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## **Comment 1:** Abstract Formatting:

Due to the Author Instruction (<u>https://acr.amegroups.com/pages/view/guidelines-for-authors#content-2-1</u>), please kindly re-adjust the Abstract: 200-350 words max. Structured with Background (state what is known and unknown; why the case report is unique and what it adds to existing literature), Case Description (describe the patient's demographic details and main history, the main diagnosis, interventions, outcomes and follow-ups), and Conclusion (summarize the main take-away lesson, clinical impact and potential implications).

**Reply 1:** Thank you for your comments. We added some text structured as asked with Background, Case Description, and Conclusion.

## Changes in the text 1 (page 3, line 39 - page 4, line 67):

#### Background:

Acetabular protrusion is an acetabular defect caused by the shift of the femoral head through the pelvic bone. Because of bone loss, usual anatomical landmarks may be confusing or absent, leading to a particularly high demanding surgical reconstruction in case of THA implantation, without adequate support of the acetabulum due to major acetabular defect. To our knowledge, no article has dealt with acetabular defects and associated femoral osteolysis to this extent, which we will attempt to do in this case report.

That's why we would like to share this case in order to propose an interesting alternative for the management of these challenging pathologies.

#### Case Description:

We hereby present the case of a rare pattern of severe acetabular prosthetic protrusion through the pelvic ring on a 77-year-old patient without any trauma. He was surgically treated with acetabular metal augment and a wide femoral modular reconstruction prosthesis. An instability was revealed after six weeks, so he underwent an early surgical revision with a constraint cup, overwhelming the absence of abductor apparatus. After this, his recovery was complete and uneventful, with effective function of the reconstructed hip joint and final adequate stability of the prosthesis.

#### Conclusion:

Although acetabular protrusion is a rare complication in total hip replacement patients, we would like to draw attention to the challenging nature of this complication, both in terms of initial assessment and surgical management. The described strategy showed effective function of the reconstructed hip joint and final adequate stability of the prosthesis despite the absence of a competent abductor apparatus.

**Comment 2:** Title: Please add "case report" in the Title.

Reply 2: Thank you for your comment, we added "case report" in the Title

**Changes in the text 2 (page 1, lines 2-3):** Title: Major acetabular prosthetic protrusion following total hip arthroplasty: case report of a reconstruction challenge.

#### **Comment 3:** Abstract:

We suggest authors highlight the unique point of this manuscript in the "Abstract-Background". For authors' reference, is this the first study regarding the case of a major acetabular defect following osteolysis of a multiple-revised THA?

Reply 3: Thank you for your comment, we added a short text in the "Abstract-Background".

**Changes in the text 3 (page 3, lines 44-46):** To our knowledge, no article has dealt with acetabular defects to this extent and associated femoral osteolysis, which we will attempt to do in this case report.

## **Comment 4:** Introduction:

In the introduction, also highlight the unique point of this manuscript based on comparison with existing evidence/similar cases.

In the Introduction paragraph 1, Charnley and Sutherland did not seem to be the authors of reference 2, please kindly confirm it and revise accordingly.

**Reply 4:** Thank you for your comment, we added a sentence at the end of the introduction.

Thank you for your comment, we checked the authors and erased the corresponding part of the sentence in the Introduction paragraph 1.

#### Changes in the text 4.1 (page 5, lines 91-95) :

To our knowledge, no article has dealt with acetabular defects to this extent and associated femoral osteolysis. Thus, we hereby describe the case of a major acetabular defect following osteolysis of a multiple-revised THA which could be an interesting, reasonable and applicable alternative in order to propose a solution to such a surgical challenge.

#### Changes in the text 4.2 (page 4, lines 77-80) :

This condition is more likely to appear eight years after total hip arthroplasty (THA) implantation (2).

#### **Comment 5:** Case Description:

We suggest the authors adding a timeline. The timeline should present relevant events in the patient's history in chronological order inigure or table, enabling the core elements of the case report standing alone. Of note, the figures are too scattered. The authors are encouraged to merge the existing figures in the timeline too. Please see some examples from our sister

journals: https://jgo.amegroups.com/article/view/50913/html; https://tlcr.amegroups.com/article/view/35939/24197

For the authors' kind reference, we prefer the detailed time information of the case report (Date, Month, Year) in the timeline and manuscript.

**Reply 5:** Thank you for your comment, we read the examples of your sister papers and were inspired to make a timeline for the patient's history in chronological order and one for the figures also in chronological order. Figure 1 after the title "Medical history" and Figure 2 in the title after "radiological findings".

## Changes in the text 5.1 (page 6, line 111):

Medical history (Figure 1)



*Figure 1Timeline for the patient's history in chronological order. Abbreviations: ORIF, open reduction and internal fixation; THA, total hip arthroplasty.* 

# Changes in the text 5.2 (page 7, line 119):

Clinical and radiological findings (Figure 2)



Figure 2Timline for X-rays history in chronological order.

## **Comment 6:** Discussion:

It is necessary and important to transparently discuss the LIMITATIONS of the study in the Discussion. A separate paragraph is highly suggested.

In the discussion, also compare with similar cases and discuss in details.

**Reply 6:** Thank you for your comment, we added, as so well suggested, a separate paragraph to transparently discuss the limitations of the study in the Discussion.

We also added some references about similar cases and performed a discussion of them.

# Changes in the text 6.1 (page 12, lines 251-254 – page 13, lines 255-263):

The limitations of this case report are first, the lack of epidemiological quantities, indeed not being chosen from a representative population sample does not allow us to generate information on rates, or incidence of this pathology. Second, generalization is not possible. In order to generalize we need both cause-effect relationship and a representative population. Finally, the surgery was carried out by one of our senior surgeons who was being a success in his hands after several times but was not necessarily reproducible in the hands of everyone and an important learning curve seems to us essential before being able to launch out in a surgery so demanding.

Thus, although acetabular protrusion is a rare complication in total hip replacement patients and despite the limitations of this case report, we would like to draw attention to the challenging nature of this complication, both in terms of initial assessment and surgical management.

Changes in the text 6.2 (page 12, lines 241-250):

Other authors published about acetabular reconstruction in case of major pelvic discontinuity. Jeong et al reported good clinical results at a two-year follow-up of patients operated with a tantalum augment for Paprosky III and IV acetabular defects mainly (87%) related to aseptic cup loosening of THA (20). The authors used similar technique as described in the current case for acetabular reconstruction, and also for 5 patients with a revision femoral stem in case of femoral osteolysis as well. However, the authors did not found any postoperative dislocation as the abductor apparatus seemed to be intact in all cases. To solve this issue, Shapiro et al (19) and Hernigou et al (20) advocate the use of retentive cup, which appeared to be effective in the current case by increasing the stability of the revision THA.

## Comment 7: Figures:

When a figure has more than one picture, please provide the footnote of each picture.

Reply 7: Thank you for your comment, we added footnote to figures 5 and 8 accordingly.

## Changes in the text 7 (page 18, line 368-371 and page 19, lines 380-382):

**Figure 5.** Postoperative AP view (A) radiograph of the pelvic ring and axial view (B) of the left hip after the first surgery. It showed an apparent satisfying equilibration of the femoral implant and a well orientation of the acetabular component within a well-centered femoral head.

**Figure 8.** Radiographs at one year after the last surgery. A. AP view of the pelvis. B. Axial view of the left hip. C. AP view of the left femur. D. Lateral view of the left femur. We can notice adequate appearance of the THA and no sign of osteolysis or dislocation.