MANAGING CONGENITALLY MISSING UPPER LATERAL INCISORS:
ACHIEVING PREDICTABLE AESTHETICS

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Missing upper lateral incisors: Most commonly cited facts

- Prevalence between 1 to 3 per cent
- 20% of all congenitally missing teeth are maxillary laterals
- Females are affected slightly more than males
- Agenesis of both maxillary lateral incisors is more common than agenesis of only one
- The maxillary lateral incisor is the most frequently affected tooth in the cleft area in both primary and permanent dentitions
Treatment considerations

- Aesthetics
  - Expectations

- Management challenges
  - Growing patient
  - Immediate and long term

- Interdisciplinary team
  - Who to involve when
The ‘BIG’ issue

To close
or
Not to close
Which option when?

- Ideal occlusion, profile and aesthetics
- Parent/Patient expectations
- Orthodontic assessment
- Prosthodontic assessment
- Complexity of treatment
What makes a smile attractive?
‘Ideal’ aesthetics?

“the difficulty with aesthetic judgment is that objective criteria are not always decisive. Much depends on the subjective feelings and interpretation of the observer, with cultural factors playing a significant role”

Strub and Turp
“Opening or closing the anterior spaces is the diagnostic decision, and either choice must account for some compromise.

The question to be answered is: Which compromise represents the best cost/benefit to the patient, both functionally and aesthetically”

Araujo et al 2006
## Assessment

<table>
<thead>
<tr>
<th>Orthodontic</th>
<th>Restorative</th>
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</thead>
<tbody>
<tr>
<td>Malocclusion</td>
<td>Facial analysis</td>
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<tr>
<td>Profile</td>
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<tr>
<td>Canine shape and colour</td>
<td>Tooth analysis</td>
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<tr>
<td>Lip level</td>
<td>Gingival analysis</td>
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<tr>
<td>Space analysis</td>
<td>Smile analysis</td>
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</tbody>
</table>

![Image of orthodontic and restorative assessment](image-url)
‘Predictable’ aesthetics?

- Comprehensive examination
- Accurate diagnosis
  - What are the issues?
  - Inform patient of aesthetic limitations
- Well executed treatment
Aesthetic limitations: canine substitution

- Canine colour
- Canine shape
- Gingival margin location
- Prominence of canine eminence
Aesthetic limitations: 
*resin bonded bridge*

- Symmetry of space
- Emergence profile of pontic
- Gingival health
- Contact point and presence of papillae
- Prosthetic material
Aesthetic limitations: implant supported restoration

- Symmetry and appropriate space
- Emergence profile
- Contact point and presence of papillae
- Gingival health
- Stability of soft/hard tissue
- Prosthetic material
Why is a restorative assessment important?

- **Diagnostically driven treatment plan**
  1. Patient desires are understood
  2. Restorative limitations identified
  3. Coordinated treatment - cooperation between treatment team

- **End point established**
  1. Immediate treatment phase
  2. Retention phase
  3. Long term treatment phase
The congenitally missing upper lateral incisor. 
A retrospective study of orthodontic space closure versus restorative treatment. 

Robertsson and Mohlin 2000

Aim:

1. To examine and compare aesthetics according to the opinion of the patient who had received either orthodontic space closure (SC) or space opening and prosthetic replacement (PR).
2. To examine and compare occlusal function and periodontal health in patients who had received either SC or PR.
The congenitally missing upper lateral incisor.
A retrospective study of orthodontic space closure versus restorative treatment.

*Robertsson and Mohlin 2000*

**Patient self-assessment:**

- Group SC were generally more satisfied with their appearance than the Group PR
- Group SC were dissatisfied with **colour** of maxillary canines relative to adjacent teeth
The congenitally missing upper lateral incisor.
A retrospective study of orthodontic space closure versus restorative treatment.  

Robertsson and Mohlin 2000

**Dentist assessment:**

- No significant differences in the prevalence of signs and symptoms of TMD
- Prostheses tended to accumulate more plaque
- Increased number of locations with gingivitis in PR group
Aesthetic evaluation in subjects treated due to congenitally missing laterals. A comparison of perception in patients, parents and dentists.

Robertsson, Mohlin & Thilander 2010

**Aim:**

1. Assess and compare differences in opinion regarding treatment of congenitally missing laterals of dental professionals and non-professionals
2. Identify situations that generally cause dissatisfaction or satisfaction
16 previously treated cases were shown:
1. Space closure +/- modification
2. Space opening + replacement
   - Resin-bonded restoration
   - Cantilever FPD
   - Implant supported restoration

Asked to rank the 3 most disturbing features in the maxillary anterior region:

<table>
<thead>
<tr>
<th>No disturbing feature</th>
<th>Tooth colour</th>
<th>Tooth shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space condition</td>
<td>Tooth position</td>
<td>Symmetry/midline</td>
</tr>
</tbody>
</table>
Aesthetic evaluation in subjects treated due to congenitally missing laterals. A comparison of perception in patients, parents and dentists.  

Robertsson, Mohlin & Thilander 2010

Results:

- Professionals less critical than laypeople concerning overall appearance

- For both groups, most disturbing feature - colour of the canine

- For professionals, the second most disturbing feature – the shape of the teeth – in particular, a pointed cuspid

- For lay people, the second most disturbing feature – the space condition

Missing upper lateral incisors:
Creating an aesthetic smile

- Colour consistency
- Identifying size/space requirements:
  - Width
  - Length
- Symmetry
- Tooth shape
- Gingival margin
Aim:

- To determine how general dentists, orthodontists, dental specialists and laypeople judge the relative attractiveness of treatment for missing maxillary lateral incisors.

- Determine if there is a difference in how dental professionals and lay people evaluate attractiveness.
The congenitally missing maxillary lateral incisor.
Part 1: Aesthetic judgment of treatment options.

Armbruster et al 2005

Results:

- For all groups, the rankings of the 4 options of followed the same pattern:

  Natural teeth > Canine substitution > RBB > ISR
The congenitally missing maxillary lateral incisor.

Armbruster et al 2005

Aim:

1. To determine if there are different preferences among orthodontists, combined dental specialists and general dentists regarding treatment options
2. Determine the role of aesthetics and function on respondents treatment preferences
3. Compare the respondents’ opinions relative to their rankings of aesthetics in part 1
Results:

- Different preferences between the orthodontists, combined dental specialists and general dentists concerning how to treat

- A significantly greater percentage of general dentists and combined dental specialists responded that the lateral incisors should be replaced prosthetically – primarily for aesthetic reasons

- Despite indicating a ‘prosthetic solution’, many preferred the aesthetics of the canine substitution
“Part 2 of this study revealed discrepancies between the treatment result judged as most aesthetic and the one most likely to be recommended.

Therefore, dental professionals should attempt to eliminate their personal biases when recommending treatment”
Achieving a predictable result:
Critical factors

- Comprehensive examination
  - Interdisciplinary team
- Accurate diagnosis
  - What are the issues?
  - Manage patient expectations
- Well executed treatment
  - Interdisciplinary involvement
  - Create an aesthetic end point
  - Critical assessment of prosthetic work
THANKYOU

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