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Interdisciplinary management of severe vertical deficiency following ankylosis in childhood

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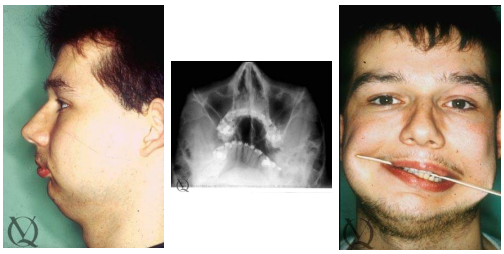
Introduction

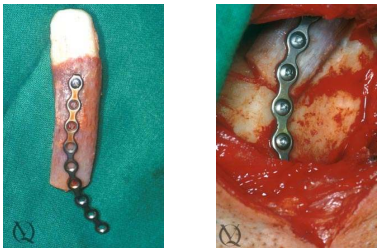
TMJ-ankylosis in early childhood, due to condylar fracture or developmental malformation results in a typical pattern of mandibular and midfacial growth deficiencies. Unilateral pathology leads to asymmetry and severe growth deficiency of the facial skeleton. While in children distraction osteogenesis has a high therapeutic potential, for adult patients the interdisciplinary team approach includes an operative release of the ankylosis, orthodontic alignment of the dental arches, reconstruction of the TMJ and adjustment of the occlusal plane by complementary maxillary and/or mandibular osteotomies.



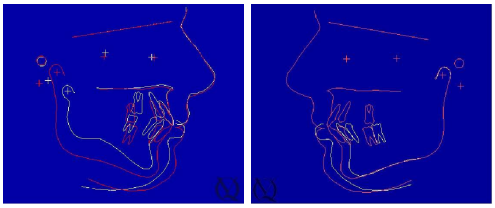
Preoperative aspect and radiograph (patient F.S.)

Material and Methods

Due to late onset of initial treatment in four patients with severe deformities as a consequence of long lasting joint malfunction, surgical reconstruction was delayed until they had fully grown up. In three out of these four cases unilateral TMJ-ankylosis occurred following condylar fractures in 2nd or 3rd year of life. After release of the ankylosis, reconstruction of the TMJ with a costochondral graft was performed in a second stage operation together with complementary osteotomies to reposition the tilted occlusal plane. Intermaxillary wire fixation was employed for about 2 weeks.



The costochondral graft can be fixed by a mini-plate to the ascending ramus. This way a very exact vertical alignment can be achieved.



Visualized treatment objectives (dentofacial planner: white=preop, red=postop)

INDIVIDUAL CASES

Patient	**F. S. (Photographs)**	**M. Y.**	**F. S.**	**H. D.**
cause of ankylosis	early fracture (2 years old)	early fracture (4 years)	early fracture (3 years)	embryopathy,
aditonal pathology	dysplastic ear		burns, scars, OSAS	dysmelia
costochondral graft	unilateral, age 22	left unilateral, age 18	unilateral, age 35	bilateral, age 30
vertical correction	13 mm	10 mm	12 mm	8 mm (bilateral)
further surgery	simultan. bimax. osteotomy contralateral sagittal split, secondary genioplasty	simultan. bimax. osteotomy, contralateral sagittal split, second. genioplasty	simultan. bimax. osteotomy, contralateral sagittal split	dental implants to stabilise vertical dimension, secondary genioplasty
Problems, **C**omplications			C: infection, loss of transplant possibly due to overloading	P: recurrent ankylosis after operation in childhood
Outcome	very good function and esthetics	very good function and esthetics	function improved, acceptable esthetics, OSAS cured	good function and esthetics

Results

En face aspects as well as profiles were markedly improved in all patients. Stable occlusion and acceptable facial symmetry was achieved in 3 out of 4 patients. All patients suffered temporary facial nerve palsy, recovering within 1 to 4 month. Preoperative alignment of the dental arches could not be achieved in one patient with considerable myofunctional habits, resulting in an increase of early functional loading of the reconstructed TMJ. In this particular case we witnessed resorption, secondary infection and finally loss of the graft.

Conclusions

We strongly believe that predictable results of TMJ reconstruction can be achieved in adult patients by costochondral grafting and simultaneous surcigal correction of the concomitant dentofacial deformities. A careful dental alignment preoperatively is mandatory not only for long-term occlusal stability but also to prevent functional overloading of the graft postoperatively.

This Poster was submitted on 04.12.99 by Dr. Ulrich Wahlmann.

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Poster Faksimile:

INTERDISCIPLINARY MANAGEMENT OF SEVERE VERTICAL DEFICIENCY FOLLOWING ANKYLOSIS IN CHILDHOOD

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Johannes Gutenberg University Mainz, Germany

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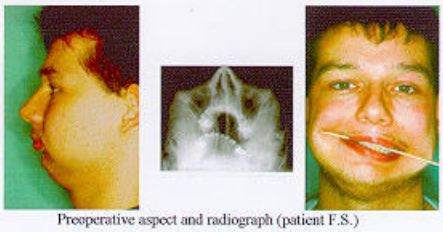

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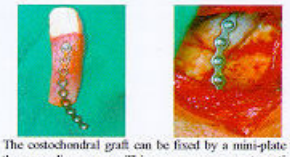

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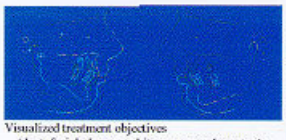

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