

# Foreword

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About 4% of the population show permanent tooth retention. Permanent 2<sup>nd</sup> molars (M2) are rarely concerned, but studies show increasing incidence over the last two decades.

Since Cahill and Marks's work in the 1980s, understanding of eruption has constantly progressed, but much remains to be elucidated. For this reason, Pr Béatriz Castaneda, who works in the oral and molecular pathophysiology laboratory of Pr A. Berdal, has updated the state of knowledge point by point.

The terms used to describe these phenomena are numerous, and need to be properly employed. Dr Julia Cohen Levy defines them, with the specificities of imaging according to diagnosis.

As permanent 2<sup>nd</sup> molar retention is fairly rare, there have been few studies on the subject, and assessment criteria are variable. Eruption abnormality implicates two main factors: various obstacles causing mechanical failure of eruption (MFE), and idiopathic primary failure of eruption (PFE). These different etiologies are not always obvious. A detailed inventory of all possible causes (H. Desnoës) may facilitate differential diagnosis in case of delayed M2 eruption.

Eruption is a physiological process strongly impacting the development of the

craniofacial complex. Eruption defects have numerous consequences, including for facial growth. Second molar misadventures are broadly identical to those affecting wisdom teeth, but impact on posterior occlusion stability is far greater.

Treatment options for moderate crowding have progressed. The rate of permanent tooth extraction has greatly diminished, leading to considerably greater rates of 2<sup>nd</sup> molar retention by mechanical obstruction. This is very clear in the mandible, for treatment to maintain leeway. Dr Juliette Vexiau has reviewed the literature on the various mechanical devices for 2<sup>nd</sup> molars affected by MFE, while Dr Lena Messica has reviewed the surgical aspects of bracket fitting. Perhaps indications for premolar extraction, which are creeping up, also need rethinking? An M1/M2 angle exceeding 25° is an alarm signal.

Much less predictable, prognosis in PFE is very poor, and there is at present no management consensus. Rarity means that there are no well-established protocols. The literature reports a few anecdotal cases of salvaging PFE teeth, but generally speaking it is a case of "mission impossible". Early treatment can even make things worse; orthodontic traction in PFE can lead to ankylosis of the tooth.

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This is why diagnosis needs to be as precise as possible. In suspected PFE, once a treatment program has been drawn up, the patient should be informed that outcome is uncertain. Failure of treatment will be better accepted if it has been envisaged from the outset and the patient has provided informed consent.

At diagnosis, it is also important to look for any associated syndromes. The ideal therapy will be genetic, with local introduction of the missing gene in the tooth that has failed to erupt. This is for the future...

Awaiting such progress in treatment, Dr Dominique Deffrennes, a maxillofacial surgeon who works with Dr Julia Cohen-Levy, presents the range of surgery aids.

This edition of the journal also contains an editorial by Dr Frédérique Tavernier on Europe and orthodontics. Hélène Gil and Dr Nicolas Fougereont present a very useful update on lingual assessment. And finally, there is an obituary of the well-loved Dr Boris Terk. Many thanks to all those who contributed to this edition, which I hope you will enjoy reading!