Case Report: The Dental Treatment for Patient with Osteogenesis Imperfecta

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Introduction

Osteogenesis imperfecta (OI) is a genetic or heritable disease in which bones fracture easily. Patient with osteogenesis imperfecta usually have Bisphosphonate(BPs) medication therapy. There are more than 20 subtypes of osteogenesis imperfecta, with symptoms that range from mild deforming to lethal. Clinically, the disease manifests as short stature, moderate to severe bone fragility, triangular faces, blue sclera.

Dentinogenesis imperfecta (DI) sometimes is accompanied with OI, especially in osteogenesis imperfecta type IV.

Reference

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Case report

This presentation discusses a 4-year-old boy who was referred from local dental clinic for evaluation of full mouth dental caries management in September 2023. His medical history includes osteogenesis imperfecta type IV. He had Bisphosphonate medication therapy (Pamidronate) since June 2022. Clinical and radiographic examination revealed dentinogenesis imperfecta, multiple caries and some may be unrestorable, and a gumboil over soft tissue of lower left region. We consulted with his pediatric geneticist for evaluating patient's health condition and establishing treatment plan, then arranged patient having full mouth dental treatment under general anesthesia. The treatment plan includes pulpectomy and crown fabrication over teeth with deep caries. The unrestorable teeth and residual roots were preserved with a conservative treatment plan due to patient's bone with poor healing ability. Treatments procedures listed as below:

- Pulpectomy over tooth 51, 61, 62, 65, 74.
- Apexification by Biodentin over tooth 65 distobuccal root, due to distobuccal root resorption.
- Stainless steel crown fabrication over tooth 54, 65, 74, 84.
- Strip crown fabrication over tooth 51, 61, 62.

Discussion

The scientific literature to date agree on the absence of BRONJ occurrence in pediatric population affected by OI and treated with IV BPs, but why it does not happen is still unclear, the main and most frequent hypothesis was related to the BPs dosages in OI diseases which in children are significantly smaller and administered in a shorter time than in other adult pathologies. Other authors suggest the decreased bone turnover in adult as the main difference.

In this case, we kept the unrestorable teeth, due to patient's geneticists thought patient's bone with poor healing ability and took the BPs accumulative dosage in bone into account. The risk of cumulative doses of the past BPs therapy in the bones for BRONJ onset in adulthood remains unknown.

While treating OI pediatric patients, we must team up with them and their caretakers to maintain their oral hygiene, minimize oral and dental pathogenic factors in adulthood, and lessen the incidence of BRONJs.

Figure 1:
Pre-operative intraoral photos.

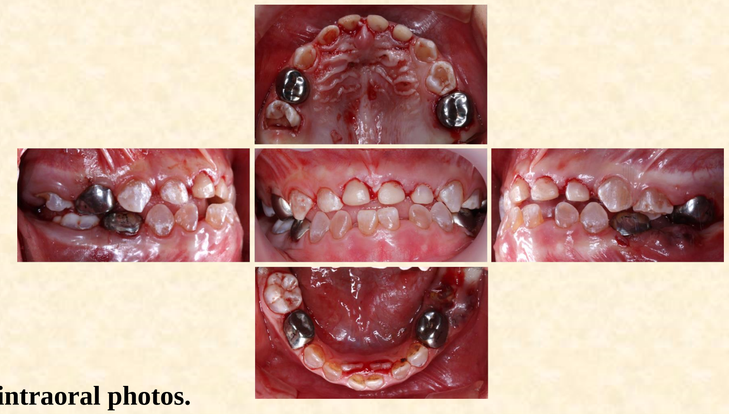

Figure 2:
Post-operative intraoral photos.

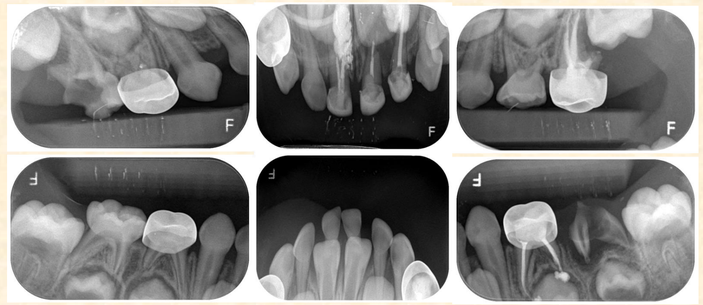

Figure 3:
Post-operative periapical films.