Author's response to reviews

Title: Micrognathia with temporomandibular joint ankylosis and obstructive sleep apnea treated with mandibular distraction osteogenesis using skeletal anchorage: a case report

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Author’s response to reviews:

[July 18, 2017]

Dr Thomas Stamm, Prof Ulrich Meyer & Prof Hans Peter Wiesmann
Editors-in-Chief
Head & Face Medicine

Dear Editors-in-Chief:

Thank you very much for your letter, dated June 20, 2017, with regard to our manuscript “Micrognathia with temporomandibular joint ankylosis and obstructive sleep apnea treated with mandibular distraction osteogenesis using skeletal anchorage: a case report”. We also thank the reviewers for their careful assessment of our manuscript and for their useful comments and suggestions. According to these comments, we have amended our manuscript. Please see the uploaded version of our revised manuscript.

We have responded to the suggestions provided by the reviewers in the following section.

Responses to the specific comment of reviewers
Reviewer #2 comment 1: The authors mentioned in the case presentation that (Anamnesis suggested that her trismus was due to TMJ ankylosis. She had undergone bilateral mobilization of the TMJ at the age of 2 years) What is the cause of ankylosis at this early age (less than 2 years old), is it congenital fusion of the mandible to maxilla? When her parents noticed that she can't able to open her mouth? Is there history of birth trauma? Is there history of trauma, or falling in early months after birth?

Response: According to the reviewer’s suggestion, we have added information regarding the patient’s medical history on page 5, line 16 in the Diagnosis and etiology section as follows: “She showed poor sucking reflex from just after birth and mandibular retrognathia was observed by her mother at 6 months of age, although she had no obvious traumatic history. She was also diagnosed with congenital dislocation of the hip joint at 8 months of age.”

Reviewer #2 comment 2: The authors mentioned her maximum mouth opening was 5.0 mm but the authors still can take intraoral pictures for the upper and lower jaw with aid of intraoral mirror. the intraoral pictures showing the lower and upper second molar teeth. Which indicate the mouth opening was larger than 5.0mm. (Fig 1)

Response: Thank you for pointing this out. We have corrected Fig 1 showing the maximum mouth opening on the initial photograph, which was separated from the photographs taken after bilateral condylectomy.

Reviewer #2 comment 3: The treatment alternatives should be moved to the discussion

Response: We agree and have moved the description of the Treatment alternatives to the Discussion section.

Reviewer #2 comment 4: The details about surgical mobilization of the ankylosis should be mentioned? The nature of the surgery? The surgical approach? The amount of the resected bone from the condyle? The effect of surgery on the occlusion and open bite?

Response: In accordance with the reviewer’s suggestion, we have revised and added a description of the surgical mobilization on page 7, line 17 in the Treatment procedure as follows: “Before orthodontic treatment, the patient underwent interpositional arthroplasty. Briefly, interposition of fascia temporalis and surrounding fat tissue was inserted into the defect after bilateral condylectomy. Bilateral condylar bone was resected at a width of 8 mm at the level of incisura of the mandible. Intra- and postoperative incisal opening of more than 30 mm, and no obvious occlusal changes, were confirmed (Fig. 1)”.

Reviewer #2 comment 5: The period of the preoperative orthodontic treatment and the time of insertion of the distraction device after extraction of the third molars should be mentioned?

Response: We have added information regarding the preoperative orthodontic treatment period and the time of insertion of the distraction device after extraction of the third molars on page 8, line 12 and page 8, line 16 in the Treatment procedure as follows: “The preoperative orthodontic
treatment period was 1 year and 7 months.” and “After extraction of the third molars at 1 year and 9 months, mandibular DO was performed … the mandible, bilaterally (Fig. 3).”

Reviewer #2 comment 6: The authors mentioned that they applied mini-plates between the canines and the premolars without mentioned why not use mini-screws like the upper jaw?

Response: According to the reviewer’s suggestion, we have added an appropriate description on page 9, line 8 in the Treatment procedure as follows: “Furthermore, miniplates (25.0 mm in length; Dentsply, Tokyo, Japan) were implanted between the canines and premolars in the mandibular region of the anterior alveolar bone because the interradicular spaces of these areas on both sides appeared to be narrow on a panoramic radiograph.”

Reviewer #2 comment 7: The nature of the osteotomy for the distraction should be mentioned either corticotomy or corticotomy because the authors mentioned neurosensory disturbance of the inferior alveolar nerve did not occur after advancement of the mandible.

Response: We have added a description of the nature of the osteotomy in detail on page 9, line 2 in the Treatment procedure as follows; “First, a buccal vertical corticotomy was made using a Lindemann bur in the third molar region without exposure of the inferior alveolar nerve. After removal of the adapted distractor, the osteotomy was completed by fracture of the lingual cortex. Finally, Smith forceps were inserted into the buccal osteotomy and mobilization was then confirmed.”

Reviewer #2 comment 8: Why the authors did body distraction with intraoral uni-directional distractor while better results can be obtained with multidirectional distractor to increase the length of the mandibular ramus?

Response: As reviewer suggested, we have added a consideration of increasing the length of the mandibular ramus on page 12, line 15 in the Discussion. In addition, when we considered the surgical procedures during treatment planning, we confirmed that increasing the length of the mandibular ramus requires the performance of Le Fort I osteotomy in the maxilla because the changes in occlusal plane inclination in the mandible due to ramus lengthening lead to open bite occlusion in the molar region. We decided that mandibular DO with sliding genioplasty was capable of improving the facial appearance, oral function, and respiratory function, avoiding invasive treatment of maxilla.

Reviewer #2 comment 9: pre-operative airway volumes should be add to figure 9 for comparison 10-what was the interincisal mouth opening at the end of the treatment?

Response: We have added Table 4 presenting pharyngeal airway measurements. In addition, we confirmed that the patient was able to open her mouth more than 30 mm at the final follow-up. We have added this description on page 12, line 2 in the Treatment outcomes as follows: “There was no obvious bone resorption or pain in the temporomandibular region, limited mouth opening (maximum mouth opening: 33.0 mm), myofascial pain or headache, … at 5 years and 6 months after mandibular DO.”
Reviewer #3 comment: Abstract Case presentation: Should state surgical method how to mobilize the TMJ. Also should state amount of advancement and follow up period in abstract. And mention that stability has been assessed. I suggest to support their results with previous studies or case reports reported using of DO in TMJ ankylosis with micrognathia plus OSA. What about patients consent for the photo?

Response: In accordance with the reviewer’s suggestion, we have revised our description of the surgical mobilization on page 7, line 17 in the Treatment procedure as follows: “Before orthodontic treatment, the patient underwent interpositional arthroplasty. Briefly, an interposition of fascia temporalis and surrounding fat tissue was inserted into the defect after bilateral condylectomy. Bilateral condylar bone was resected at a width of 8 mm at the incisura level of the mandible. Intra- and postoperative incisal opening of more than 30 mm, and no obvious occlusal changes, were confirmed (Fig. 1).” In addition, we have added information regarding the amount of advancement, follow-up period, and stability in the abstract. We can confirm that informed consent for use of the patient photographs was obtained. Furthermore, we have cited a relevant article that reported the use of DO in TMJ ankylosis with micrognathia plus OSA (Reference 7).