

The Wisdom of Managing Wisdom Teeth

Part II. Lower 2nd Molars Extraction to Prevent Painful and Risky Extraction of Horizontally Impacted 3rd Molars

(A) Introduction

It is almost a routine practice to remove malposed impacted lower 3rd molars for the following reasons: pericoronitis, proximal caries or periodontal pocket formation due to difficulty in cleaning space between lower 2nd and 3rd molars. Some may also argue they could cause post orthodontic treatment crowding.

There are many disadvantages of removing the horizontally impacted 3rd molars: numbness of the lower lip due to damage to the mandibular nerve, pocket formation on the distal side of lower 2nd molar, difficult to fill the distal caries of lower 2nd molar, challenging extraction and related post extraction pain and swelling.

In traditional edgewise treatment, it's quite difficult to correct severe Class III malocclusion without extraction of lower premolar or molars, unless using the MEAW technique, well known in Asia to be a powerful multiloop system to correct Class III without premolar or molar extraction (*except 3rd molars*).

Recently due to advanced development of passive self-ligating brackets (*ie, the Damon system*) and TADs (*Temporary Anchorage Devices*), most of the difficult Class III cases, with acceptable profiles (*not too prognathic and patient can accept*), can be treated without using MEAW or extraction of premolars or molars.

In traditional orthodontics, horizontally impacted lower 3rd molars are almost routinely removed for comprehensive orthodontic treatment. In one of my cases the oral surgeon refused to remove the horizontally impacted lower 3rd molars due to the root proximity to the mandibular canal. As such, the author had to reluctantly remove the lower 2nd molar, instead of the impacted 3rd molar. Despite initial concerns over uprighting the horizontally impacted lower 3rd molars, the author successfully uprighted the 3rd molars. The key is to provide enough space by extracting the 2nd molar.

In this article, extraction of the lower 2nd molar to solve horizontally impacted lower 3rd molars will be presented. It can be a very good clinical option to avoid painful and difficult extraction of impacted lower 3rd molars.



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(B) Cases Study

Case A:

Extraction of lower 2nd molars to prevent difficult and painful extraction of the horizontally lower 3rd molars

Diagnosis:



This is a severe Class III subdivision case. Right buccal occlusion Class III and left buccal occlusion Class I. The lower dental midline deviates to the left side for about 5 mm and the lower left lateral incisor presents anterior cross bite. In addition, the chin deviates to the left while the straight lateral profile is acceptable.

Treatment Plan:

Removal of two lower horizontally impacted 3rd molars was indicated in the original treatment plan. Unfortunately the oral surgeon refused to remove the lower 3rd molars because their apex was too close to the mandibular canal. So the treatment plan was changed to remove the lower 2nd molars, and upright the horizontally impacted lower 3rd molars later.

Treatment Progress:

18y7m: The two lower 2nd molars were removed.

18y9m: D3MX Damon brackets were placed. Four upper anterior standard torque brackets were placed upside down to turn them into super low torque (12°, 8° to -12°, -8°) for preventing flaring of upper incisors while later use of Class III elastics. Four lower anterior low torque brackets were placed upside down to make them high torque (-6° to 6°) for preventing lower incisors dumping lingually. Watch the horizontally impacted 3rd molar crowns were visible behind the lower 2nd molar extraction socket.

19y5m: About 10 months after removal of the lower 2nd molars, the horizontally impacted 3rd molars not only moved forward but also self-uprighted partially. A buccal tube was purposely placed to allow the mesial part of the tube to be more gingivally than the distal part to get more mesial movement of the root of the 3rd molars.





19y9m: After 4 months of leveling, the 3rd molars already uprighted into normal position. Two months later the patient broke his leg in a motorcycle accident and didn't schedule appointments for about 6 months.

20y4m: The patient came back with his lower midline further deviating to the left than he was at 19y11m, perhaps due to natural growth. The lower 3rd molars were quite upright. Besides the deviated midline, the occlusion was acceptable with a good profile.

What can we learn from this case?

- (1) There are many disadvantages to extract the horizontally impacted 3rd molars, such as damage of the mandibular nerve, deep pocket formation over the distal side of the lower 2nd molar, surgically challenging and often associated pain and swelling, dry socket...etc. This case proves the above disadvantages can be easily avoided by much easier removal of the lower 2nd molar.
- (2) One should make good torque bracket selection at the beginning of treatment, particularly with good torque control over anterior teeth. In addition, maintain upright upper incisors and avoid lingual dumping of the lower incisors while correcting Class III relationship.
- (3) After removal of the lower 2nd molars, the impacted 3rd molars were able to not only move forward but also self uprighted with the increased space. It may be difficult to self-upright completely but orthodontic treatment can help the molars move to a good position.
- (4) This kind of lower 2nd molar extraction is very helpful for correcting Class III patients with impacted lower 3rd molars.

Case B:

Extraction of lower 2nd molars to prevent difficult and painful extraction of the horizontally impacted lower 3rd molars

Disgnosis:



This is a Class II subdivision case with right buccal occlusion Class II and left buccal occlusion Class I. The lower dental midline was off to the right. The overjet was about 6 mm. Lateral profile showed upper lip protrusion. The panorex showed two horizontally impacted lower 3rd molars.



Treatment Plan:

The patient refused to extract two upper 1st premolars and prefers nonextraction therapy in the anterior segment. To avoid painful and difficult removal of the horizontally impacted lower 3rd molars, the two lower 2nd molars were plan to be removed to create space for the 3rd molars to erupt. Full cooperation of using Class II elastics was emphasized.

If the patient cannot wear Class II elastics with sufficient time, the use of upper infrazygomatic mini-screws



to distalize the whole upper dentition is indicated. If the mini-screws also fail, then extraction of two upper 1st premolars should be indicated.

Treatment progress:



20y1m: lateral profile showed upper lip protrusion, with Class II subdivision malocclusion and overjet about 6 mm.

20y3m: Two upper 3rd molars and two lower 2nd molars were removed. Four upper anterior high torque Damon Q brackets were used to prevent dumping of upper incisors by wearing Class II elastics. Lower low torque brackets were placed over 6 anterior teeth to prevent flaring of lower incisors by using Class II elastics.

20y7m: After four months of follow up, the lower impacted 3rd molars not only moved forward but also self-erupted slightly. It made bonding of buccal tube possible.



21y5m: After 10 months of leveling and using Class II elastics, the horizontally impacted lower 3rd molars were all uprighted. The big 6 mm overjet was corrected to be almost 2 mm and the upper lip position is much more acceptable now. It still takes time for midline correction

What can we learn from this case?

- (1) It's possible to extract lower 2nd molars and then upright the horizontally impacted 3rd molars to avoid difficult and painful extraction of the impacted lower 3rd molars. This kind of treatment option should be considered whenever dealing with difficult impacted 3rd molars. Orthodontists can offer this special kind of treatment to avoid difficult 3rd molar removal.
- (2) Only lower 2nd molar extraction treatment should be carefully planned. For a Class III situation, it's very helpful to correct the Class III. In Class II cases it tends to worsen Class II unless with patients' full cooperation on wearing Class II elastics.
- (3) This case is quite lucky because the patient is very cooperative on wearing Class II elastics.
- (4) If the patient's cooperation is insufficient, then upper mini-screws should be planned to distalize the whole upper dentition. If the mini-screws fail, then extraction of two upper 1st premolars should be planned. All the treatment options should be presented to the patient at the beginning of treatment.

Case C (Courtesy of Dr. Susan BR Wu):

Extraction of lower 2nd molars to treat Class III

Diagnosis:



A 18 years old Class III female patient presents Class III lateral open bite malocclusion, as a result of a relapse from the previous orthodontic treatment.



Treatment plan:

Extraction of two lower 2nd molars.

Treatment progress:



18y: Class III lateral openbite. She has an orthognathic profile. Two lower 2nd molars were removed. Traditional edgewise appliances were used.

18y6m: After removal of two lower 2nd molars, the bite closed down in only 6 months.

20y: Two years later, the two 3rd molars erupted with more crown in the oral cavity.

21y: Bonding of the buccal tubes on the 3rd molars. Watch the tubes were bonded with mesial part much more gingivally for uprighting of the forward tilting crown.

22y: The lower 3rd molars were uprighted and moved forward. The treatment is finished

What can we learn from this case?

- (1) By extraction of the lower 2nd molar, can avoid difficult extraction of the impacted lower 3rd molar.
- (2) In this case the lower 3rd molars were mesially angulated impacted, not as difficult as last two horizontally impacted 3rd molars cases. If we can correct this case by extracting the 3rd molars, then we don't have to spend a lot of time waiting for the 3rd molars eruption to finish the treatment.
- (3) For traditional edgewise systems, combining MEAW technic to correct the Class III is needed.
- (4) If this case has the two lower 3rd molars removal instead of the lower 2nd molars, she could be treated with the Damon system. Its MEAW effect can significantly shorten the treatment time. In addition, there was no need to wait for the eruption of the lower 3rd molars.

Case D:

Extraction of lower 3rd molars for correcting severe Class III

Disgnosis:



A severe Class III asymmetry case with chin deviating to the right, and an orthognathic lateral profile.

Treatment plan:

The mesially angulated right lower 3rd molar and normal position left lower 3rd molar were removed and Damon Q brackets were bonded for orthodontic treatment.

Treatment progress:

19y5m: A severe Class III asymmetry case with lower dental midline off to the right side for about 5 mm. Although the frontal view clearly showed the chin deviating to the right side, the lateral profile was excellent. The two lower 3rd molars were removed before orthodontic treatment.

21y: After 19 months, the treatment completed as a result of the patient's excellent cooperation on wearing elastics. The patient has Class I occlusion with midline on and an acceptable profile



What can we learn from this case?

- (1) Damon system can offer excellent MEAW effect for nonextraction (with the extraction of 3rd molars) treatment.
- (2) The treatment time is significantly shortened by relatively easy 3rd molar extraction and spending no time waiting for the lower 3rd molar eruption.
- (3) At 12, the patient had rapid palatal expansion and face mask protraction treatment. However, the result was less than ideal and he did not complete the treatment. For difficult Class III cases, the use of the so called orthopedic correction was often tiresome and the result tends to relapse to Class III again.
- (4) He had been suggested to receive surgical correction by many orthodontists, so he treasured a non surgical option combining the Damon system and excellent cooperation on wearing Class III elastics.
- (5) If this case was treated with lower 2nd molars extraction, much more treatment time will be spent on uprighting the 3rd molar and closing the extraction space. In the traditional edgewise system, 2nd molar extraction was deemed unavoidable. In modern Damon system, extraction of the lower 3rd molars will make the treatment much simpler by extraction of the lower 3rd molars.

Case E (Courtesy of Dr. Susan BR Wu):

Extraction of lower 2nd molars to solve Class III tendency due to late mandibular growth

Disgnosis:



A mild Class II malocclusion with severe upper anterior crowding.

Treatment plan:

Two upper 1st premolar extraction at the beginning. Later due to difficulty on correction of the Class III malocclusion, two lower 2nd molars were removed.



Treatment progress:



9y5m: Two upper 1st premolars were removed.

12y: After 2.5 years of treatment, the occlusion became edge to edge, and difficult to be corrected by the Class III elastics.

12y2m: After extraction of lower 2nd molars, the original edge to edge occlusion turned into an easily corrected Class I anterior occlusion.

14y: The right lower 3rd molar already erupted into ideal occlusion, while the left lower 3rd molar had not fully erupted yet.

15y: The lower 3rd molars erupted into very good occlusion.

What can we learn from this case?

- (1) When extracting only two upper 1st premolars in Class I or mild Class II cases, one should be careful about the late mandibular growth, which tends to make the case become more Class III.
- (2) If this case were treated with the Damon system, I think the MEAW effect may be helpful to treat Class III occlusion to Class I without further extraction.
- (3) By extraction of two lower 2nd molars, the ongoing Class III occlusion was successfully solved. Also later on the 3rd molar erupted beautifully into good occlusion. In Dr. Wu's experience this happens in most 2nd molar extraction cases. The author concerns, in many situations, after the lower 2nd molar extraction, the lower 3rd molar rarely self upright as well as in this case. One should always caution patients of the chance of unpredictable eruption of 3rd molars before treatment.

(C) Conclusion

1. With the advancement of passive self-ligating brackets (*Damon system*) and TADs, many difficult Class III cases can be treated without premolar or molar extractions (*with exception of lower 3rd molars*).
2. Most of the difficult Class III cases can be corrected with the MEAW effect of Damon system.
3. Most of the young difficult Class III malocclusion, although, can be treated with so called orthopedic face mask protraction combined with RPE, they tend to relapse. It is advised to wait until the growth period is completed at 20 for male and 18 for female, and then to begin treatment with Damon and/or TADs. Extraction of difficult horizontally impacted lower 3rd molars can be one of the good options in orthodontic treatment. For patients who are afraid of painful removal of the lower impacted 3rd molars, extraction of the 2nd molars can be a nice alternative.

Acknowledgement:

Thanks for Tzu Han's English editing. Thanks for Dr. Susan BR Wu's generous sharing of the two beautiful cases of lower 2nd molar extraction.