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Dental Manifestations of a 4-year old Male Patient with Congenital Vitamin D Rickets: Review of the Literature and Report of a Case

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ABSTRACT

Patients that present with Vitamin D-resistant rickets may have abnormal tooth morphology, such as enlarged pulp horns that may extend into the dentino-enamel junction. As a result of this communication, there may be an increased chance of pulpal infection, resulting in spontaneous dental abscesses occurring without evident caries or history of trauma. The purpose of this poster is to report the case of a four-year-old patient who presented to Children's Mercy Kansas City Dental clinic with chief concern for swelling of the face with unknown causes. The patient's medical history was significant for congenital Vitamin D-resistant rickets. The poster presents a review of the literature regarding various dental treatment considerations for patients with Vitamin D-resistant Rickets and discusses the dental and medical implications of Vitamin D-resistant Rickets for future care

BACKGROUND/INTRODUCTION

Vitamin D-resistant rickets (VDRR) is an X-linked dominant metabolic disorder that is characterized by defective renal phosphate reabsorption with phosphaturia and hypophosphatemia resulting in the accumulation of unmineralized matrix and poorly mineralized bone¹. Signs and symptoms can begin in early childhood and consist of slow growth, short stature, bowed legs, bone pain, and dental abnormalities⁵. There can be many dental problems associated with VDRR and not all abnormalities may be present. The more common clinical and radiographic findings include large pulp chambers, short roots and enlarged pulp horns extending to dentino-enamel junction¹. By understanding this, pediatric dentists can be better equipped to recognize these characteristics of VDRR and contribute to the diagnosis and treatment which can provide a more comprehensive care for patients.

CASE REPORT



Figure 1



Figure 2



Figure 3

A four year old male with a left facial swelling presented to the clinic for an emergency examination and radiographs. The patient exhibited short stature and occasional bone pain (Figure 1). Medical history included X-linked VDRR. The patient arrived at our clinic with spontaneous left facial swelling and pain on the lower left. Radiographic and clinical examinations revealed the following common dental manifestations of VDRR: large pulp chambers and pulp horns extending to dentino-enamel junction (Figures 2-3). During oral exam, patient continuously pointed towards lower left for pain. Patient was unreliable for percussion test and teeth were nonmobile. There was appropriate oral hygiene and gingival tissues appeared healthy. Clindamycin antibiotic was prescribed to reduce swelling due to amoxicillin being ineffective. Patient was being treated at St. Louis Shriners for VDRR. After evaluation of the radiographs and symptoms, recommendations for emergent care were presented to the parent. The parent declined definitive care in our clinic and chose to return to their dental home in St. Louis for care.

Radiographs reveal large pulp chambers with a thin pulpal communication extending to dentino-enamel junction on mesial pulp horn of Tooth #K (Figures 2-3). No radiographic radiolucencies indicative of interproximal caries or furcation involvement were noted and no clinical evidence of caries were noted on Teeth #K and #L.

DISCUSSION/CONCLUSION

Dental manifestations of VDRR with primary teeth include enlarged pulp chambers, short roots, pulpal communication to the dentino-enamel junction, and spontaneous dental abscesses⁴. Of these manifestations, enlarged pulp horns may be less frequently observed in permanent teeth but indications of hypoplastic permanent teeth is noted more than primary teeth along with possible delayed dentitions^{1,3}. Once a diagnosis has been established, prevention of dental abscesses by prophylactic treatment is the main management strategy. Prophylactic dental treatments may include, pulpectomies, full coverage of primary teeth with stainless steel crowns, and restorations with composite or resin glass ionomer cement⁴. Other options could include pulpotomies and extractions, however, there is not enough sufficient evidence for good prognosis with pulpotomies². It is important for dental professionals to recognize and present prophylactic treatments for patients presenting with VDRR. Furthermore, this would allow communication between parents and their dental providers to provide utmost care for the patient. Dental professionals can guide parents through consistent periodic examinations with solid oral hygiene instructions. If done early, this can prevent further invasive dental procedures or more serious complications such as dental abscesses and infections.

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