

## Peer Review File

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### Review Comments

#### Reviewer A

Treatments of Periprosthetic femur fractures (PFF) are challenging. This review focused on a summary of outcomes of 18 studies of PFF with 775 patients treated with modular tapered fluted titanium stems. It has been found that good clinical and radiological results at an average follow-up of 4.5 years. But the postoperative hip instability remains the most frequent complication and cause of reintervention in these patients.

In general, this is an extensive systematic review of this topic. However, there are a few questions that need to be addressed:

**Comment 1:** How to control postoperative prosthesis subsidence and maintain the length of the lower limb?

**Reply 1:** As suggested, the changes have been made. In patients who experienced subsidence but did not undergo surgery, the difference in lower limb length was effectively managed by using shoe lifts without experiencing any significant sensations of imbalance or discrepancy in lower limb length.

**Changes in the text 1:** In the 16 patients who experienced subsidence but did not require revision surgery due to stable stem fixation, the discrepancy in lower limb length was effectively managed with shoe lifts, and they did not report any significant sensations of imbalance or difference in lower limb length.

**Comment 2:** In which situations the wires or cables are needed use?

**Reply 2:** Thank you for the suggestion. Patients undergoing surgery with wires, cables, and plates had a Vancouver B1 fracture. Changes were made in the text.

**Changes in the text 2:** Seven patients with Vancouver B1 fracture underwent ORIF (open reduction, internal fixation) with wires, cables, and plates.

**Comment 3:** For patients with poor bone stock or major femoral bone defects, the bone graft should be considered. It will be great if the indications of autograft or allograft were addressed.

**Reply 3:** As suggested, additional considerations were added on the use of autograft and allograft in cases of bone stock defect in periprosthetic hip fractures.

**Changes in the text 3:** Lastly, bone grafting should be considered for patients with poor bone stock or major femoral bone defects. Some authors have addressed the need to use cortical fibula onlay autografts in cases of poor bone stock, reporting clinical and radiological results comparable to allografts. [60,61]. Autograft incorporation would be more rapid, cost-effective, and easy to achieve without severe morbidity at the donor site than the allograft [60].

#### References

60. Tuncay İ, Tözün R, Aliyev O, Dikmen G, Uzer G, Özden VE, et al. Onlay fibula autografting technique and its comparison with cortical allograft for the reconstruction of periprosthetic bone defects around the femur. *Int Orthop.* 2021; 45(1):71-81.

61. Tsiridis E, Spence G, Gamie Z, El Masry MA, Giannoudis PV. Grafting for periprosthetic femoral fractures: strut, impaction or femoral replacement. *Injury.* 2007; 38(6):688-97.

**Comment 4:** The reintervention rate of 10.3% at an average follow-up of 4.5 years was still pretty high. What were the main causes? Any suggestions for decreasing the reintervention rates?

**Reply 4:** As suggested, additional considerations and suggestions for decreasing the reintervention rates were added.

**Changes in the text 4:** The most significant finding of this systematic review is that the overall survival of MTTs for PFF treatment was 95.4%, with an overall reintervention rate of 10.3% at an average follow-up of 4.5 years. Despite the use of modular components, postoperative hip instability remains the most frequent complication and cause of reintervention in these patients. Therefore, more consideration should be given to assessing a proper stem version, femoral head diameter size, and careful use of constrained inserts to avoid a subsequent risk of dislocation and, consequently, a high reintervention rate.

#### **Reviewer B**

This systematic review analyzed the survival rate and all causes of stem revision, the overall complication rate and reason for reoperation, and PROMs in THA for PFF using

the Titanium modular tapered stems.

This is an interesting and valuable study. They can present the publication bias. The lack of comparison with non-modular stem could be a serious limitation. They can cite the references below,

Hip Pelvis. 2018 Sep;30(3):147-155

Hip Pelvis. 2022 Sep;34(3):140-149

**Reply:** Suggested references have been added.

**Changes in the text:**

References:

58. Heu JY, Kim JY, Lee SW. Periprosthetic Fracture around a Cemented Stem in Total Hip Arthroplasty. Hip Pelvis. 2022; 34(3):140-149.

62. Park CW, Lim SJ, Park YS. Modular Stems: Advantages and Current Role in Primary Total Hip Arthroplasty. Hip Pelvis. 2018; 30(3):147-155.