THE Proven Merits OF Molar Removal

Maxillary second molar extraction in a Class II, Division II patient

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The struggle

Have you ever found yourself struggling to make a treatment decision you knew was not quite right? You know that conventional treatment to achieve the best result and textbook occlusion may be filled with undesirable side effects, and don’t want to compromise the result to get the finest objective result possible. (Or, you realize that if the patient would have presented a bit earlier, you wouldn’t find yourself in this position at all.)

Such is the case when treating many young adults with a Class II, Division II malocclusion. We’ve all been taught—and most believe—that the removing of teeth only compromises the result, certainly from a cosmetic perspective. We certainly understand that extraoral anchorage is not a realistic option. Favorable growth will usually help to achieve the stable occlusion we desire, if the patient is still growing.

But what about patients in their late teens or early 20s? Growth is not expected and removing bicuspid teeth is certainly not indicated because of most of these patients’ dental and facial characteristics.

In the 1980s and ’90s, orthodontist wannabes advocated the second molar extraction technique to differentiate and supposedly avoid TMJ complications. Extraction of first bicuspids often was likened to unfavorable facial characteristics and potentially devastating joint problems. Also during this time, litigation was rampant!

Most of these assertions have since been scientifically disproven, but the controversy remains.

At the recent AAO annual session, Dr. Hugo Trevisi outlined a set of criteria indicating that maxillary second molar extraction may be indeed as a reasonable—and perhaps preferred—option for several patients.
I’m proud to say that for years, I’ve removed upper second molars for a variety of reasons, many of which are outlined in Trevisi’s paper. Some of the factors include:
- Posterior decompression
- Cosmetic concerns
- Finishing with 28 teeth.

I’ve also removed second molars to aid in treatment of open bite malocclusions, either from the initial diagnosis or those appearing during treatment.

Case presentation

A patient treated several years ago fits into the small universe of patients that could benefit from removal of upper second molar teeth. Briefly, she was done growing and had crowding, a favorable to brachyfacial pattern and a straight profile (Fig. 1).

Healthy third molars were present and we wanted to protect the smile arc and, hopefully, not narrow the curve in the anterior portion of the mouth with excessive elastic wear, removal of bicuspids or extraoral anchorage.

We didn’t want to further compress the posterior dentition—or, put another way, move the anterior crowding to the posterior. Here’s a summary of the patient:
- 18-year-old female.
- The panoramic exam revealed a complete dentition (Fig. 2).
- Chief concern was crowding (Fig. 3).
- Findings included a Class II, Division II malocclusion with slight crowding in the mandible, more in the maxilla.
- Retroinclination of the incisors and undertorqued upper central incisor (Fig. 4).
- Further examination of mounted diagnostic casts showed an even more severe Class II malocclusion than the clinical exam (Fig. 5).
Treatment plan

Treatment included .022 slot SWA progressing from small superelastic round wire to rectangular stainless steel finishing wires and elastics and was quite unremarkable (Fig. 6).

The treatment was to be coupled with removal of upper second molars and mesial movement of upper third molars to serve as anchorage for retraction of the upper dental arch until the retroinclination of the maxillary incisors was complete (Fig. 7).

As is the case with most of my patients, after the removal of upper 7s, the upper arch was bonded and banded first, up to .018 stainless steel arch wires, then upper 8s were engaged and the lower arch was banded and bonded (Fig. 8).

For years, I’ve followed the pattern of banding and bonding upper 6 to 6 followed by upper 7s—or in this case, upper 8s and the lower 6 to 6. The lower 7s are banded last. This process allows for moving the upper incisors out of the way, gradually introducing brackets to the patients and following growth, or in this case temporomandibular function.

This gradual banding and bonding sequence is like the facially generated treatment followed by many restorative dentists. In this situation, most of the teeth were banded and bonded at the outset of treatment.

Wire progression during treatment was up to 18 x 25 stainless steel, with Class II elastics utilized for final detailing and anchorage, then triangular elastics upper 3s and lower 3s and 4s for settling (Fig. 9).

A bonded lower anterior 3-to-3 retainer was delivered along with an upper vacuum formed clear retainer for the upper arch. Full time wear of the retainer was prescribed for three months with nighttime wear after that.

Evaluation and conclusion

One can only guess and postulate how another treatment plan would have fared, but it’s safe to say that this one addressed
the concerns without deleterious side effects. Here’s my summary of what this case outlined:

- One can see that the crowding and retroinclination has been managed effectively (Figs. 10–12).
- The lateral cephalometric X-ray shows an increase in lingual root torque; however more would have been tolerated (Fig. 13).
- Interincisal inclination has decreased.
- The facial profile has remained the same, which is a good thing (Fig. 14).
- The teeth have aligned, the extraction space has closed, and bone levels are favorable (Figs. 15 and 16).
- A different archwire shape may have created greater width in the buccal space (Fig. 17).
- Final result (Fig. 18).