



Caruso G, Bonomo M, Valpiani G, et al. A six-year retrospective analysis of cut-out risk predictors in cephalomedullary nailing for pertrochanteric fractures: can the tip-apex distance (TAD) still be considered the best parameter? *Bone Joint Res* 2017;6:481-488.

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Sir,

We read this paper with great interest.¹

A novel parameter could be utilised to guide ideal placement of a lag screw during cephalomedullary nailing and then accurately measure the distance intra-operatively. With a large case series, the authors provided clinical evidence that the previous 25 mm TAD and CalTAD cut-off value should be modified and replaced with 30.7 mm and 37.3 mm, respectively. However, the new values may not be as good as the authors claim.

Using the mathematical finite model as described in our previous paper,² and the new cut-off values provided by Caruso et al, we determined the lag screw tip zone for the cephalomedullary nail measuring with TAD and CalTAD in pertrochanteric fractures.

The volume ratios of TAD and CalTAD (head diameter = 47 mm, cervical-diaphyseal angle = 135°) relative to the femoral head volume were 4.1% and 13.6% against 3.2% and 4.9%, respectively. Meanwhile, we looked at the new zone and the modified Cleveland system (the central and two peripherals) and attempted to establish the relationship between them. The zone of TAD is in the minority of the central part and a majority of the peripherals, especially close to the femoral head apex, while the CalTAD takes up a larger area than TAD. In this sense, the TAD can lead to the original goal of as central and as deep as possible.

The TAD concept, first introduced by Baumgaertner et al,^{3,4} has been the preferred method for predicting screw cut-out through intertrochanteric femoral fractures for about 20 years. However, mechanical failures such as cut-out were encountered and imperfect results were reported up to 5.6% in this current study. Our experience showed that blade tip-apex distance was less than 20 mm or even 15 mm for the insertion mode and morphological design.⁵ Above all, increased efforts to protect the femoral head blood supply during surgery, such as drilling and placing implants as centrally and as deep as possible, may be helpful in reducing the effect of iatrogenic injury of the vascular system.⁶

In conclusion, the 25 mm TAD threshold should be retired, but rather than introduce a new value measuring scheme with a more lenient target zone, centro-central or low-central placement with a TAD and CalTAD of less than 25 mm is fairly easy to achieve, and will not cut out.

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1. **Caruso G, Bonomo M, Valpiani G, et al.** A six-year retrospective analysis of cut-out risk predictors in cephalomedullary nailing for pertrochanteric fractures: can the tip-apex distance (TAD) still be considered the best parameter? *Bone Joint Res* 2017;6:481-488.
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Conflict of Interest: None declared