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## A Case Report: Orthodontic Treatment with Extraction and Dental Implant in an Adult Patient.

**Language:** English

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**Date/Event/Venue:**

17.10.2003

127. Jahrestagung der Deutschen Gesellschaft für Zahn-, Mund- und Kieferheilkunde e.V.  
Aachen, Germany

### Introduction

This case report shows an interdisciplinary treatment approach in a 27 years old Patient with upper midline deviation, crowding in lower jaw and need for restoration in regio 2.4-2.5 as chief complaint.

### Material and Methods

Midline deflection in upper jaw, aplasia 2.4 & 2.5, severe crowding in mandible and buccal non-occlusion of 3.5. The patient had a removable interim denture. She decided to undergo a comprehensive orthodontics-implantology therapy which consisted of extraction of 3 premolars and a dental implant for 2.4 after an intense consultation.

25.5.1999:

#### Consultation at the Department of Orthodontics

#### Anamnesis:

- maxillary midline deviation to the left
- rotation of the upper incisors, 1.6 mesio-labially rotated
- aplasia 2.4&2.5, space 5 mm
- crowding in lower arch especially region 3.5
- anterior open bite tendence (edge to edge)
- moderate craniomandibular dysfunction (mild headache, pressure sensibility) and patient did not want to have splint

#### Treatment planning:

- extraction 1.4, 3.5, 4.4
- max. midline correction, derotation
- increasing the overbite
- creating space in regio 2.4 for the dental implant and crown (7 mm)



Fig 1.1: 26.8 year old patient

Fig 1.2: Maxillary midline deviation to the left

Fig 1.3

Fig 1.4



Fig 1.5

Fig 1.6

Fig 1.7: Prothesa for 2.4

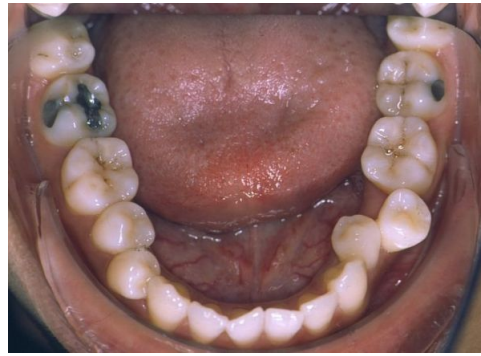


Fig 1.8: Temporary acrylic restoration for 2.4 Fig 1.9: Severe crowding regio 3.5 in situ



Fig 1.10: neutral growth pattern, shallow overbite, mild incisor proclination



Fig 1.11: situation with restorations completed, missing 2.4, 2.5

5.6.2000:

**Indirect upper & lower fixed appliance**

- indirect bonding
- 0.022" slot
- wire: Neosentalloy 0.014 light



Fig 2.1

Fig 2.2

Fig 2.3



Fig 2.4: situation after pre-therapeutic extractions

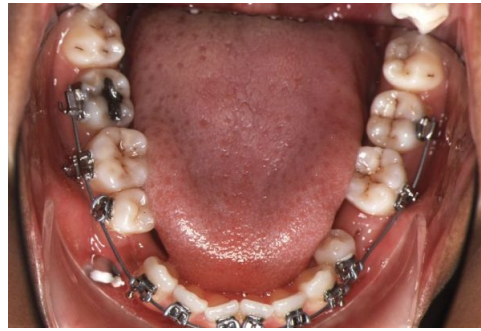


Fig 2.5: situation after pre-therapeutic extractions

21.8.2000:

**Levelling and Aligning**

- initial derotation of incisors
- progressive derotation 1.6

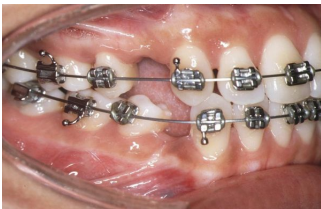


Fig 3.1



Fig 3.2

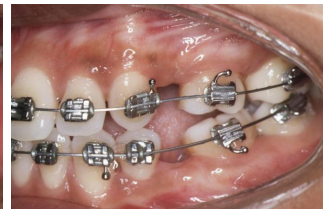


Fig 3.3



Fig 3.4

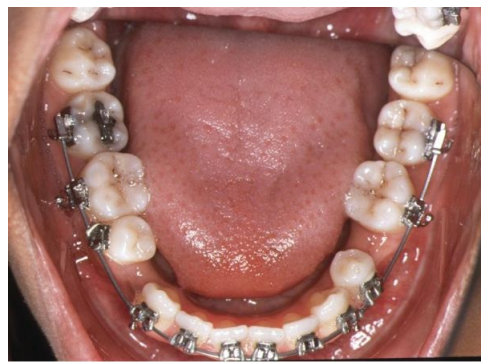


Fig 3.5

16.10.2000:

**Leading phase**

- 0.016/0.022 Stainless Steel upper and lower arch
- figure eight ligature from 1.7-1.5
- closed coil spring between 1.6-1.3
- figure eight ligature between 1.2-2.1
- Niti closed coil spring between 2.3-2.2 & 2.6-2.3





Fig 4.1

Fig 4.2: Beginning of the midline correction

Fig 4.3

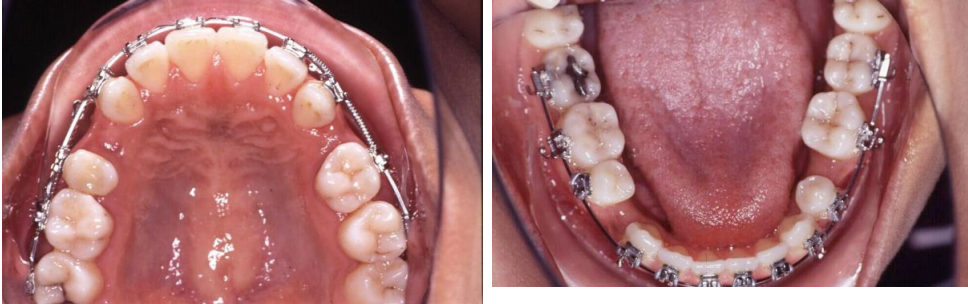


Fig 4.4: Derotation 1.1 and 2.1, Advanced derotation 1.6

Fig 4.5: lower anterior segment was formed

23.2.2001:

**Interim result**

- reshaping of upper and lower anterior segment
- closing spaces
- correcting the midline deviation
- obtaining 7 mm of space in region 2.4/2.5



Fig 5.1

Fig 5.2: Midline correction still incomplete

Fig 5.3



Fig 5.4: Maxillary midline deviated to the right Space between 2.2-2.3

Fig 5.5: space closure continued



Fig 5.6

8.1.2002:

**Finishing and debonding**

- derotation of upper and lower anterior segment
- space was closed
- midline deviation was corrected
- retention of the 7 mm space regio 2.4/2.5
- vacuum formend retainer (with pontic for 2.4) was fitted

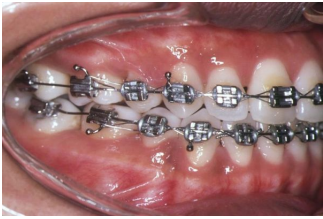


Fig 6.1



Fig 6.2



Fig 6.3



Fig 6.4

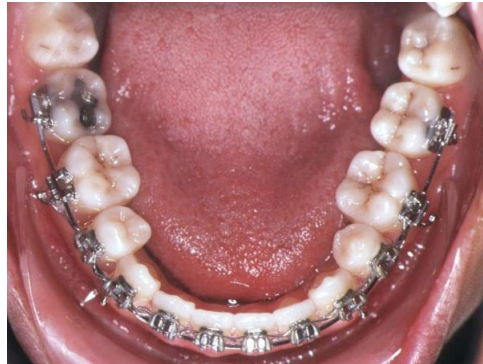


Fig 6.5



Fig 6.6: normal overbite, slightly reclined incisors



Fig 6.7: after debonding



Fig 6.8



Fig 6.9



Fig 6.10





Fig 6.11

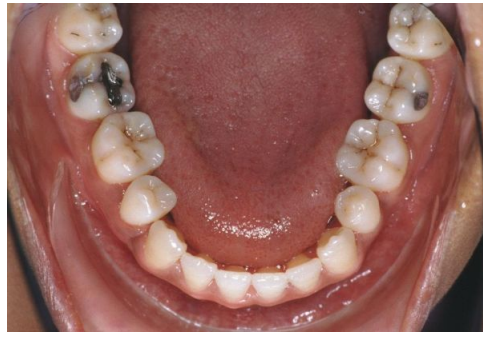


Fig 6.12

25.3.2002:

**Dental Implant**

- ITI-Implant for regio 2.4/2.5
- Diameter : 4.1 mm
- Length : 12 mm



Fig 7.1:dental Implant intraoperative

Fig 7.2

Fig 7.3

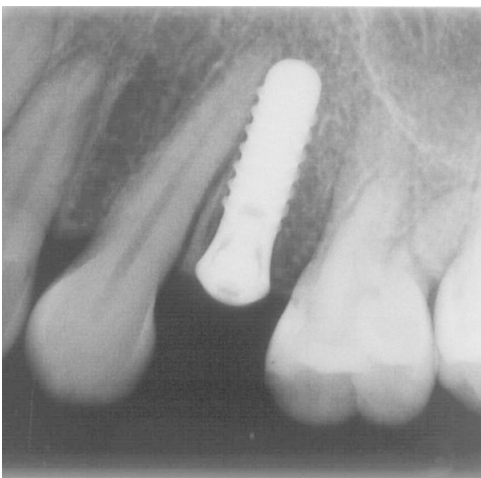


Fig 7.4: dental film post-operative

5.8.2002:

**End of treatment**

- crown for 2.4 in situ
- bonded lingual canine-to-canine retainer for lower front teeth



Fig 8.1

Fig 8.2: Midline corrected

Fig 8.3: Supra construction for 2.4 was fitted



Fig 8.4: Space closed

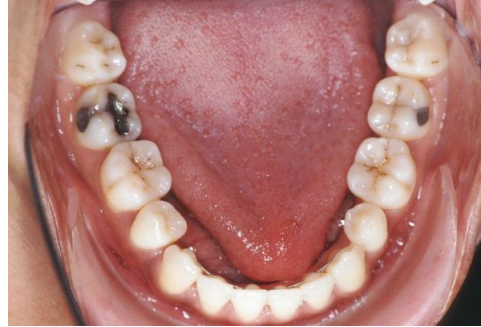


Fig 8.5: Lingual retainer bonded to 6 teeth indirectly



Fig 8.6

## Results

The upper midline deviation was corrected in 21 months using a fixed appliance and space for the dental implant regio 2.4 was created. The crown was fitted 4 months after the insertion of the implant. Vacuum formed retainer with occlusal adjustment in upper jaw and bonded lingual retainer in lower jaw were used to stabilize the result.

## Conclusions

Extensive tooth movement can also be carried out in adult patient. A multidisciplinary treatment requires a good cooperation of several departments.

## Literature

1. Drago CJ. Use of osseointegrated implants in adult orthodontic treatment: a clinical report. J Prosthet Dent. 1999 Nov;82(5):504-9.
2. Fowler PV. Long-term treatment planning for single tooth implants: an orthodontic perspective. Ann R Australas Coll Dent Surg. 2000 Oct;15:120-1.
3. Renouard F, Nguyen-Gauffre MA. Implants and orthodontics. Orthod Fr. 1997;68(1):161-70. French.
4. Thilander B, Odman J, Lekholm U. Orthodontic aspects of the use of oral implants in adolescents: a 10-year follow-up study. Eur J Orthod. 2001 Dec;23(6):715-31.

*This Poster was submitted by Dr. Karl-Ludwig Mischke.*

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**K.-L. Mischke<sup>1</sup>, M.D. Weltermann<sup>1</sup>, U. Ehmer<sup>1</sup>, J. Kleinheinz<sup>2</sup>**



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**Question**

This case report shows an interdisciplinary treatment approach in a 27 years old patient with upper midline deviation, crowding in lower jaw and need for restoration in regio 2.4-2.5 as chief complaint.

**Material & Method**

Anamnesis: Midline deflection in upper jaw, aplasia 2.4 & 2.5, severe crowding in mandible and buccal non-occlusion of 3.5. The patient had a removable interim denture. She decided to undergo a comprehensive orthodontics-implantology therapy which consisted of extraction of 3 premolars and a dental implant for 2.4 after an intense consultation.

<p>25.5.1999</p> <p><b>Consultation at the Department of Orthodontics</b></p> <p><b>Anamnesis:</b></p> <ul style="list-style-type: none"> <li>- maxillary midline deviation to the left</li> <li>- rotation of the upper incisors, 1,6 mesio-labially rotated</li> <li>- aplasia 2.4&amp;2.5, space 5 mm</li> <li>- crowding in lower arch especially region 3.5</li> <li>- anterior open bite tendency (edge to edge)</li> <li>- moderate craniomandibular dysfunction (mild headache, pressure sensibility) and patient did not want to have splint</li> </ul> <p><b>Treatment planning:</b></p> <ul style="list-style-type: none"> <li>- extraction 1.4, 3.5, 4.4</li> <li>- max. midline correction, derotation</li> <li>- increasing the overbite</li> <li>- creating space in regio 2.4 for the dental implant and crown (7 mm)</li> </ul>	<p>35.8 year old patient</p> <p>Maxillary midline deviation to the left</p> <p>Chief complaint: Mandibular crowding and midline discrepancy</p> <p>reversal growth pattern: shallow overbite, mild incisor protrusion</p> <p>Temporary acrylic restoration for 2.4 in situ</p> <p>Severe crowding regio 2.5</p> <p>Prostheses for 2.4</p> <p>situation with restorations completed &amp; missing 2.4, 2.5</p>
<p>5.6.2000</p> <p><b>Indirect upper &amp; lower fixed appliance</b></p> <ul style="list-style-type: none"> <li>- indirect bonding</li> <li>- 0.022" slot</li> <li>- wires: Neosentalloy 0.014 light</li> </ul>	<p>situation after pre-therapeutic extractions</p>
<p>21.8.2000</p> <p><b>Levelling and Alligning</b></p> <ul style="list-style-type: none"> <li>- initial derotation of incisors</li> <li>- progressive derotation 1,6</li> </ul>	
<p>16.10.2000</p> <p><b>Loading phase</b></p> <ul style="list-style-type: none"> <li>- 0.016/0.022 Stainless Steel upper and lower arch</li> <li>- figure eight ligature from 1.7-1.5</li> <li>- closed coil spring between 1.6-1.3</li> <li>- figure eight ligature between 1.2-2.1</li> <li>- Nit closed coil spring between 2.3-2.2 &amp; 2.6-2.3</li> </ul>	<p>beginning of the midline correction</p> <p>Derotation 1.3 and 2.1</p> <p>Advanced derotation 1.6</p> <p>lower anterior segment was formed</p>
<p>23.2.2001</p> <p><b>Interim result</b></p> <ul style="list-style-type: none"> <li>- reshaping of upper and lower anterior segment</li> <li>- closing spaces</li> <li>- correcting the midline deviation</li> <li>- obtaining 7 mm of space in region 2.4/2.5</li> </ul>	<p>Interim correction via intercuspal</p> <p>Maxillary midline deviated to the right</p> <p>Space closure continued</p>
<p>8.1.2002</p> <p><b>Finishing and debonding</b></p> <ul style="list-style-type: none"> <li>- derotation of upper and lower anterior segment</li> <li>- space was closed</li> <li>- midline deviation was corrected</li> <li>- retention of the 7 mm space regio 2.4/2.5</li> <li>- vacuum formed retainer (with pontic for 2.4) was fitted</li> </ul>	<p>normal overbite</p> <p>slightly retracted incisors</p> <p>after debonding</p>
<p>25.3.2002</p> <p><b>Dental Implant</b></p> <ul style="list-style-type: none"> <li>- ITI-implant for regio 2.4/2.5</li> <li>- Diameter : 4.1 mm</li> <li>- Length : 12 mm</li> </ul>	<p>dental implant intraoperative</p> <p>dental film post-operative</p>
<p>5.8.2002</p> <p><b>End of treatment</b></p> <ul style="list-style-type: none"> <li>- crown for 2.4 in situ</li> <li>- bonded lingual canine-to-canine retainer for lower front teeth</li> </ul>	<p>Midline corrected</p> <p>Space correction for 2.4 was fixed</p> <p>Upper and lower arch finished</p> <p>Space closed</p> <p>Lingual retainer bonded to 6 teeth indirectly</p>

**Result**

The upper midline deviation was corrected in 21 months using a fixed appliance and space for the dental implant regio 2.4 was created. The crown was fitted 4 months after the insertion of the implant. Vacuum formed retainer with occlusal adjustment in upper jaw and bonded lingual retainer in lower jaw were used to stabilize the result.

**Conclusion**

Extensive tooth movement can also be carried out in adult patient. A multidisciplinary treatment requires a good cooperation of several departments.

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