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REVISION OF A THR USING A SHORT FEMORAL STEM – IS IT A POSSIBLE AND SAFE SOLUTION?

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ABSTRACT

Routinely, revision surgeries are accompanied by extended skin incisions, bone osteotomies and excessive bone loss. For these reasons, more complex implants and longer stems, with or without the implementation of cement, are used in order the surgeons to achieve sufficient anchoring in the diaphysis.

Short femoral cementless stems may present a viable option in selected cases for revision THR surgeries. Despite this newly introduced concept, the surgeon should always follow the principles of a revision arthroplasty. This means that the surgeon needs to achieve a stable implant fixation, preserve as much bone stock as possible in the already compromised, minimize the surgical trauma and all of its consequences and finally, to achieve the minimum acceptable functional result for the patient.

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INTRODUCTION

THR is considered the gold-standard treatment of end-stage of hip osteoarthritis as it offers relief from pain, improved patients' mobilization and quality of life. All these reasons, combined with the excellent long-term outcomes reported in the literature, have rendered THR to be described as the operation of the century. Along with the increase in primary THR incidence there is a consequent increase in THR revision rates.

Cementless short femoral stems have gained in popularity the last decades. Despite their unique characteristics, there haven't yet been established certain indications and contraindications for their use. The surgeon's preference and experience render the main "indications" for the implantation of such stems.

The use of a short stem as a revision implant in failed conventional THR is still considered an "off-label" indication. The notion of downsizing the femoral component, as introduced in the study of Coutandin et al, may offer some advantages in selected cases.

PURPOSE

Our purpose is to provide a new insight on revision strategy techniques using short femoral stems (downsizing the femoral component).

MATERIALS & METHODS

A 64-year-old male presented to our orthopaedic outpatient department complaining of pain of his right THR during his every-day activities and limping. His past medical history included benign prostatic hyperplasia. At the clinical evaluation he had approximately 2.5cm leg-length discrepancy and at the standard pre-operative radiological evaluation it was evident the loosening of his right THR, both acetabular and femoral component. The pre-operative work-up was negative for infection and the patient didn't suffer from other systematic symptoms, so aseptic loosening was the reason for his revision arthroplasty. According to Paprosky classification, he had type IIIA acetabular defect and type I femoral defect.

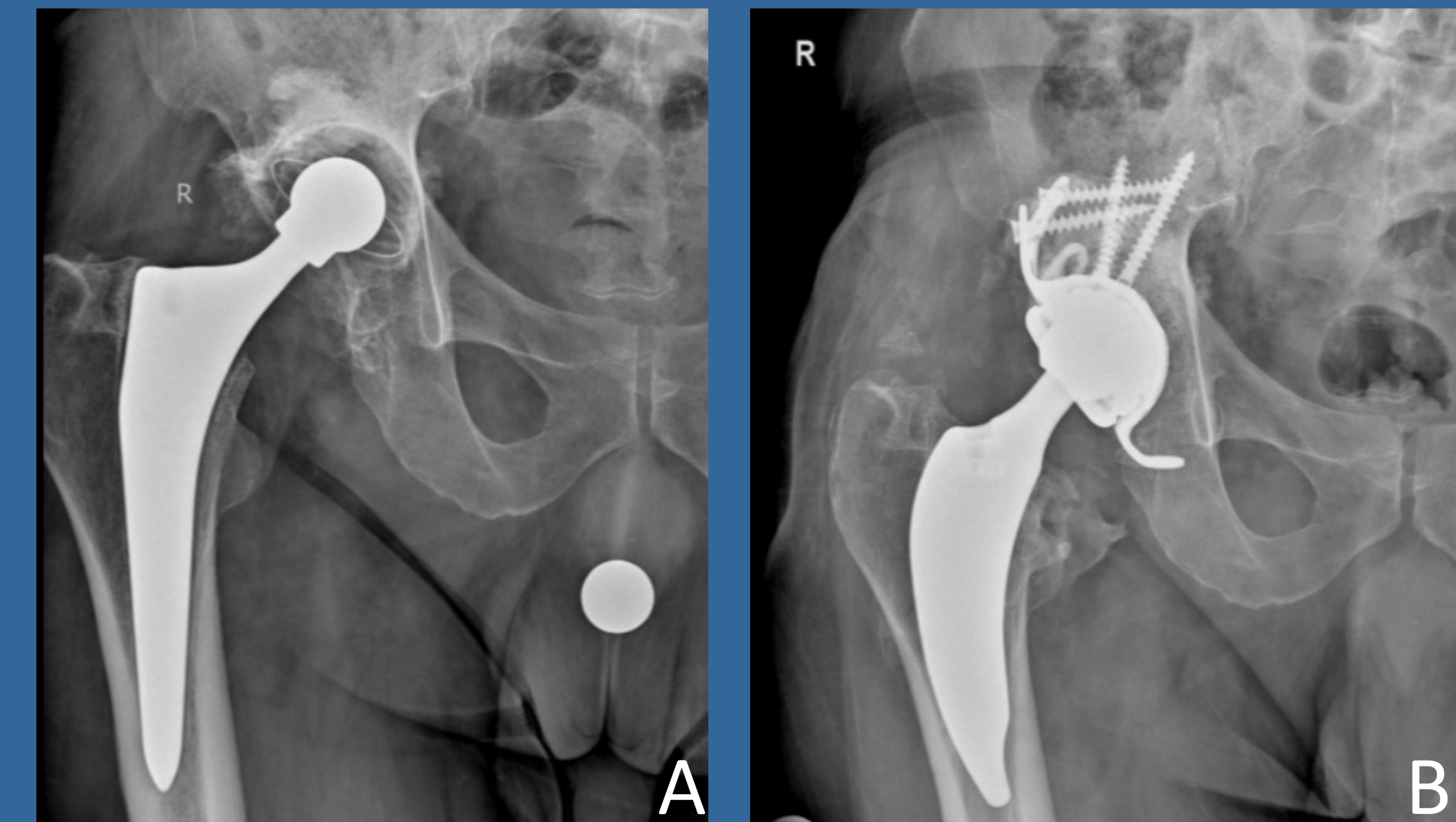
A modified Hardinge's approach was performed. The acetabular bone defect was managed with a cup-cage construct in conjunction with impaction morselized allograft (fresh-frozen femoral head). The ischial hook was placed at the obturator foramen and the iliac flanges were adjusted accordingly to the iliac bone and stabilized with five screws. The experience in our department using short stems in primary THR along with the sufficient and of good quality bone stock in the proximal femur, allowed us to use a short stem (type 3, trochanteric sparing type).

REFERENCES

1. Coutandin et al, 2022 – Downsizing in total hip arthroplasty. A short stem as a revision implant
2. Liu et al, 2021 – Short uncemented femoral component for hip revision: prognosis and risk factors associated with failure
3. Drosos et al, 2019 – Short stems in total hip replacement: evidence on primary stability according to the stem type
4. Lopini et al, 2018 – Uncemented short stems in primary total hip arthroplasty: the state of the art

RESULTS

Intraoperatively an excellent primary stability and orientation of the short femoral stem was confirmed using fluoroscopy. The post-operative course was uneventful, using the same protocol as in primary THR. At 6 months follow-up the patient was fully mobile, free of pain and no subsidence or radiolucent lines around the stem were observed.



Images: Pre-operative X-Ray of the loosened THR (A) and at 6 months follow-up (B).

CONCLUSION

Short stems are becoming more and more attractive to the contemporary orthopaedic surgery. Until now, their use is mainly restricted to primary THRs in young patients with good bone quality in the proximal femur. However, there has been reported a small number of patients where a short stem has been used "off label" as a revision implant. Despite, the good-to-excellent reported outcomes, further studies are needed to confirm their efficacy as a revision implant in selected cases.