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Early Orthodontic Treatment in a Growing Patient with Cystic Lesion

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Introduction

The clinical finding of a radiolucent lesion can complicate the malocclusion already existing in a growing patient. The cystic lesion, involving the crown of several permanent elements in formation, can cause ectopy and eruptive path alteration and contextually increase the clinical history of the patient who already has a conspicuous apical areas crowding, dentoalveolar discrepancy, narrowness of the upper transverse diameters and midline deviation.

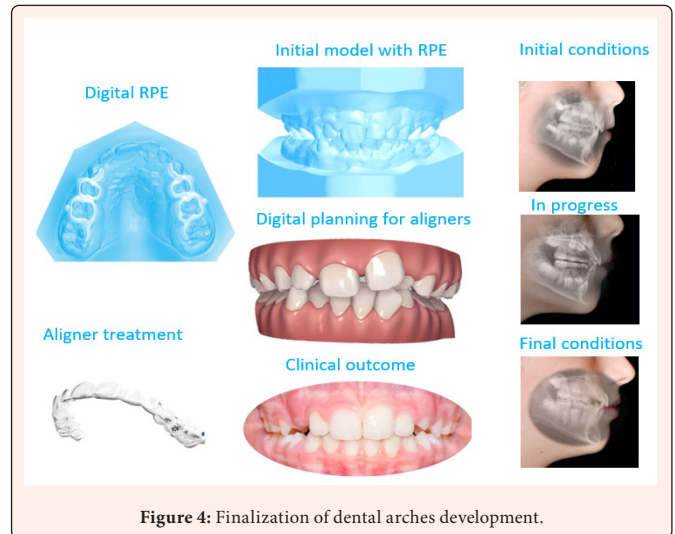
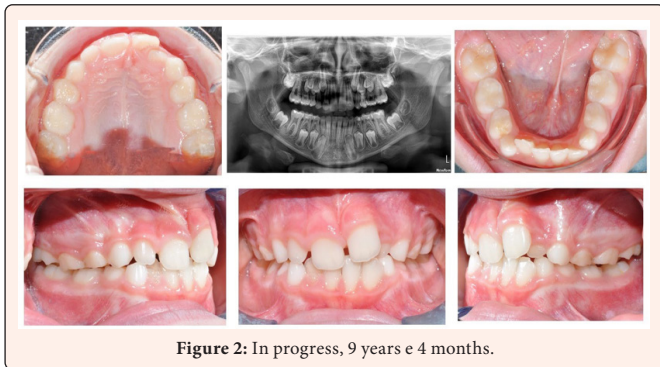
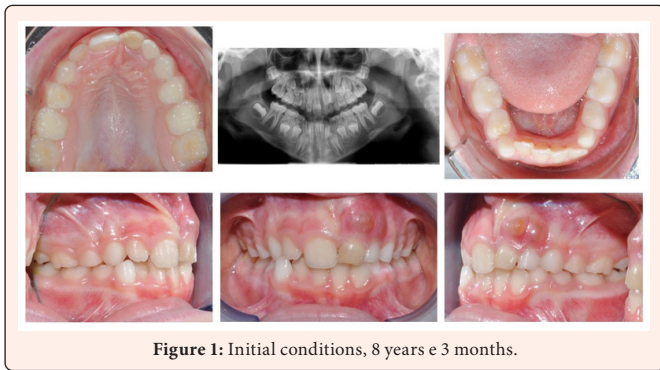
Materials and Methods

Blocking the normal eruptive process of the left upper incisors in formation, the radiolucent lesion could have an inflammatory nature because of the associated necrotic deciduous or be a dentigerous cyst associated with the crown of the erupting permanent teeth. The lesion created the conditions for a worsening of apical areas crowding and an alteration of a normal process of occlusion development maintaining asymmetrical spaces in the upper arch. The patient aged 8 years and 3 months presented a malocclusion with molar and canine class I relationships, reduced transverse diameters, medians shift, upper and lower crowding, 83 on crossbite and presence of 61 necrotic and 62 beyond the times pre-established for a good harmony of the eruptive process. The resolution of the patient's orthodontic surgical problem list presented the cyst elimination, the confirmation of the presumptive clinical diagnosis, the disappearance of the clinical and radiographic signs of the cystic lesion, the recovery of the dislocated teeth in the arch and their alignment. At the same time it was desirable to obtain the re-establishment of a suitable eruptive sequence and the development of an ideal static occlusion in evolution creating coherence of the arch perimeters and median lines.

The interceptive orthodontic treatment involved a first phase of rapid palate expansion using a device built on sintered crowns (RPE) designed without any involvement in the anterior teeth area. The intraoral scan and the minimally invasive application of the RPE allowed the patient who complained of pain at the slightest movement in the anterior area to have no discomfort. It was not possible to proceed with the incisional biopsy for histopathological diagnosis. A few weeks after the start of the orthodontic treatment, the upper expansion, the apical palatal area widening and the relative spontaneous resolution of the inflammatory process were obtained, probably due to an "iatrogenic" marsupialization effect of the neoformation. The device built on sintered crowns presumably created an opening mediated by the natural exfoliation of the corresponding deciduous teeth following the appearance of the interincisal diastema which is obtained in the phase of disjunction of the palatal suture. The crest opening maintenance achieved using the same device that served as a space maintainer defining the spontaneous resolution of the subsequent cyst with the consequent spontaneous eruption, of 21 and 22 unfortunately with ectopia.

Therefore, the interceptive treatment envisaged an orthodontic second phase aimed to obtain the elimination of occlusal interferences in the delicate phase of occlusion development and the alignment of the anterior teeth with the definition of the occlusal contacts before the complete dental exchange. Invisalign First treatment achieved the resolution of managed occlusal interference problems, such as the distal coronal tipping of 21 and the crossbite of 22. The overall interceptive treatment lasted 24 months in total and it also contemplated inactive phases awaiting the finalization of dental arches development. The treatment timing was able to obtain the ideal occlusal parameters for a suitable eruptive sequence and a good profile of the soft tissues [1-6].





Conclusion

In the presence of a cystic lesion involving the crown of several erupting permanent elements in a pediatric patient, a customized interceptive orthodontic treatment with a digital approach from therapeutic planning to clinical design of devices can be useful in order to prevent a series of developmental problems for a future stable occlusion.

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