Clinical manifestations and dental management of dentinogenesis imperfecta associated with osteogenesis imperfecta

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Dentinogenesis imperfecta (DI) associated with osteogenesis imperfecta (OI) is a genetic disorder that affects the connective tissues and results in dentine dysplasia. DI results in structural defects in dentin formation in the deciduous or both deciduous and permanent dentitions. The incidence of DI is 1 in 8000. OI, also known as “brittle bone disease” is a genetic disorder that affects the connective tissues. A person with OI experiences recurrent, multiple bone fractures. Different types of OI have been recognized, but most are due to mutations in the COL1A1 and COL1A2 genes, which encode the pro-alpha 1 and 2 polypeptide chains of type I collagen. Ligaments, sclera, bone, and dentin are mainly affected. This case report discusses the systemic and dental manifestations of OI and DI in a 4-year-old child, with moderate presentation of the disorder. Dental treatment included the use of strip and stainless-steel crowns under local anesthesia, as well as behavior modification techniques. Rigorous home care instructions, including reinforcement of the oral hygiene practice and avoidance of any episode that may lead to bone fracture, were discussed with the parents. The case was reevaluated at 3-month follow-up visits, wherein the medical and dental histories were updated, the child’s growth was monitored, periodic clinical and radiographic examinations were performed, and the oral hygiene was evaluated via the debris index score and caries risk assessment. Further treatment of the permanent dentition may be needed in the future.

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In vitro stress analysis study of different prosthetic options using single posterior implant for management of mandibular unilateral distal extension saddle

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The aim of this study is to compare in vitro, micro-strain induced by different prosthetic options using single posterior implant in lower unilateral distal extension saddle. For this study, three prosthetic designs were made I, II and III on epoxy resin model representing mandibular unilateral distal extension edentulous area with the second premolar as the main abutment and implant was placed at the site of the second molar. For group (I), The design principle was (RPI clasp on the second premolar abutment, lingual bar major connector, double Aker clasp on the first and second molar on the other side and (ball & socket) attachment on the implant). For group (II) the design principle was ((RPI clasp on the second premolar abutment and (ball & socket) attachment on the implant)). For group (III) fixed partial denture was fabricated using the 2nd premolar as mesial abutment and the implant as distal abutment. A self-protected linear strain gauge was used for this study to measure the micro-strain induced on the buccal and lingual sides of the implant and 2nd premolar abutment. SPSS software program was used in the statistical analysis of the results. The results can be concluded as follows: (1) maximum strain induced at tooth and implant abutments were in case of side plate design; (2) distribution of micro-strain between the implant and tooth abutment in case of fixed restoration was better than distribution in case of the other two groups.

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