EXECUTIVE SUMMARY

MRS-TITAN Comfort

PETER BREHM
Die Präzision in Titan
für den Menschen

Publication	**[Retrospective evaluation of the first short-term results after using a new acetabular cup implant for acetabular defect reconstruction.]** Retrospektive Evaluation der ersten Kurzzeitergebnisse nach Verwendung eines neuen Pfannenimplantates zur acetabulären Defektrekonstruktion. Wacker M. Hospital for Orthopaedics and Trauma Surgery, Medical Faculty of the Friedrich-Wilhelms-University of Bonn (Germany), thesis, 2021 https://eltab.ub.uni-kl.de
Study	Retrospective, monocentric cohort study
Implant	Cementless modular revision cup MRS-TITAN Comfort (PETER BREHM GmbH)
Patients	n=42, including 25 female (59.5%) and 17 male (40.5%) Ø age: 68 years (34-86 years) Ø body weight: 81.67 kg (± 19.62 kg) Ø height: 168.38 cm (± 8 cm) Ø BMI: 28.62 kg/m^2 (± 5.93 kg/m^2). This corresponds to preadiposity (WHO 2019).
Follow-up	The mean follow-up duration was 15.41 months (range, 10-28).
Methods	42 patients who underwent cup revision with the MRS-TITAN Comfort revision cup at Bonn University Hospital between 2013 and 2015 were included in the study. In this patient group, 13 patients (31%) had already undergone a revision surgery at least once. The average service life of the revision cups was 9.04 years (±8.27 years). In 18 patients (42.9%) the right hip joint was treated, in 24 cases (57.1%) the left hip joint. At least one revision of the affected hip was performed in 13 patients (31%). The most frequent indication for revision was aseptic loosening (n=29, 69%). Septic loosening of the prosthesis was present in 7 cases (17%), which resulted in multiple surgeries. In 40 patients, the defect classification according to Paprosky was available. Hip revisions with acetabular bone defects type IIIb according to Paprosky were performed most frequently (n=12, 30%), followed by type IIc (n=7, 17.5%), type IIb (n=6, 15%) and type IIa (n=4, 10%). In 52% of the revisions, an A-augment was used.In 38% of the cases (n=16), the socket component was also changed.

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Methods	Postoperative data collection could not be performed in 4 patients (12.5%). The evaluation of the clinical data could be performed in 22 patients in the defined follow-up period of at least 10 months. The clinical evaluation was performed using established scores and classifications: ASA classification, Charlson comorbidity index (CCI), Charnley classification (type A-C), HHS. Peri- and postoperative complications were recorded. The classification according to Sink was used to assess postoperative complications. The range of motion (ROM) was measured. In addition, a radiological evaluation of the acetabular cup position was performed pre- and postoperatively. The radiological images were assessed in 18 patients. The osseointegration or lysis margins according to DeLee zones, periarticular ossifications according to the Brooker classification and the reconstruction of the centre of rotation were assessed.
Results	ASA score 2 (mild pre-existing conditions) was assigned most frequently (55%). The Charlson comorbidity index was 0 for the majority of patients (57%), indicating no increased mortality risk within the next 10 years due to pre-existing conditions. The majority of patients (54.8%) were classified as type A of the Charnley classification. This means that apart from the operated hip, no other factors influenced the walking ability. **Improved mobility** in the postoperative course was recorded. **The HHS improved highly significantly from 49.5 points preoperatively to 78.2 points postoperatively (p< 0.0001). With an increase of 112%, the improvement in the category "pain" was particularly pronounced.** The radiological evaluation in the pre- and postoperative comparison showed a **good reconstruction of the centre of rotation, independent oft he defect size according to Paprosky.** **No implant-associated complications** occurred in the postoperative follow-up. Screw misplacements (18.2%), loosening of the insert in one case (4.%%), prolonged femoralgia (18.2%) and recurrent dislocation (9.1%) were observed. Of the 4 cases with screw misplacement, 3 were among the first revision cup implantations performed in 2013. The probable reason given for the screw misplacements was not yet sufficient knowledge of the surgeons when implanting the revision cup. The screw was removed or repositioned in 3 cases. In one case the revision cup was changed. In 2 cases, the strap broke, resulting in reduced anchorage of the revision cup in zone III according to DeLee. The author emphasises that in all postoperative complications there was no association with the revision cup. **Correct bony anchorage of the revision cup was achieved in 83% of the cases**. The author positively emphasises that distal migration did not occur in any case and migration in the horizontal plane was also significantly less frequent. **The survival rate was 95.7% after an average of 15.41 months.**

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Key Points	The cementless modular revision cup MRS-TITAN Comfort showed **good results compared to other established revision cups**, and offers **"an unprecedented level of customisation, accordingly defect reconstructions can be done more individually and therefore more accurately than with other cup prostheses".** The MRS-TITAN Comfort revision cup proved to be an **effective treatment option** in this patient population, **coupled with the ability to reconstruct the anatomical hip rotation centre.** At the time of the study, only the A augment was implanted. In the meantime, 3 different augments (A, B, C) are available for the revision cup. The optimal combination of the revision cup with an augment allows for the enlargement of the bony contact area and a better individual adaptation. The MRS-TITAN Comfort revision cup can be used in **patients with allergy to bone cement**.
Abbreviations	ASA – American Association of Anaesthesiologists, HHS – Harris Hip Score, ROM – Range of Motion

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