



Technical Notes

A disposable plastic syringe helps protect the femoral stem trunnion during acetabular cup only revision: A technical note

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ABSTRACT

Up to 25% of revision total hip arthroplasty (RTHA) requires acetabular cup only revision, during which the femoral stem is left in place. The metal retractors and instruments used to obtain the required exposure during revision surgery with the femoral stem in place could damage the trunnion, which could lead to further failure due to trunnionosis. Hence, protection of the trunnion during surgery is paramount. Here, we describe the use of a disposable plastic syringe to cover the trunnion during acetabular cup only RTHA, in which we consider an effective and cheap effective technique.

Keywords: Acetabulum, Cup only, Femoral stem, Revision, Plastic syringe, Trunnionosis, Trunnion

INTRODUCTION

Isolated acetabular cup revision with retention of the femoral stem constitutes a substantial number of revision total hip arthroplasty (RTHA) cases reaching up to 25% of all RTHA.^[1-4] If a complete revision of the acetabular component or a liner exchange is planned, the femoral stem needs to be retracted to visualize the acetabulum better. During this procedure, the trunnion could be scratched or damaged by retractors or the instruments.^[5] This could affect its performance after femoral head assembly with the possibility of trunnionosis development.^[6] To protect the trunnion during cup only RTHA, the surgical team should be cautious during surgery. Furthermore, some protective techniques were proposed, including silicon laryngeal airway, multiple rubber fingers, and covering with a simple swab.^[5,7]

We describe the use of a simple disposable proximal segment of a plastic syringe to protect the femoral stem trunnion during cup only or liner exchange RTHA.

OPERATIVE TECHNIQUE

After careful removal of the femoral head and testing the stability and fixation of the femoral stem, the femoral stem trunnion is usually evaluated and cleaned from debris or blood. A 5- or

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10-mL syringe is used according to the trunnion size. The plunger is removed, and the syringe is used upside down to cover the femoral stem trunnion until the barrel flange rests on the proximal femur [Figure 1]. The excessive part of the syringe barrel distal to the trunnion is marked and cut, leaving a few millimeters distally. Then, the femoral stem could be retracted posteriorly with the trunnion protected by the plastic syringe coverage from contact with metal retractors.

DISCUSSION

Generous exposure during RTHA is paramount for appropriately removing the components and implantation of the new prosthesis. However, this could be challenging during acetabular cup only revision or liner exchange, where the femoral stem is left *in situ*.^[3,8] Furthermore, applying vigorous retraction on the femoral stem or direct contact of the trunnion with metal retractors could lead to scratches and damage to the femoral stem trunnion with subsequent failure due to trunnionosis.^[9]

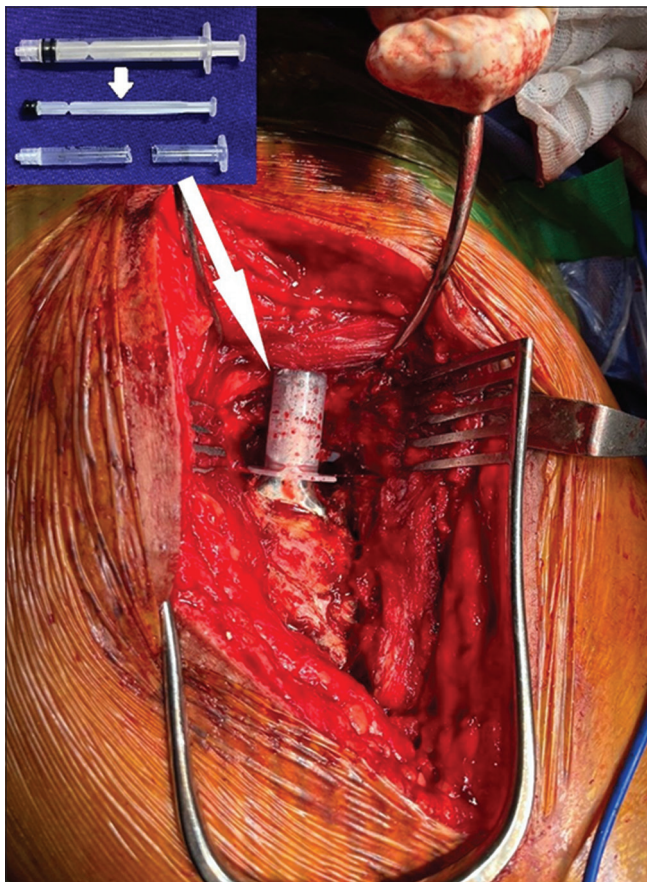


Figure 1: The hip joint is exposed through a direct lateral approach, with the femoral stem left *in situ*, and the trunnion is covered with the proximal part of a plastic syringe.

Various techniques were used to protect the trunnion to avoid the previously mentioned drawbacks, mainly using a soft material to cover the trunnion, such as swabs, a rubber laryngeal mask,^[5] and part of urine drainage Foley's catheter.^[10]

It is noted that the use of a plastic syringe was described by Puolakka *et al.*;^[7] however, they used the distal part of the syringe, including the tip. However, we preferred to use the proximal segment of the syringe, as it is easier to apply the syringe first and then cut the extra segment. This way, the barrel flange, could rest on the proximal femur so no sharp plastic edges could dig into the sealed area between the femoral stem and the proximal femur.

Surgeons who are willing to use this technical tip should be cautious regarding any sharp edges on the syringe cut surface, which could injure the surgeon or his/her assistants. Furthermore, any loose plastic parts should be removed from the syringe before its application to the trunnion to guard against its spread into the surgical field.

CONCLUSION

We believe that using a simple plastic syringe to protect the femoral stem trunnion during cup only RTHA or liner exchange is an easy, effective, and cheap technique.

AUTHORS' CONTRIBUTIONS

AMA carried out the conception, technique idea, and performed the surgery. AAK carried out data acquisition, organized data, and performed a literature search. Both authors drafted the manuscript and designed the figures. Both authors have critically reviewed and approved the final draft and are responsible for the manuscript's content and similarity index.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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CONFLICTS OF INTEREST

There are no conflicting relationships or activities.

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