Expanding treatment opportunities. Alternative options for skeletal & dental problems. The grey zone.
Identifier: 37 year old Nurse-Educator

Chief complaint: “I am here because my dentist is concerned about my gum recession. I know I have a bad bite and have been to several orthodontists but am not willing to have jaw surgery to correct it”

Medical history: Scoliosis, spinal fusion in 1987. Family history of HTN & NIDDM. History of polysomnogram (WNL)


Current medications: None

Physical status classification: ASA I
Initial Exam

Generalized Recession

Malocclusion
narrowed palate

constricting mandibular archform
tongue space?
Typical Treatment Plan

<table>
<thead>
<tr>
<th>Problem</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gingival recession</td>
<td>Free gingival grafts or connective tissue grafting before or after tooth movement</td>
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<tr>
<td>Mucogingival abnormalities</td>
<td></td>
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<tr>
<td>Skeletal &amp; dental malocclusion</td>
<td>Pre-surgical Ortho. SARPE Orthognathic Surgery</td>
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</tbody>
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Periodontal effects of surgically assisted rapid palatal expansion evaluated clinically and with cone-beam computerized tomography: 6-month preliminary results

Chantal Gauthier,* René Voyer,* Nanon Paquet,* Pierre Rompré,* and Athena Papadakis†
Montreal, Quebec, Canada

Introduction: Transverse maxillary deficiency is frequently observed in patients who seek orthodontic treatment. In skeletal mature patients, transverse maxillary deficiency can be treated with surgically assisted rapid palatal expansion (SARPE). Forces delivered by the expander produce areas of compression in the palatal ligaments, which could lead to alveolar bone resorption and consequent changes in the attachment level. The purpose of this prospective clinical study was to evaluate the periodontal effects of SARPE by means of a complete clinical evaluation and cone-beam computed tomography (CBCT) evaluation. Methods: The sample included 14 patients (5 males, 9 females), with a mean age of 23.0 ± 1.9 years (range 15.4-37.1 years). All patients were treated using a bounded Hyrax-type expander, and the mean expansion was 5.82 mm (7.5 to 12.0 mm). All patients had a 1-year retention period. CBCT scans were taken, and periodontal charts were completed at time points T0 (initial) and T1 (6 months after expansion). Results and Discussion: SARPE seemed to have little detrimental clinical effects on the periodontium. Radiographic data demonstrated statistically significant changes: a significant decrease in the buccal alveolar bone thickness was 5.82 mm on mean, a significant increase in the palatal alveolar bone thickness on most teeth, a decrease in the buccal alveolar crest level of all anterior and posterior teeth, and a tendency towards a decrease in the interproximal alveolar crest level on the mesial aspect of both central incisors. Conclusions: SARPE seems to have little detrimental effects on the periodontium clinically. However, radiographic data demonstrated some statistically significant changes, which could eventually have a significant clinical impact on the periodontium. (Am J Orthod Dentofacial Orthop. 2011;139:617–626)

Cause for change

Surgically Assisted Rapid Palatal Expansion Surgery (SARPE)

Mean expansion = 9.82 mm (range = 7.5-12 mm)
1 year retention period

Periodontal examination. CBCT analysis @ initial examination and at 6 months after expansion.

Clinical Outcome: No attachment loss. Healthy periodontium.
CBCT Outcome: Decrease in buccal alveolar bone thickness by 55%.
Decrease in interproximal alveolar crest height by 55%
CBCT Evaluation
FOV too limited

3D Craniomandibular assessment
SFOT Treatment Plan

**Problem**

- Gingival Recession
- Anterior open bite third molars
- Thin crestal & radicular dentoalveolar bone phenotype
- Dentoalveolar and alveoloskeletal discrepancies
- Skeletal & dental malocclusion

**Management**

- Root coverage
- Mucogingival Augmentation
- Third Molar Extraction
- SFOT
- Orthognathic Surgery

**SARPE? The Grey Zone**
Leveling the playing field

"Change the way you look at things, and the way you look at things change"

Wayne Dyer

Mandible:
- Evaluation of mandibular incisor position.
  - Axial inclination ~25 degrees. 4mm ahead of N-B line?
  - Location and angulation of lower incisor position does not require SFOT entirely.

Maxilla:
- Significant alveoloskeletal discrepancy (posterior)
  - Narrow arch form
  - Lack of dentoalveolar bone to correct crossbite.
  - SARPE or SFOT + soft tissue augmentation