Intersurgical orthodontic treatment of bilateral cleft lip and palate
-Case report-

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WORLD FEDERATION OF ORTHODONTISTS

According to the specific needs of a patient with (bi-) lateral cleft lip and palate the orthodontic and surgical treatment must be well coordinated to achieve the best results.

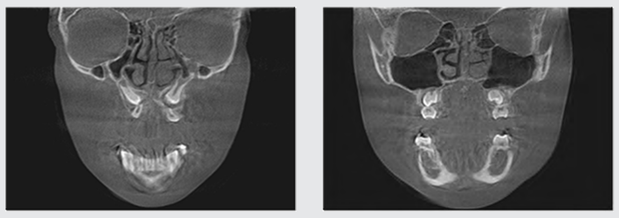
Objective

How can complex treatment of a patient with bilateral cleft lip and palate, who had received a surgical transpalatal distraction with overcorrection and severe rotation of both lateral segments, be performed?

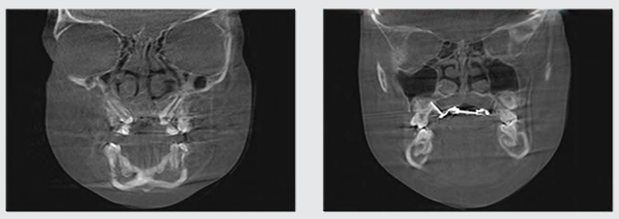
Initial situation

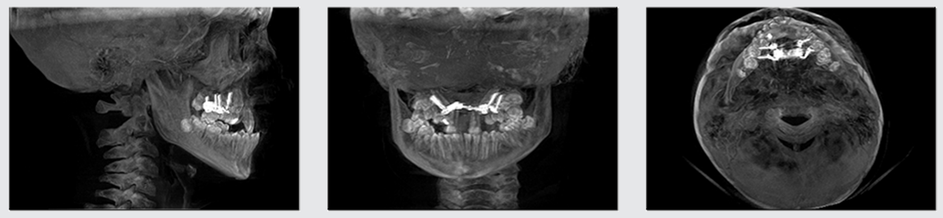
Referral of a 12 years and 6 months old boy after surgically assisted rapid palatal expansion (SARPE). The expansion device TPD (transpalatal distractor according to Umstadt) was used to widen the upper jaw.

before SARPE
6th April 2010

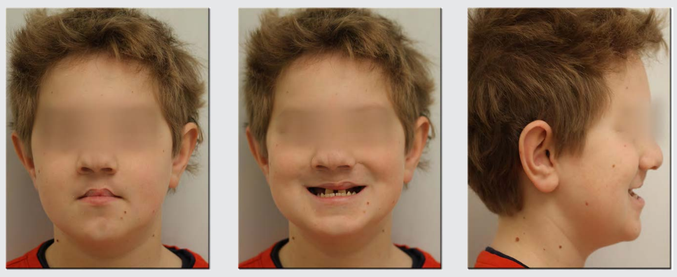


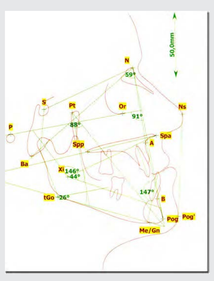
after SARPE
8th October 2012

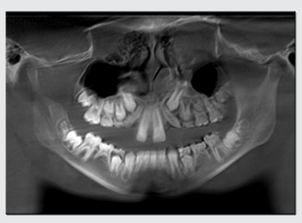




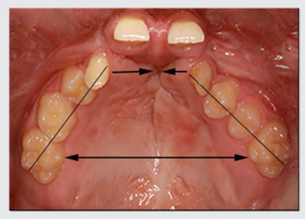
TPD in situ

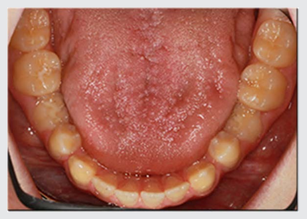


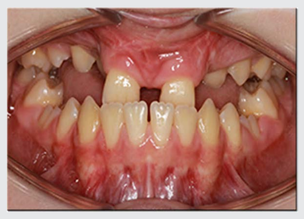


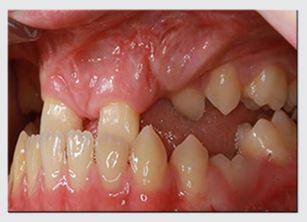


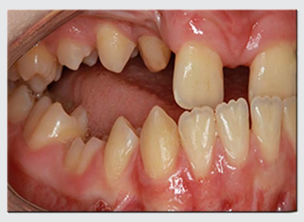
- TPD was removed
- bilateral cleft lip and palate
- alveolar cleft bone graft was carried out
- Class III skeletal relationship
- severe midface hypoplasia
- displaced upper canines
- agenesis of lower second bicuspids
- rotation of both lateral segments of the upper jaw
- rotation of upper first molars
- posterior over-expansion and anterior compression of the upper jaw





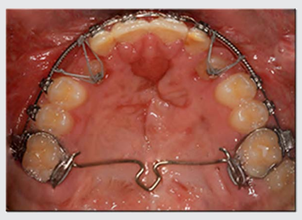


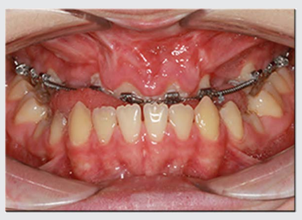


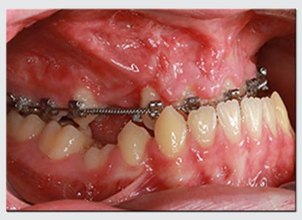


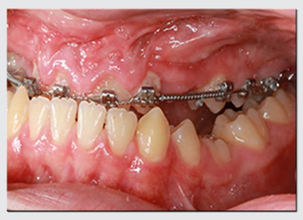
Orthodontic treatment

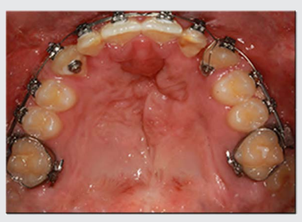
- alignment and levelling of upper dental arch with multibracket-appliance, particularly by using segmental archwires and flexible transpalatal arches

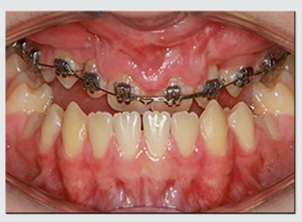


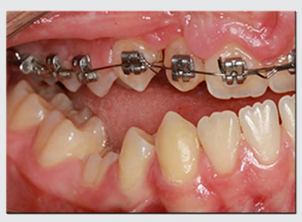


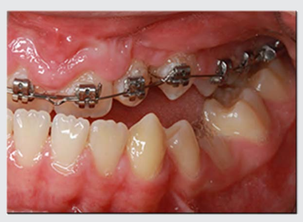


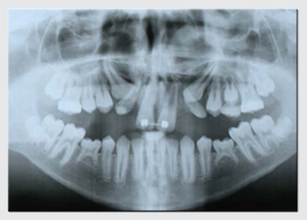


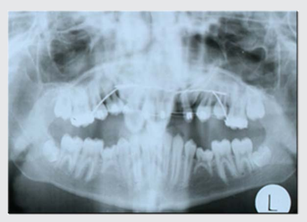






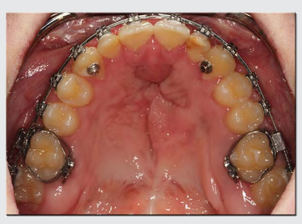


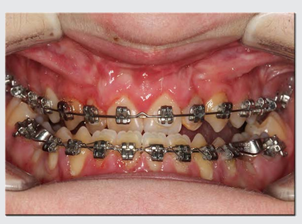


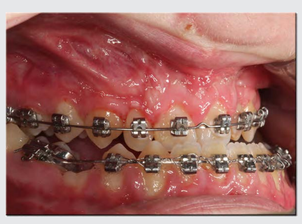


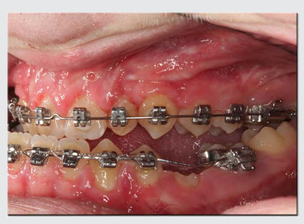
Results

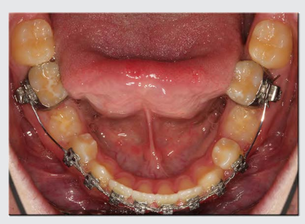
Both lateral segments could be derotated with anterior expansion and moderate posterior compression; alignment of lateral incisors in the region of cleft augmentation and alignment of palatally displaced canines was achieved. These are besides others requirements for the upcoming surgical correction of the class III.

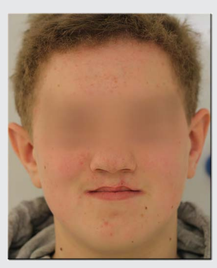


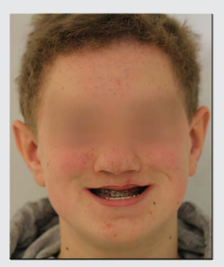


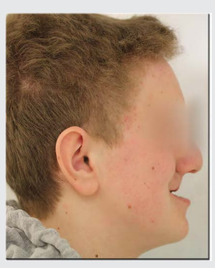












Conclusion

Bone-supported transpalatal distraction in cases of (bi-) lateral clefts often leads to rotation of the lateral segments. This can be well controlled with modified and individually adjusted orthodontic mechanics.
Based on sufficient primary bone augmentation alignment of lateral incisors and displaced canines is possible without major complications. To prevent the risk of sleep apnoea backward displacement of the lower jaw should be avoided. For that reason, only the maxillary orthognathic surgery will be carried out to correct the malocclusion.

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