposite side [7]. The recommended modifications for such teeth during the dental procedure are shown in Table 1.

Diagnostic radiographs are of great value in disclosing dental anomalies. If dental treatment was commenced without a diagnostic radiograph, the additional root would have remained unnoticed and ignored, which could even lead to periapical infections later. Extraction of such teeth should be done cautiously since the erupting first premolar should not be involved during the procedure. After extraction, the clinician should make sure that all the roots are completely retrieved [8].

The prevalence of multi-rooted primary mandibular first molars have not been studied in an Indian population. However, there are a few case reports on supernumerary roots in primary mandibular molars. Gupta et al. [9] mentioned two cases – bilateral and unilateral primary mandibular first molars with three roots. Ramamurthy [8] has reported a case with bilateral primary first and second molars with three roots in an 8-year-old male patient. Poornima et al. [10] reported a case of a primary mandibular right first molar with three roots and five cusps on the occlusal table.

Conclusion

Diagnosis of the underlying anomaly is important for the clinician as it can affect the prognosis of the treatment. Very few cases have been reported on a supernumerary root in primary mandibular first molars. A wide prevalence study should be carried out to investigate the percentage of supernumerary roots in primary dentition which can help the clinicians to be aware of their existence.

References

- [1] TRATMAN E.K.: Three rooted lower molars in man and their racial distribution. *Br. Dent. J.* 1938, 64, 264–274.
- [2] TU M.G., LIU J.F., DAI P.W., CHEN S.Y., HSU J.T., HUANG H.L.: Prevalence of three-rooted primary mandibular first molars in Taiwan. *J. Formos Med. Assoc.* 2010, 109, 69–74.
- [3] LIU J.F., DAI P.W., CHEN S.Y., HUANG H.L., HSU J.T., CHEN W.L., TU M.G.: Prevalence of 3-rooted primary mandibular second molars among Chinese patients. *Pediatr. Dent.* 2010, 32, 123–126.
- [4] SONG J.S., KIM S.O., CHOI B.J., CHOI H.J., SON H.K., LEE J.H.: Incidence and relationship of an additional root in the mandibular first permanent molar and primary molars. *Oral Surg. Oral Med. Oral Pathol.* 2009, 107, e56–60.

- [5] American Academy of Pediatric Dentistry: Guideline on prescribing dental radiographs for infants, children, adolescents, and persons with special health care needs. *Pediatr. Dent.* 2012, 34, 189–191.
- [6] SHARAF A.A.: Evaluation of mandibular infiltration versus block anesthesia in pediatric dentistry. *J. Dent. Child.* 1997, 64, 276–281.
- [7] MATHEWSON R.J., PRIMOSCH R.E.: *Fundamentals of pediatric dentistry*. Edition, Quintessence Publishing Co, 2014, 241.
- [8] RAMAMURTHY N., SRINIVASAN I.: Bilateral three rooted primary lower molars. *Ind. J. Dent. Res.* 2012, 23, 700.
- [9] GUPTA S., NAGAVENI N.B., CHANDRANEE N.J.: Three-rooted mandibular first primary molar: Report of three cases. *Contemp. Clin. Dent.* 2012, 3, 134–136.
- [10] POORNIMA P., PATHAK S., NAGAVENI N.B., ROOPA K.B.: Unusual morphology of primary mandibular first molar. *Niger. J. Exp. Clin. Biosci.* 2015, 3, 57–58.

Address for correspondence:

Ashwin Rao
Maurishka Palace, Flat 305 B wing
Kadri Kambala, Mangalore 575003
India
E-mail: ashwinraopedo@gmail.com

Conflict of Interest: None declared

Received: 28.06.2016

Revised: 1.08.2016

Accepted: 6.08.2016