University of Zurich[UZH]

Center of Dental Medicine ZZM

Clinic of Orthodontics and Paediatric Dentistry

Decision-making and treatment of a severe form of ectopic erupted maxillary permanent first molars with De-Impactor springs: A case report

Juliane Erb[1], Richard Steffen[1], Hubertus van Waes[1]

[1]University of Zurich, Center of Dental Medicine, Clinic of Orthodontics and Paediatric Dentistry

INTRODUCTION

Ectopic eruption of maxillary permanent first molars occurs in 2%-6% of children, boys are more often affected than girls. The aetiology is multifactorial, whereas crowding is the most common cause. In reversible cases **(Fig. 1a)**, the permanent first molar is released spontaneously and reaches its regular position only with minor resorptions of the second primary molar. In irreversible cases **(Fig. 1b)** there is no potential for self correction, which results in the loss of the second primary molar, due to resorption and/or extraction. In order to facilitate the decision whether an ectopic eruption is reversible or irreversible and whether there is a treatment need, a decision guide can be used.

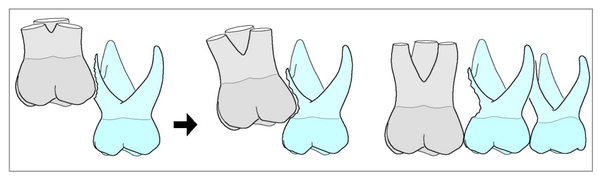

Fig. 1a

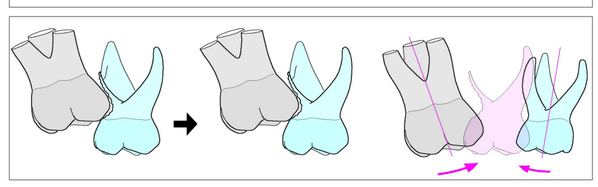

Fig. 1b

DECISION GUIDE

An asymmetry or delay in the eruption stage of the six-year-molars is an important indicator for an ectopic eruption path. A local or a panoramic radiograph will confirm the clinical suspicion. If an ectopic eruption is diagnosed, the question arises, whether a treatment is necessary or not. Therefore the dentist should analyze the radiograph with the help of the following rule: First a tangential plane up to the distal wall of the second primary molar perpendicular to its occlusal plane should be drawn **(Fig. 2)**. Second the mesiobuccal tip of the cusp of the maxillary permanent first molar should be detected. If the tip is touching or overlapping the vertical line, a therapy is indicated, otherwise there is no treatment need and the spontaneous self correction occurs most likely. To solve the problem of an ectopic eruption there are several therapeutic methods of interproximal wedging e. g. brass ligature wires, De-Impactor springs (Ortho-Walker, Zufikon, Switzerland), elastic separators or appliances for the distal tipping of the six-year-molars e. g. SPEED Supercable™ (Strite Industries, Cambridge Ontario, Canada).

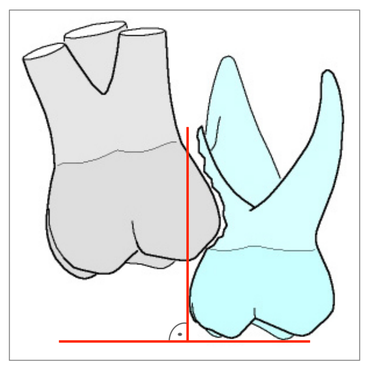

Fig. 2

CASE REPORT

In the present case (7 years, male) both maxillary permanent first molars were affected by an irreversible ectopic eruption with extended resorptions of the distal root of the second deciduous molars. Although this case initially seemed to be hopeless, it was decided to insert De-Impactor springs. After six months the affected teeth had almost completely attained in their normal positions.

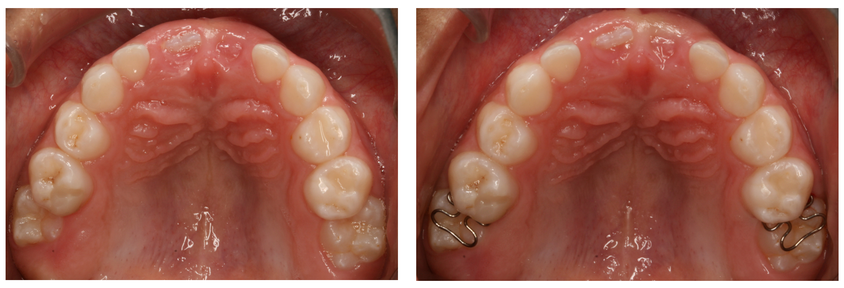

Fig. 3 Clinical situation before and after the **initial insertion** of the De-impactor springs.

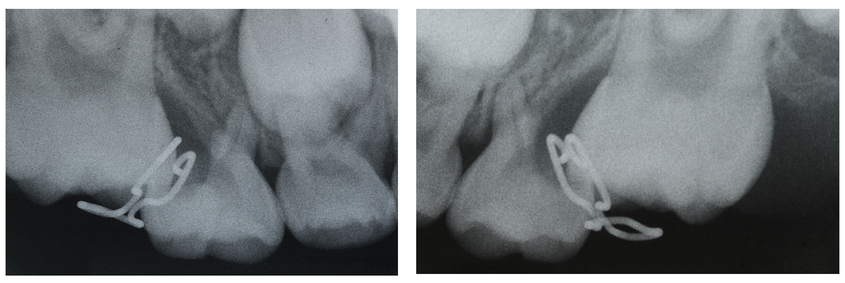

Fig. 4 Radiological situation **after 26 days** of interproximal wedging.

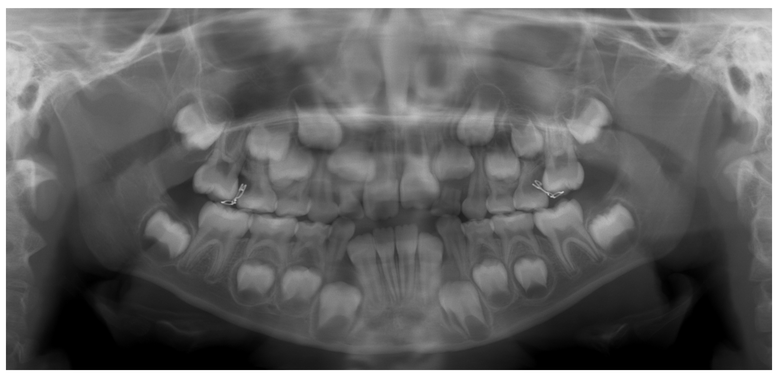

Fig. 5 The first activation of both De-Impactor springs was three months after the initial insertion. **6 months later** the OPT reveals that the right permanent first molar is completely erupted. On the left side the De-impactor spring is activated once again.

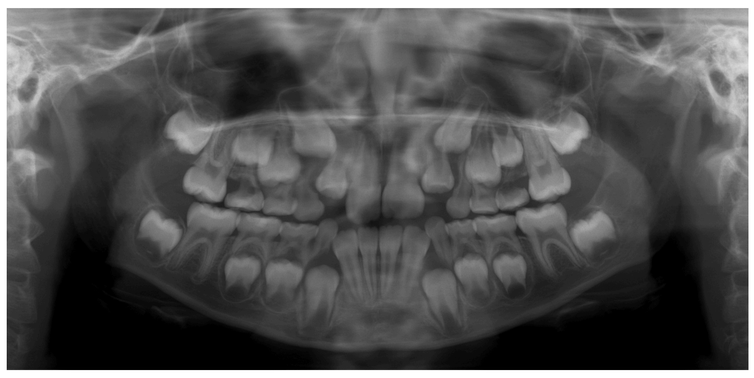

Fig. 6 OPT **1 year after** the initial insertion of the De-impactor springs, both teeth are fully erupted in their normal positions. Although the distal roots of the second primary molars show extended resorptions they are still in situ.

COMMENTS

The De-Impactor springs guided the first permanent molars to erupt in their normal position and the premature loss of the second deciduous molars could be avoided. After the follow-up of almost two years both second deciduous molars are still in situ, with only a slight increase in mobility, although they are affected by extended resorptions.

Interproximal wedging with De-impactor springs is well accepted by children. The costs are low and the insertion is easy and non invasive. Therefore De-impactor springs are recommended for the treatment of ectopic eruptions, even in severe cases.

REFERENCES

Steffen R., van Waes H. Der ektopische Durchbruch der ersten bleibenden Molaren Eine Übersicht zu den Behandlungsmöglichkeiten
Quintessenz 2011; 62 (1): 63-75

Barberia-Leache E., Cruz Suarez-Clua M., Saavedra-Ontiveros D. Ectopic Eruption of the Maxillary First Permanent Molar: Characteristics and Occurrence in Growing Children
Angle Orthodontist 2005; 75 (4): 610-615

CONTACT

Dr. med. dent. Juliane Erb
Plattenstrasse 11, 8032 Zürich, 0041 44 634 3288
juliane.erb@zzm.uzh.ch