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The Impact of Palatal Expansion on Airway and Breathing

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Introduction

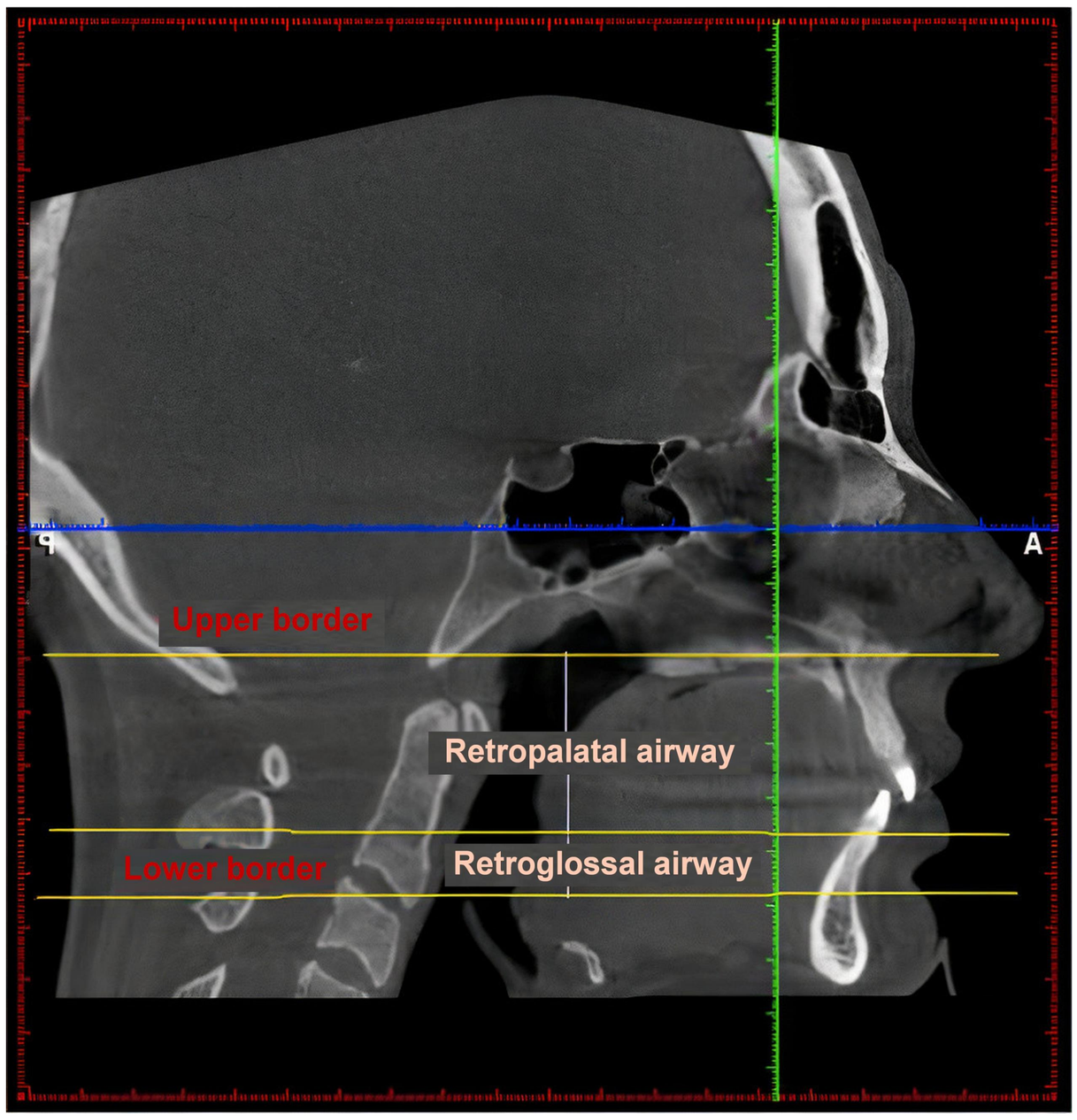
Mini-Implant Assisted Rapid Palatal Expansion (MARPE) is used in orthodontics to address narrow upper jaws. Although MARPE's role in expanding the palate is well documented, its influence on facial aesthetics and airway function is less understood. We investigated the effects of MARPE on facial appearance and nasal breathing.

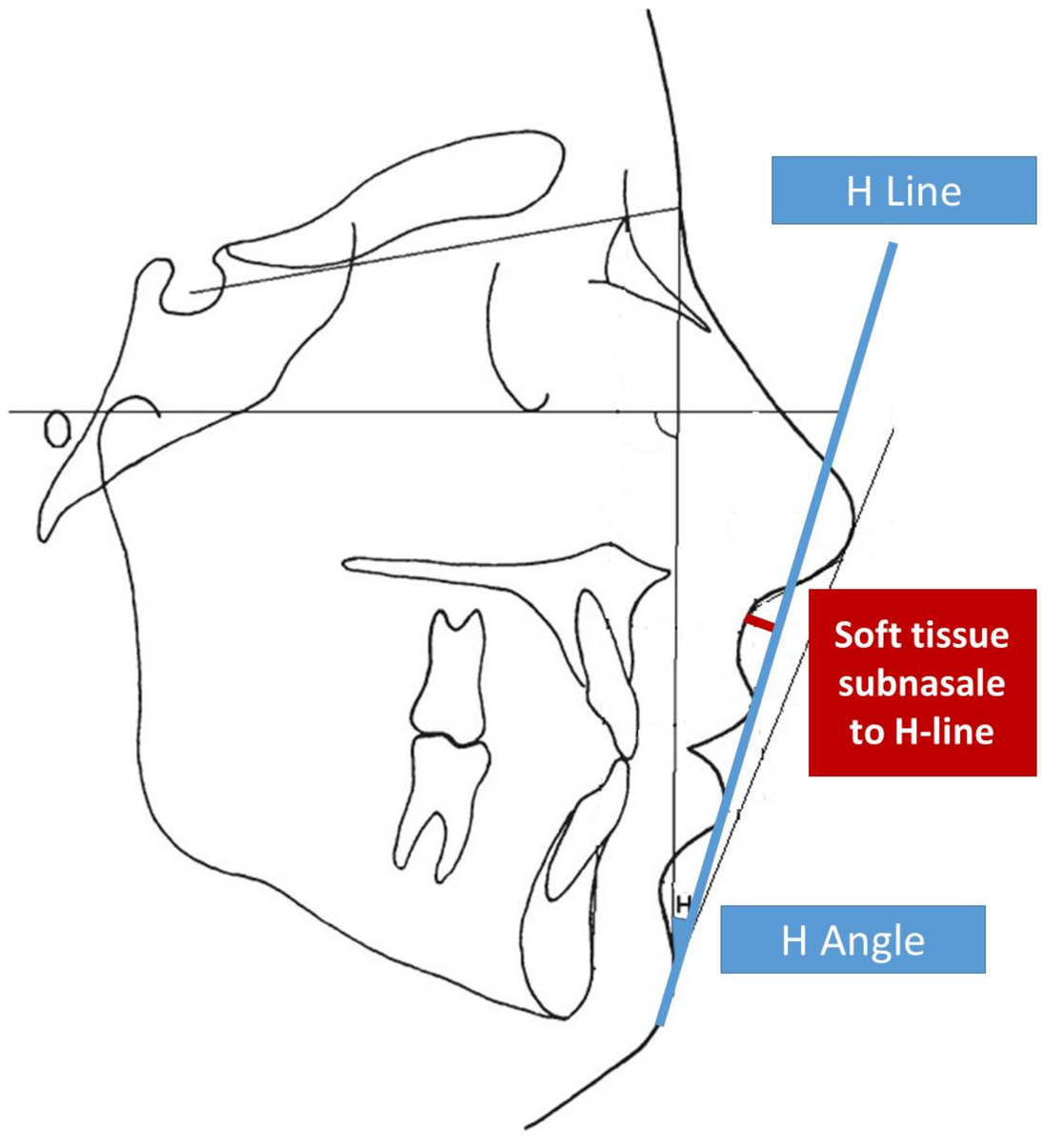
Materials and Methods

We conducted a retrospective analysis using cone-beam computed tomography (CBCT) scans from 10 patients aged 18-30 years. .
Pre- and post-expansion CBCT data were analyzed using Romexis software to evaluate alterations in facial soft tissue and airway structures.
Key measurements included H-angle, soft tissue subnasale to H-line, and soft palate surface area, along with airway parameters like alar base width.

Results

Findings showed statistically significant alterations in facial soft tissue parameters post-MARPE.
Notably, there was an **increase in the H-angle** and **soft tissue subnasale to H-line**, suggesting that facial profile can be altered.
A reduction in the soft palate surface area was noted, **indicating airway changes**.
There was a **post-treatment increase** in the alar base width, which could potentially improve nasal breathing.





Conclusion

MARPE has a significant effect on facial soft tissue and airway morphology. The observed changes underscore the importance of considering these factors in orthodontic diagnosis and treatment planning. The findings advocate for the inclusion of MARPE as a viable treatment modality in managing transverse maxillary deficiencies, with implications for facial aesthetics and airway function.

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