



Treatment Approaches of the Retention of the 2nd Molar by the Germ of the Mandibular Wisdom Tooth

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ABSTRACT

In certain clinical circumstances, the evolution accident concerns the second mandibular molar (M2) because the eruption of this one coincides with the coronary maturation of the germ of the wisdom tooth (WT) which is completed around 12 years. The objective of this presentation of clinical cases is to argue the various therapeutic options and their implementation according to the clinic, the radiography and the age of the patient. It will be either clinical monitoring or annual X-ray of the evolution and eruption of M2 in children under 12 years old or from a germectomy of the WT at the coronary maturation stage if this germ constitutes an obstacle to the eruption of the second molar in the child after 12 years. The surgical technique will preserve the integrity of M2 or on the contrary will uncover it with the development of a bone window and the discovery of the crown of the tooth. In adults, the tooth having lost its eruptive capacities, the classic extraction of M1 and M2 will be followed by dental re-implantation of M1 or M2 if the orthodontic means are difficult to implement. The results obtained, which are the functional placement of the second molar on the arch, constitute the success of this surgical therapy.

Keywords: Germectomy; Eruption; Second molar; Wisdom teeth

INTRODUCTION

We generally speak of evolution accidents of wisdom teeth (WT) but in certain circumstances, the mechanical accident of evolution concerns the second molar because it erupts when the coronal maturation of the WT completes around the age of 12. Depending on the orientation, obliqueness and size of the crown of the WT, it may constitute an obstacle to the eruption of the second molar. The clinical cases presented in this project pose the problem of early germectomy of the WT if it constitutes an obstacle to the eruption of the second molar (M2). The objective of this presentation of clinical cases is therefore to argue the different therapeutic options and their implementation depending on the clinic, radiography and age of the patient. It will be either an annual clinical and radiographic monitoring of the eruption of M2 in children under 12 years old, or performing a germectomy of the WT at the stage of coronary

maturation in case this germ constitutes an obstacle to the eruption second molar in children. In adults, the tooth having lost its eruptive capacities [1], the classic extraction of M1 and M2 will be followed by dental reimplantation of M1 or M2 if the orthodontic means are difficult to implement.

CASE REPORT

Clinical Case 1

10 year old child who came to consult for an odonto-stomatological examination. The clinical examination does not reveal anything in particular. As the Child was only 11 years old, the maturation of the germ of the 12 year old tooth on the panoramic X-ray was normal (1/3 root) but we already noted the maturation of the germ of the WT. The action to be taken was abstention/annual clinical and radiographic monitoring. At 12

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the tooth has not yet erupted in the oral cavity (**Figure 1**).



Figure 1: Panoramic X-ray.

Clinical Case 2

A 13 year old child came to consult for pain distal to the first molar (M1). The clinical examination made it possible to note an absence of dental caries on M1 and the absence at 13 years of the second molar. The examination of the panoramic X-ray carried out for this purpose shows the obstacle constituted by the germ of the WT. The 2nd molar in an oblique position has the cuspidemesial under the neck of the first molar with a vertical lysis between the two teeth. The decision tree provided for a germectomy with orthodontic traction if the straightening of the tooth is not satisfactory. The result at three months is satisfactory and in favor of a resumption of the eruption (**Figures 2 and 3**).



Figure 2: X-ray before surgery.



Figure 3: Clinical view three months later.

Clinical Case 3

11 year old and 6 month old child came to consult for pericoro-

nititis on the 37. The panoramic X-ray shows the obstacle represented by the WT and second molar eruption difficulties. After complete remission, the action to be taken was germectomy of 38 to allow favorable evolution of the second molar (**Figure 4**).



Figure 4: Panoramic X-ray of 11-year-old and 6-month-old child.

Clinical Case 4

At the consultation the patient aged of 13 years old presents an absence of M2 and a hypertrophy of the mucosa next to the site of eruption of the tooth. The panoramic X-ray performed shows retention of 37 and 47 by the germs of the mandibular WT. The course of action was germectomy of the WT and surgery of the hypertrophic mucosa to uncover the crown of the M2 and facilitate their eruption.

Clinical Case 5

The observation of the X-ray allows to note a retention of the 13, 37 and 47 and the obstacles constituted by the 38 and the 48. The action to be taken was the implementation of an orthodontic surgical protocol associating the therapeutic objectives following:

- Surgical disinclusion of 13 and orthodontic traction.
- Extraction by germectomy of 38 and 48
- Orthodontic traction of 37 and 47 with screw anchors to distalize and extrude them.

A gingivectomy around 37 and a curettage of the rest of the pericoronal sac made it possible to discover the tooth which will subsequently benefit from orthodontic traction for rapid placement. The evolution of the case is favorable after the germectomies of 38 and 48 (**Figure 5**).



Figure 5: Panoramic X-ray of 17 year-old child.

Clinical Case 6

48 year old patient, there is clinically significant mucosal hypertrophy next to missing 47 and 48. The procedure to be followed was the surgery of 47 and 48 included and the reimplantation of the 47 in light occlusion with contention for 2 weeks (Figure 6).



Figure 6: Clinical situation.

DISCUSSION

For a tooth to be in place on the dental arch and functional, numerous and complex movements were necessary describing the classic "Capdepon curve" [1]. The follicular sac would be the only structure necessary for the widening of the bony channel of the eruption. It coordinates the elevation of the germ in this channel and is also useful for bone apposition at the bottom of the bone crypt. This ascent breaks down into two phases: An intra osseous phase and an extra osseous one [2]. The exact mechanisms of the eruption are subject to controversy as they are not yet fully understood. Despite this, most theories indicate a multifactorial cause, among others, the obstacle represented by the maturation, obliquity and volume of the WT [3].

In the clinical cases observed in children and adults, we noted either mucosal inflammation or not, mucosal hypertrophy next to the site of eruption of M2, oblique bone lysis distal to M1 and especially the absence of M2 after 12 years. The panoramic X-ray was essential at this stage and at this age to confirm the diagnosis.

Regarding the action to be taken, the question of a germectomy of M3 in children in order to allow the eruption of M2 did not arise; it was rather the moment and the modalities which constituted the problem. This should take place early, around 12 years of age, in view of the risk of permanent retention of the second molar, whereas many authors agreed that germectomy was only possible after eruption of the second molar and root priming of the WT [1]. The age, the patient's mouth opening, his cooperation can be decisive in the action to be taken. Waiting longer could also permanently compromise the erup-

tion of M2.

In our series, we reviewed all the therapeutic options, which led us to surgical management of WT germs and impacted second molars, with the exception of the case of a 10 year old child for whom radiographic and clinical monitoring was prescribed until the eruption of the second molar at age 12. In the clinical cases treated, the removal by germectomy of the obstacle constituted by M3 allowed a good evolution of M2. Of the 4 clinical cases treated in children, our surgical intervention respected the integrity of the germ in two cases to allow the follicular sac to coordinate the eruption of the tooth as indicated by Mugnier [4]. In the two other cases, we opted for a complete discovery of the crown of M2 by curettage of the pericoronal sac and gingivectomy around the tooth because of the hypertrophy of the gingival mucosa next to the site of eruption of M2. In the case of the 17 year old patient, the use of orthodontic traction seems judicious to us because the tooth is mature (apical closure) and has most certainly lost all eruptive power [5,6].

During this treatment, certain difficulties should be noted: At the surgical level, the difficulties observed are: The situation under the bone and mucous membrane of M2, the difficulty of lifting a muco-periosteal flap distal to M2 under the mucous membrane, the cramped of the operating site and the requirement to respect the integrity of the germ of M2. When the incision starts from M1, the detachment of the flap adhering to the follicular sac leads to the discovery of M2 and the development of a bone window or the total release of the crown of the tooth with the partial or total elimination of the pericoronal sac. If it should be noted that the follicle thanks to chemo-attractants is necessary for bone lysis and bone remodeling participating in the eruption and that the follicle at the root level does not degenerate but remains in place for the formation of the periodontal ligament which would be a co-actor of the physiological dental eruption [7], then creating a bone window and curing the follicle that has become useless at the coronal level of M2 while leaving the root follicle would allow the eruptive phase to continue. Whatever the protocols, the results were satisfactory in children [8,9].

In adults, surgical extraction of M2 and M3 followed by contention reimplantation of the M2 is a therapeutic option to consider especially in our African countries where the implant solution is too expensive.

CONCLUSION

The second molars are not much considered as wisdom teeth, but their absence makes it possible to suspect a dental obstacle that must be sought and removed quickly. Panoramic radiography is therefore essential before the age of 12 to plan a germectomy of wisdom tooth which can be an obstacle to the evolution of the second mandibular molar. However, a 3D CT or CBCT view is more apt to specify the level of competition and conflict between M2 and M3. Beyond that, various solutions are possible depending on the age of the patient and can be surgical-orthodontic and implant.

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