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Titel des Beitrags:
A matched-pair comparison of two different locking plates for valgus-producing medial open-wedge high tibial osteotomy: peek-carbon composite plate versus titanium plate.

Abstract:
The first purpose of this study was to compare the clinical and radiographic outcome of two different locking plates used for valgus-producing medial open-wedge high tibial osteotomy (HTO). The second purpose was to histologically evaluate peak-carbon wear for biocompatibility. Twenty-six consecutive patients undergoing open-wedge HTO using the first-generation PEEKPower HTO-Plate(®) (Group I) were matched with 26 patients after open-wedge HTO with the TomoFix(TM) plate (Group II). Clinical scores (visual analogue scale for pain, WOMAC, Lysholm score) were obtained preoperatively and at a minimum follow-up of 24 months postoperatively. Fixation stability was evaluated radiographically by comparing the medial proximal tibial angle (MPTA) and tibial slope 2 days after open-wedge HTO and after implant removal. Tissue samples of Group I were collected at the time of implant removal for histologic evaluation. Implant-related complications occurred in 15 % (n = 4) of Group I and 0 % of Group II. Out of them, 3 implant replacements were excluded from statistical analyses. After a final median follow-up of 25 months (range 24-31), the clinical scores in both groups showed significant improvements compared to preoperatively (visual analogue scale,
WOMAC, Lysholm score; p< 0.001), without significant group differences (visual analogue scale, n.s.; WOMAC, n.s.; Lysholm score, n.s.). No significant differences between baseline and follow-up measurements for MPTA and tibial slope were observed within each group (MPTA: Gr. I, n.s.; Gr. II, n.s.; tibial slope: Gr. I, n.s.; Gr. II, n.s.) or between the two groups (MPTA, n.s.; tibial slope, n.s.). In histologic samples, CF PEEK abrasion did not induce inflammation or tissue necrosis. The first-generation PEEKPower HTO-Plate® provided a higher rate of implant-related complications compared to the TomoFix(TM) plate at a minimum follow-up of 24 months after valgus-producing open-wedge HTO. Therefore, it is not recommended to use the first-generation PEEKPower HTO-Plate® in the clinical practice. III.