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Critical Comments and Questions Regarding the Article "Serial Assessment of Weight-Bearing Lower Extremity Alignment Radiographs After Open-Wedge High Tibial Osteotomy"

To the Editor:

It was with great interest that we read the article "Serial assessment of weight-bearing lower extremity alignment radiographs after open-wedge high tibial osteotomy" by Lee et al.¹ in the March 2014 issue of *Arthroscopy*. We have some comments and questions regarding the methods, figures, discussion, and conclusions.

The authors described in the Methods section how they used the TomoFix plate (DePuy Synthes Raynham, MA) and 6.5 mm screws for fixation. First, all figures (Figs 1, 2 and 3 in their article) show different

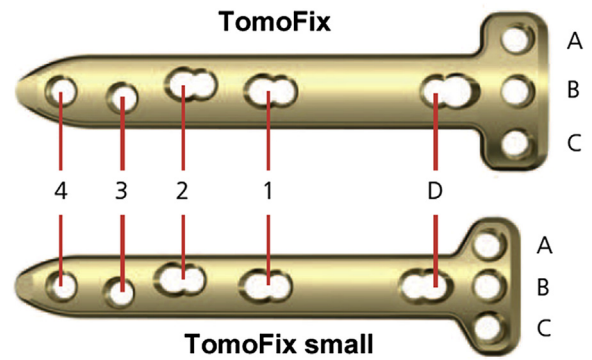


Fig 1. Top, TomoFix plate. Bottom, TomoFix small. Holes A through C and 3 and 4 are for 5.0 locking screws. Holes D, 1, and 2 are locking compression holes for 4.5/5.0.

plates. We think that Fig 1 in their article shows a 4.5/5.0 T-plate with nonlocking screws; Figs 2 and 3 in their article show a totally different plate, which is not a TomoFix plate (it has 4 holes in the proximal part and 4 in the distal part, and the shape of the proximal T-part is straight). Second, if one uses the TomoFix plate, using a 6.5 screw would not be possible in holes A through C and holes 3 and 4 (Fig 1). These holes are locking holes for a 5.0 locking screw. The TomoFix plate was developed for a special biplanar surgical open-wedge HTO technique. Why did Lee et al.¹ perform a single-plane technique? Which plates did they use in their study? Different plates? Again, they described the TomoFix for fixation, and in the figures, they showed 2 different plates. Can the authors explain that? They described a



Fig 2. Anteroposterior-view radiograph of left knee after open-wedge HTO without bone graft in a biplanar technique at 6 months' follow-up.

loss of correction after open-wedge HTO, but in the Discussion section, there was no explanation of that finding. Could it be possible that they used nonlocking screws and not the TomoFix plate but a different plate? If so, their observation is understandable. The stability of the fixation depends on the implant. Different biomechanical studies describe how important the fixation system is for stability.^{2,3} Brinkman et al.⁴ described in a radiostereometric analysis that early full weight bearing is possible with the TomoFix plate without loss of correction. For nonlocking plates with less stability, a biplanar technique would be an advantage.⁵

Therefore we do not agree with the conclusion. We suggest that the following statement would be more correct: "The WBL shifts after open-wedge HTO in a single-plane technique using nonlocking screws and bone graft in the first year medially."

We recommend the use of a locking compression plate (TomoFix, Solothurn, Switzerland) in conjunction with 5.0 locking screws with the modified technique described by Staubli et al. (Fig 2).⁶ The biplanar ascending cut should be at an angle of 110° to the transverse cut without bone graft.

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Author's Reply

We read the letter to the editor by Schröter and Ateschrang with great interest and thanks for their thoughtful consideration and questions about our article "Serial assessment of weight-bearing lower extremity alignment radiographs after open-wedge high tibial osteotomy." They mentioned the TomoFix plate in relation to our figures and methods. First, we are in agreement with them about the TomoFix: 6.5-mm screws cannot be used in holes A through C and holes 3 and 4. Second, the materials for this study were collected retrospectively and from multiple centers from 2007 to 2011. All surgeons performed the osteotomy using a similar technique in relation to the pes anserinus and medial collateral ligament, osteotomy method, and osteotomy level. However, the fixation materials and graft materials were chosen according to the surgeons' preferences. The figures we used in our report were chosen to show and to maximize the phenomenon of weight-bearing line shift after high tibial osteotomy (HTO). In this series, the bony correction loss was minimal and has been reported.¹ The only remarkable changes were loss of valgus instability at the last follow-up compared with the instability immediately after surgery. Therefore we thought that the correction loss was not due to bony collapse but to reduced medial instability, which made us disagree with the late progression of valgus alignment after HTO.² Third, we agree with the authors' statement about the nonlocking plates. The results of our study may be derived from the data collected from multiple centers with different plates. Because we are aware of the characteristics of the TomoFix plate, we will keep collecting data to evaluate whether the result differs when only TomoFix with biplanar osteotomy is performed. Fourth, regarding our conclusion, because the results of this study include locking and nonlocking plates from different hospitals, we think the authors' suggestions about the conclusion may not comply with our results. The ongoing studies we are working on may provide evidence for these questions in the future.

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