

Interceptive Orthodontic Treatment of Anterior and Posterior Crossbites Utilizing Clear Aligner Therapy

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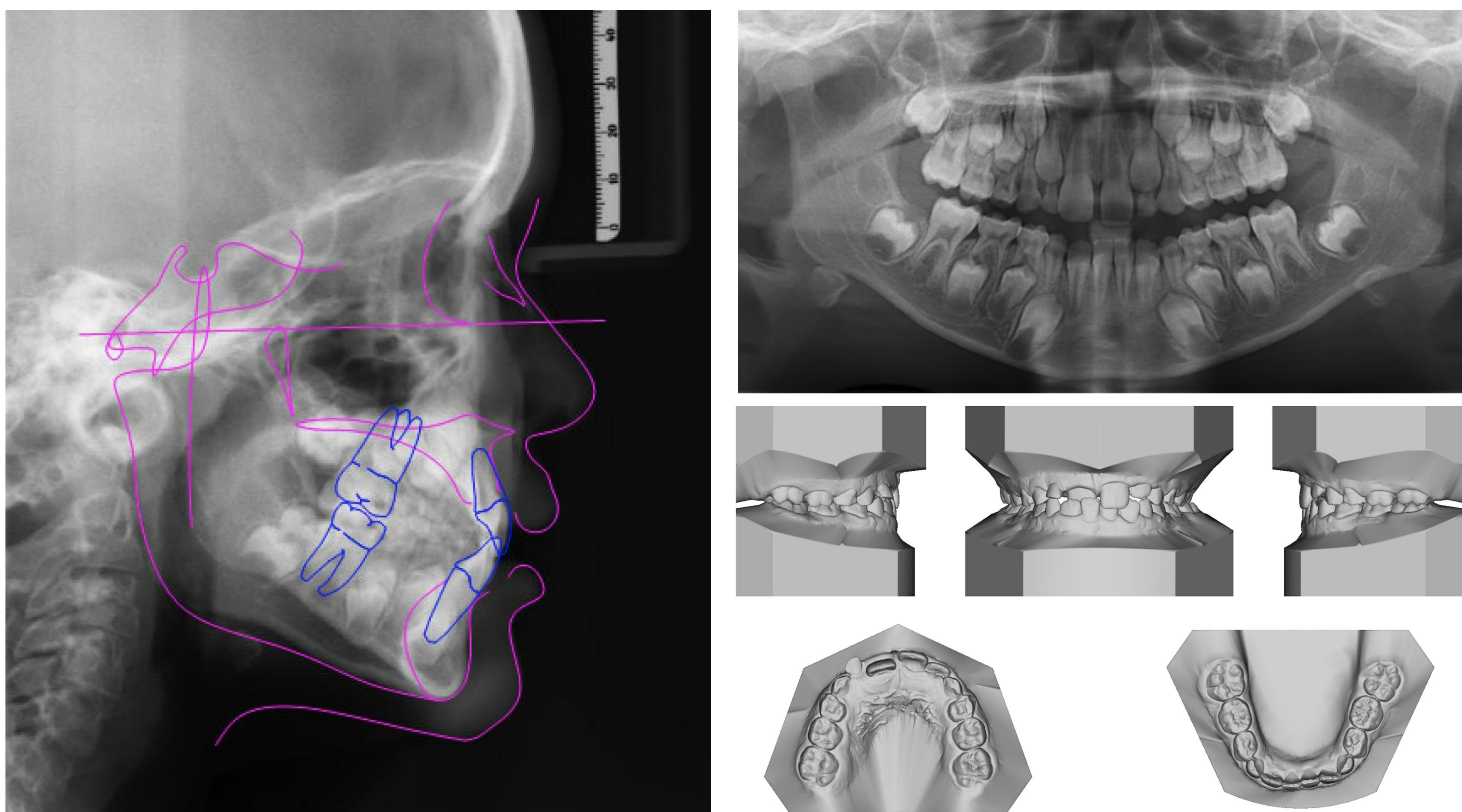
INTRODUCTION

- 8-year-old patient presents to UCONN Pediatric Dental with anterior crossbite on tooth #8 and a posterior crossbite on tooth #14.
- Parents elected for clear aligner therapy

INITIAL PHOTOGRAPHS



INITIAL RADIOGRAPHS & SCANS



ASSESSMENT & TREATMENT PLAN

ASSESSMENT

- Mild crowding** in the mixed dentition
- Mixed dentition** observed
- No reported parafunctional habits**
- Clinical examination and diagnostic records obtained**, including:
 - Photographs and Digital models
 - Cephalometric analysis
- Early interceptive treatment recommended** based on findings

Skeletal Pattern: Steiners Class I
Wits Appraisal: Class III
Molar and Canine Classifications:

- Right molar: Class I
- Right canine: Class I
- Left molar: Class I
- Left canine: Class I

OBJECTIVES

- The primary objectives of treatment were to:
- Correct the anterior crossbite of tooth #8** to establish a normal overjet and overbite.
 - Correct the posterior crossbite of tooth #14** to improve transverse arch coordination.
 - Maintain or improve occlusal relationships** while guiding the eruption of permanent dentition.

CHOOSING CLEAR ALIGNER THERAPY VS. TRADITIONAL ORTHODONTICS

Traditional orthodontic options, including a maxillary expansion appliance (MEA), fixed appliances, and a facemask, were considered. However, **Clear aligner therapy** was selected due to:

- Esthetics** – Clear aligners are discreet, reducing social concerns (Djeu et al., 2005).
- Improved comfort and hygiene** – Removable aligners improve oral hygiene and reduce decalcification risks (Boyd, 2005).
- Controlled expansion and bite correction** – Sequential staging enable dentoalveolar expansion without bulky devices (Nedwed & Miethke, 2005).
- Predictable digital treatment planning** – The ClinCheck software allowed for customized and controlled movements, minimizing undesired compensatory changes (Lagravère & Flores-Mir, 2005).
- Patient compliance and comfort** – The patient and parents favored the comfort and convenience of clear aligners over traditional appliances.

TREATMENT IMPLEMENTATIONS

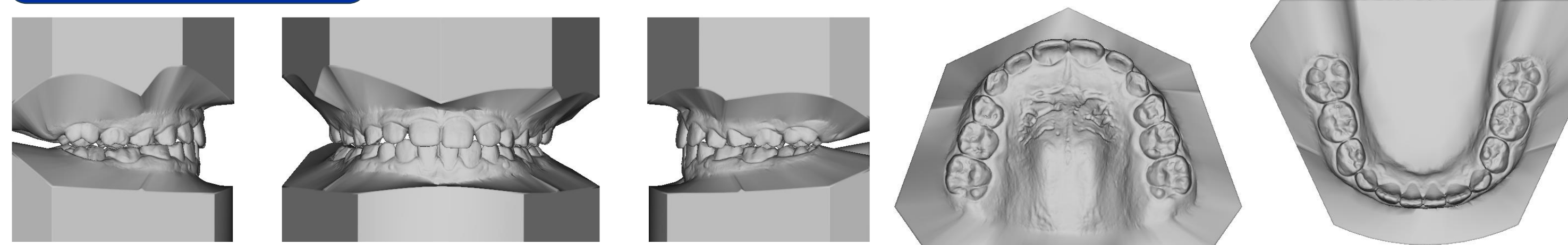
- Clear Aligner Therapy initiated** with customized aligners for expansion and crossbite correction
- Strategic attachment placement** to aid in anterior and posterior movement
- Aligner wear:** 20-22 hours per day
- Aligner changes:** Approximately every 14 days
- Compliance monitored** at 6-week intervals, Progress assessed through photographs
- Treatment duration:** 10 months
- Outcomes:** Anterior and posterior crossbites corrected and improved occlusal relationships

FINAL OUTCOMES

FINAL PHOTOGRAPHS



FINAL SCANS



FINAL OUTCOMES

- Correction of anterior crossbite (tooth #8) → Achieved positive overjet & overbite**
- Correction of posterior crossbite (tooth #14) → Improved transverse arch coordination**
- Stable occlusion:**
 - Right molar: **Maintained Class I**
 - Left molar: **Improved from Class I**
 - Right Canine: **Maintained Class I**
 - Left canine: **Maintained Class I**
- No additional appliances were needed**
- No significant midline shifts**

REFERENCES

Boyd RL. (2005). "Complex orthodontic treatment using a new protocol for the Invisalign appliance." *J Clin Orthod* **39**(4), 217-225.
Djeu G, Shelton C, Maganzini A. (2005). "Outcome assessment of Invisalign and traditional orthodontic treatment compared with the American Board of Orthodontics objective grading system." *Am J Orthod Dentofacial Orthop*, **128**(3), 292-298.
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