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2nd Molar Replacement
The Importance of 2\textsuperscript{nd} Molar Replacement

- The further back you extract the less NEGATIVE effect on the face.
- Mandibular deflection can cause TMJD.
- Pre-Maxillary development and maxillary arch transverse development can encourage autorotation of the mandible while increasing TM joint space.
The Key to 2nd Molar Replacement is Timing!

The prognosis of wisdom teeth is critical when considering 2nd molar replacement.
When considering 2nd Molar replacement, when is the prognosis for wisdom teeth considered **POOR**?

- Roots are fully formed
- Crowns are facing you in the panorex
- Crown Deformity
- Congenitally missing
Guidelines for 2nd Molar Replacement

**INDICATIONS INCLUDE:**

- Excessive Crowding in both arches
- Normal or Open Growth Direction
- Steep mandibular plane angle with an open bite tendency
- Patient has an obtuse nasial/labial angle
- Maxilla position is posterior, develop pre-maxilla prior to 2nd molar replacement
- Prognosis for wisdom teeth is good if 2nd molars were removed
Guidelines for 2nd Molar Replacement

CONTRA-INDICATIONS INCLUDE:
- Minimal crowding in both arches
- Deep bite with deep growth direction
- Maxilla position is Normal or Anterior
- Prognosis for wisdom teeth is poor
- Wisdom teeth are congenitally missing
- Heavy restoration on the 1st molars.

- At an early age, 1st molar replacement may be considered as taught by Dr. Wilson (WWII treatment)
Orthodontists generally remove bicuspids and wisdom teeth leaving the patient with **24 teeth**.

2nd molar replacement leaves the patient with **28 teeth** and:

- ✔ A Broad Smile
- ✔ Healthy TMJ
- ✔ Full Mid-Face

*Images compliments of Dr. Merle Bean*
It is far less traumatic to perform 2nd molar replacement when indicate than to surgically remove severely impacted wisdom teeth.

It is also more cost-effective for the family!
The role of upper second molar extractions in orthodontics.

Dr. TM Graber
Maxillary second molar extraction in Class II malocclusion.

Dr. TM Graber
This article was relished by Dr. John Witzig because it supported his beliefs in 2nd molar replacement.
In all arch-length problems, serious consideration should be given to extraction of all four permanent second molars. Eruption time is usually earlier in girls than in boys. Optimum extraction time is when the overcrowding begins, and this is usually when the second molars are trying to erupt.

December 1977  David W. Liddle
I understand the difficulty of making any change in diagnostic methods, and I do not wish to unduly influence any orthodontist in his treatment procedures. Yet I will consider it worth while if I have added just a little toward orthodontic concepts and treatment in reaching the ultimate goal of all orthodontists - a beautiful smile with the best possible occlusion.

David W. Liddle, D.D.S.
An evaluation of combination second molar extraction and functional appliance therapy.

Elaine F. Whitney and Peter M. Sinclair
Dallas, TX
DISCUSSION

The mere removal of four teeth is no ‘open sesame’ to success. The decision of which teeth to extract depends upon exhaustive study of all available diagnostic criteria and a thorough understanding of orthodontic principles and mechanotherapy.

T.M. Graber

The purpose of this study was to examine the results of a treatment regimen involving the extraction of four second molars followed by a combination of sagittal, Bionator, and fixed appliance therapy. The pretreatment and posttreatment cephalometric and dental cast records of 30 consecutively treated Class II, Division 1 cases were evaluated. Results showed that the Class II skeletal correction was achieved by a “headgear” effect inhibiting maxillary growth in conjunction with normal forward mandibular growth. No significant distal bodily movement or tipping of either maxillary or mandibular first molars was found. Significant increases were seen in maxillary arch length, maxillary intercanine and intermolar width, and mandibular intermolar width as a result of treatment. Maxillary third molar position tended to improve following second molar extraction; mandibular third molar changes were more variable. (Am J Orthod Dentofacial Orthop 1987;91:183-92.)
Lower third molar development subsequent to second molar extraction.

Richardson and Richardson
Conclusion

- Normal sized lower third molars make adequate replacements for second molars in the majority of cases.

- The mesiodistal angulation of a lower third molar before second molar extraction does not appear to influence its final position.

- Lower third molars can upright and erupt from a wide variety of mesioangular positions.

- The tendency for some lower third molars to tip mesially and become more mesioangularly impacted appears to be reduced by extraction of second molars.

Richardson and Richardson
Lower third molars tend to upright in the buccolingual dimension after second molar extraction.

Lingual inclination of a third molar does not appear to be a contraindication to second molar extraction.

Presence of a space between a developing third molar and the adjacent second molar does not seem to be a contraindication to second molar extraction.

The timing of lower second molar extraction in terms of third molar development is not critical, but third molars in earlier stages of development at extraction are likely to take longer to erupt.
The emancipation of dentofacial orthopedics.

David C. Hamilton, DDS, MS, New Castle, PA
Excerpts

Although certainly it is imperative that, as orthodontists, we consider all aspects of the cost effectiveness of our treatment, it is of even greater concern that we might compromise the quality of our patient care simply to satisfy our personal or MSO imposed financial goals.

Every orthodontic resident should be required to treat at least two preschool children as a part of their clinical program.
Spontaneous lower arch changes and second molar extractions.

Battagel and Ryan
Conclusion

- Extraction of lower second molars **allows spontaneous relief of a small amount of crowding** in both labial and buccal segments.

- **Significant increases in arch length** and perimeter also occur.

- **Intermolar width increases** irrespective of extraction status where upper buccal segments have been retracted.

February 1998 Battagel and Ryan
Third Molar Position after Second Molar Extraction

**Reference:**
Orthodontic Management of the Dentition with the Preadjusted Appliance
John C. Bennett & Richard P. McLaughlin
Page 331

- **Nearly 100% of the upper third molars** erupt into ideal position.
- **96% of the lower third molars** erupt into ‘good or acceptable position’.
Spontaneous third-molar eruption after second-molar extraction in orthodontic patients.

Christina De-la-Rosa-Gay, Eduard Valmaseda-Castellon and Cosme Gay-Ecoda
Barcelona, Spain
Study:
- 48 patients with 2nd molars extracted during or before orthodontic treatment.
- Ages at extraction 11 to 23 years.
- Median time of eruption of 3rd molars was 3 to 4 years.

Results:
- 96.2% of Mx and 66.2% of Md 3rd molars erupted in good position.

Conclusion:
- Mx 3rd molars upright and acceptably replace Mx 2nd molars after extraction for orthodontic purposes.
- Most Md 3rd molars also upright and acceptably replace the 2nd molars after extraction.
- Unsuccessful 3rd molar eruption is most common in older patients with higher Nolla developmental stages.
A clinician stated at an AAFO Conference (2007) in Tampa, Florida that

“2\textsuperscript{ND} MOLAR REPLACEMENT IT IS NO LONGER VOGUE”

The following sequence of slides will challenge that statement.
Spontaneous Correction following 2nd Molar Replacement

The following images are compliments of a General Dentist in Haileybury, Ontario

Due to financial constraints, treatment often included:
- 2nd Molar Extractions
- An upper 2 or 3-way Sagittal Expansion Appliance
Patient A

Images compliments of Dr. D. Cameron
Dr. Merle D. Bean, a Pediatric Dentist provided the following panorex images, which documents his observation of 2nd molar replacement.
“Special Protocol”
for 2nd Molar Replacement

Use maxillary 2nd molars as anchorage for pre-maxillary advancement prior to upper 2nd Molar Replacement.

CAUTION:
NEVER perform upper 2nd molar replacement on a class III case.
ADVANCE A-POINT

Pre-Maxillary development prior to Maxillary 2nd Molar Replacement.

Mandibular 2nd Molar Replacement performed prior to Mx 2nd Molar Replacement
Special Note

Panorex images provided by
Dr. Merle Bean, Pediatric Dentist
Dr. Merle Bean’s Note:
“1st in 3,000 12 YR molar replacements”
Dr. Merle Bean’s Note:
“Decided not to remove all four 2nd molars? WHY!”
A BIBLIOGRAPHY of publications/research is available to assist you in defending your decision to perform 2\textsuperscript{nd} molar replacement when indicated.
1st Molar Replacement

Panorex images provided by Dr. Merle Bean, Pediatric Dentist
THINK OUTSIDE THE BOX!

• Non-Extraction?
• Bicuspid Removal?
• 2nd Molar Replacement?
• 1st Molar Replacement?
The concept of 1st molar replacement began in England after WWII.

A dentist named Wilson removed many 1st molars on young patients.

The teeth had been neglected during the war and the patient’s required heavy restoration of their 1st molars.

In the patients that were severely crowded, he chose to remove the 1st molars.

His future observations surprised him when he noted the crowding had self-corrected through drift-o-dontics.
What about 1\textsuperscript{st} Molar Replacement?

“Consider” 1\textsuperscript{st} molar replacement in crowded cases “IF” the 1\textsuperscript{st} molars are compromised.

\textbf{Note}: If a patient has tongue thrust or airway problems, it would be less likely that the malocclusion would self-correct.
When the 1st molars are compromised, why consider 2nd molar replacement?
Please visit our website under PRESENTATIONS to view cases treated by your dental colleagues.