

High-Speed Drill with Posterior-Anterior (PA) Angulation. Indicated for Sectioning Impacted Mandibular Third Molars

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Abstract

Surgical removal of third molars is a challenge for dentists. It requires skills and the use of special devices. Crown sectioning is an important part of the surgical technique for removing this type of tooth. And the high-speed drill currently available do not offer angulation that is favorable to removing the crown in a single cut, requiring multiple odontosections, which increases surgical time and the risks inherent in this type of surgery. We present a high-speed drill with unprecedented angulation, for the extraction of mesioangular and horizontal lower third molars.

Keywords: Lower Third Molar; Dental Extraction; High-Speed Drill

Introduction

Extraction of lower third molars (3M) represent a surgical challenge in dentistry [1], sometimes they are angled in relation to the anterior tooth, making sectioning and removal difficult (Figure 1).



Figure 1: Tooth 38 (FDI) with a mesioangular inclination

High-speed drill is used for tooth sectioning, but angulated and horizontal impaction require additional cuts and more fragmentation of the tooth, increasing surgical time and the risks associated with this surgery [12]. In an interesting study relating the position of mandibular third molars to age, the authors concluded that up to the age of 20, the most prevalent position was mesioangular, followed by horizontal and vertical [3]. Farish and Boulox [1] mention that horizontal impacted mandibular teeth are more difficult to extract than those in a mesioangular position.

With the aim of developing an instrument suitable for these medial and horizontal impactions, we presented a pilot instrument with a posterior anterior (P-A) inclination (Figure 2). We report its successful use in the sectioning of impacted mandibular teeth.



Figure 2: Special developed high-speed drill.

The bearing of the high-speed drill was inverted and angled at 15 degrees to the body of the original instrument (Figure 3).



Figure 3: High -speed drill with 15 degrees.

Advantages of this new instrument

In our opinion, the posteroanterior angled cut sections the tooth body in an occlusal position, which favors the removal of the crown, greatly facilitating the surgical procedure (Figure 4).



Figure 4: The 'posterior-anterior' cut of the crown makes it possible to make the sectioned trapezoid favorable for extraction.

With the conventional high-speed drill, this trapezoid would have a larger apical base, requiring another sectioning for its removal, increasing the surgical time and the risks to adnexa structures (Figure 5).



Figure 5: Smaller base (top) and larger base (bottom), generated by the conventional high-speed instrument (anterior-posterior cut).

We reiterate the need for an accurate diagnosis and, if indicated, the use of cone beam tomography as a complementary exam to conventional radiography. Patients are advised about the traditional resource and this new surgical drill, and all the patients evaluated in this study gave their consent to participate.

Figure 6 shows a complement to the case shown in figure 1, showing the cut favorable to mobilization and extraction of the coronary segment.

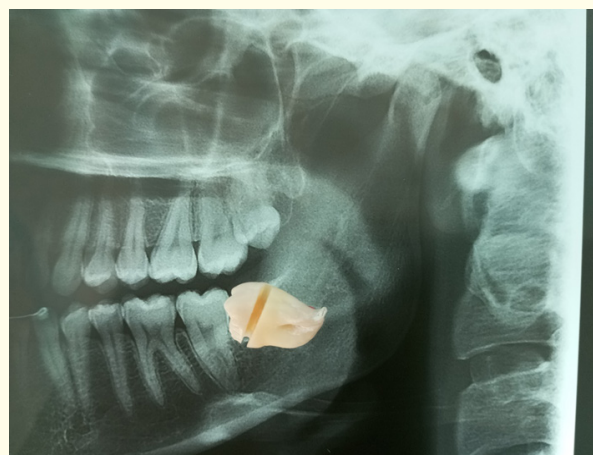


Figure 6: Assembly of the two fragments (joined by superglue) and showing the cut line when sectioning the crown, using this new instrument.

Conclusion

This new high speed drill has been added to the instruments used to extract mandibular third molars, especially mesioangulated and horizontal molars, which are among the most difficult to remove. More studies are needed to establish the usefulness of this device.

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