

## Letter to the editor

## Letter to the editor on “Catastrophic failure of a dual mobility bearing in a revision total hip arthroplasty”

We read with interest the article “Catastrophic failure of a dual mobility bearing in a revision total hip arthroplasty” by Brazier *et al.*, with this case report demanding attention due to its headline title. The authors present their personal use of a dual mobility (DM) system, which is found to be “off label” and not recommended by any manufacturer or by the French orthopedic community [1–11]. Consequently, we would like to widen the discussion and raise numerous concerns.

The first concern is about the cup inclination. As explained by the authors, the acetabular component orientation might influence the wear vector and cause accelerated polyethylene wear. The wear rate of a DM system may decrease when the abduction angle is increased by up to 65 degrees as demonstrated in vitro by Loving *et al* [12], but it seems logical that with an extreme abduction (70–75 degrees), the risk of the liner wear will become greater. Reading this article shows that the authors were aware of this concern; however, they describe changing only the bearing couple without changing the cup inclination. Figure 1 demonstrates the previous cup to be in an incorrect position. Author's case report figure 2 is annotated as “AP pelvis radiograph (a) completed 4 weeks after revision surgery. ... demonstrating acceptable position of components”. How can the authors state that the position of the component is now acceptable if the previous incorrectly positioned cup has not been removed?

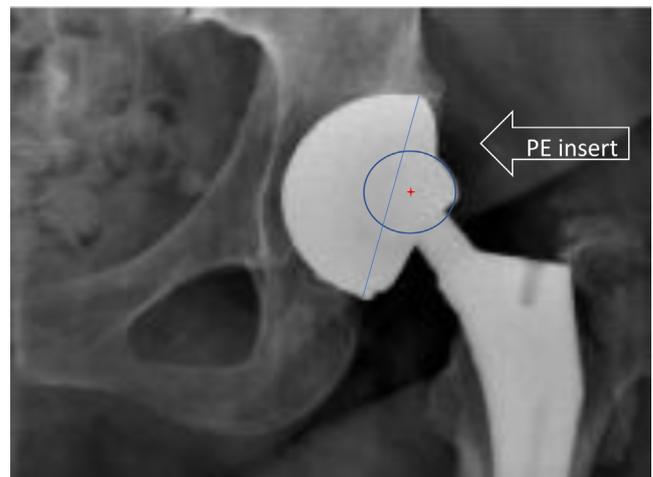
The second concern is about the use of a liner of incorrect size. By magnifying their postoperative radiograph and drawing the position of the center of the head related to the center of the cup, it can be seen that the femoral head was “off centered” laterally and superiorly. The insert was not coupled with the cup at 4 weeks. The images of the retrieved implants also demonstrate a “mushroom” deformity, as if it was not fitted inside the cup but extruded as we can suspect on the enlarged picture.

Third, the authors state that “Intraoperatively, we determined ... that the monoblock acetabular component was also well fixed with no visual evidence of damage to the polished surface of the acetabular shell. The decision was made to leave

*it in place.*” We wonder what the intraoperative criteria were to determine how much wear or scratches were detectable.

To conclude, this clinical case lists a number of errors performed while revising this type of failed arthroplasty. It is illogical to leave in place an obviously poorly positioned cup, which is highly likely to lead to accelerated wear due to unacceptable edge-loading, and accentuate this by combining it with the use of a DM liner that was not compatible with the worn metallic shell. This type of misuse of implants has been seen before in cases described by Riviere *et al* [13] and Hwang *et al* [14]. Early failure was demonstrated while revising a failed resurfacing arthroplasty using a mobile liner initially designed for another DM shell, coupled with the previous cup left in situ. A subsequent letter to the editor [15] confirmed that the implantation of a DM liner in a cup not designed for DM must not be performed. It is incompatible to implant a DM liner in a large-diameter Metal on Metal cup, which was the case in the current case report.

In conclusion, we clearly disagree with the conclusions of this case report. Such an off-label use of DM has to be blamed. Perhaps the title should have read “Cumulative technical errors and poor decision-making: DM concept will not save you.”



**Figure 1.** Magnifying postoperative radiograph presented in author's case report figure 2.

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