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LETTER TO THE EDITOR

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# Letter to editor regarding "The morphology of the proximal femur in cementless short-stem total hip arthroplasty: no negative effect on offset reconstruction, leg length difference and implant positioning"

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Dear Editor,

Recently, we read with great interest the article "The morphology of the proximal femur in cementless short-stem total hip arthroplasty: No negative effect on offset reconstruction, leg length difference and implant positioning" by Luger et al. [1]. We much appreciate the authors' work in this field; however, we have some of our concerns regarding the article and would like to discuss them with the authors.

Firstly, Dorr and Noble classification are the most classical classification standards for anatomical shape of the proximal femur [2, 3]. The authors reported that the anatomical shape of the proximal femur was determined according to the Dorr classification by two reviewers. As we all know, the classical Dorr classification is judged by the visual judgment according to the reviewers. However, several reports [4–6] have shown that the proximal femoral shape can be grouped according to the femoral cortical index (FCI): > 0.6 were Dorr type A, ≤ 0.6 and ≥ 0.5 were Dorr type B, and < 0.5 were Dorr type C. Why not use a more objective and quantifiable method than visual judgment? Noble classification [3] is also a good choice.

Secondly, leg length difference (LLD) after total hip arthroplasty (THA) does not only mean lengthening of operative limb, but also the shortening of operative limb. Lim et al. [4] conducted statistical analysis was made not only for LLD > 5 mm or > 10 mm, but also for LLD < -5 mm or < -10 mm. However, in the authors' report, logistic regression for LLD ≥ 5 mm or ≥ 10 mm showed no difference in Dorr type and concluded that proximal femur morphology had no negative effect on LLD. We don't think this conclusion is appropriate. Whether the LLD in the author's article stands for lengthening, shortening, or absolute value, it would be better to discuss it separately.

Finally, the postoperative LLD was least obvious in Dorr A and most obvious in Dorr C. This is the opposite of what previous studies have shown [4, 7, 8]. However, we found no explanation or discussion of this phenomenon in the discussion section of this article.

**Abbreviations**

FCI: Femoral cortical index; LLD: Leg length difference; THA: Total hip arthroplasty.

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**Author contributions**
JM and JL analyzed the data and were the major contributor in writing the manuscript; LC, KS, and HY were contributors in writing the manuscript; HF was responsible for reviewing and editing the manuscript. All authors read and approved the final manuscript.

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**Availability of data and materials**
All data generated or analyzed during this study are included in this published article.

## Declarations

**Ethics approval and consent to participate**
Not applicable.

**Consent for publication**
Not applicable.

**Competing interests**
The authors declare that there are no competing interests.

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**References**

1. Luger M, Feldler S, Klasan A, Gotterbarm T, Schopper C. The morphology of the proximal femur in cementless short-stem total hip arthroplasty: no negative effect on offset reconstruction, leg length difference and implant positioning. J Orthop Surg Res. 2021;16:730.
2. Dorr LD, Faugere MC, Mackel AM, Gruen TA, Bognar B, Malluche HH. Structural and cellular assessment of bone quality of proximal femur. Bone. 1993;14:231–42.
3. Noble PC, Alexander JW, Lindahl LJ, Yew DT, Granberry WM, Tullos HS. The anatomic basis of femoral component design. Clin Orthop Relat Res. 1988;235:148–65.
4. Lim YW, Huddleston JI 3rd, Goodman SB, Maloney WJ, Amanatullah DF. Proximal femoral shape changes the risk of a leg length discrepancy after primary total hip arthroplasty. J Arthroplasty. 2018;33:3699–703.
5. Ma JM, Lu HL, Chen XX, Yang X, Wang Q. Impact of proximal femoral shape on leg length discrepancy after total hip arthroplasty. Zhongguo Gu Shang. 2021;34:641–5.
6. Yongkang C, Xizhuang B. Effects of proximal femoral shape on leg length discrepancy after total hip arthroplasty. Chin J Bone Joint. 2019;8:920–4.
7. Brumat P, Pompe B, Antolič V, Mavčič B. The impact of canal flare index on leg length discrepancy after total hip arthroplasty. Arch Orthop Trauma Surg. 2018;138:123–9.
8. Ma J, Lu H, Chen X, Wang D, Wang Q. The efficacy and safety of tranexamic acid in high tibial osteotomy: a systematic review and meta-analysis. J Orthop Surg Res. 2021;16:373.

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