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Is the effect of the femoral offset negligible?

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I read with interest the article by Bayram et al. [1] in the Volume 102 of the journal on critical limit of lower extremity lengthening in total hip arthroplasty. Authors reported that the critical limit of nerve lengthening was directly correlated with anthropometric measurements and found that the critical limb lengthening was up to 5% of femoral length and 2.6% of anterior superior iliac spine and the medial malleolus distance. This thoughtful clinical study presents meaningful information applicable to total hip arthroplasty and I commend the authors for their efforts in this regard.

The studies about total hip arthroplasty that can be utilized without femoral osteotomy are still ongoing in selected patients with adult hip dysplasia. In these series it was shown that nerve palsy did not occurred despite the limbs were lengthened by more than 4 cm [2, 3, 4]. They even reported that limb lengthening of up to 6 cm was possible [5]. How this is possible?

Kabata et al. [3] reported that it is risky to perform acute lengthening of more than 8.7% of femoral shaft length when adjusting leg length in total hip arthroplasty. Moreover, they have recommended considering not only longitudinal leg lengthening but also lateral global femoral offset change when analyzing soft tissue complication. In this study, the distance between the tip of the greater trochanter and the roof of the acetabulum (TM-A distance) was used to measure the total lengthening amount [1]. While preoperative measurement of the TM-A distance was performed before femoral neck osteotomy, perioperative measurement was performed after osteotomy. At this point, is the effect of the femoral offset negligible? It is possible that the high femoral offset caused the more leg lengthening after neck osteotomy without any change in amplitude. Likewise, low femoral offset can cause less leg lengthening. I think, it was a point which need clarification even if it is not change the rationale of this article.

I would like to thank Bayram et al. [1] for their study. I think that, more work is required to focused on the understand the the effect of the femoral offset may changed to critical limit of leg lengthening.

References

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