

15 Years Later: A Case of Ceramic on Metal Total Hip Arthroplasty

Muhamad Amir Azfar Sahadun^{1*} and Mohamad Fauzlie Yusof²

¹Mmed (Ortho USM), Melaka, Malaysia

²MS (UKM), Melaka, Malaysia

*Corresponding author

Muhamad Amir Azfar bin Sahadun, Mmed (Ortho USM), Melaka, Malaysia.

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ABSTRACT

Total hip arthroplasty (THA) is nowadays the gold standard treatment for patients with hip osteoarthritis whom non-operative managements have been exhausted. It should also be considered for elderly and active patients with neck of femur fractures.

Keywords: Ceramic-on-metal Bearing, Total Hip Arthroplasty, Aseptic loosening, Femoral Stem fracture

Introduction

Total hip arthroplasty (THA) is nowadays the gold standard treatment for patients with hip osteoarthritis whom non-operative managements have been exhausted. It should also be considered for elderly and active patients with neck of femur fractures. The survivorship of implants has dramatically improved over the years, thanks to the advancement of bearing surfaces and good surgical techniques. We would like to report a case of aseptic loosening with femoral stem fracture in uncemented ceramic on metal (CoM) THA.

Reports

A 65 years old gentleman presented to us with gradually worsening right hip pain which has finally confined him on wheelchair for ambulation. He had a history of right THA performed in 2010 following complications of right femoral neck fracture. Plain radiographs of pelvic and hip showed broken uncemented femoral stem with lucency around the femoral prosthesis (Fig.1a). Inflammatory markers taken were within the normal range. He was scheduled for revision of femoral stem and acetabular liner. Intra-operatively, there were presence of greyish sterile fluid collection with loose and broken femoral stem. To our surprise, the bearing surface used during first surgery was CoM with tightly fitted acetabular cup and metal liner. Decision was made to proceed only with cemented femoral stem using metal on metal (MoM) articulation. The broken tip of femoral stem was not extracted and pushed deeper into the formal canal,

distal to the cement plug. At 5 months post-operatively, patient was able to weight bear without pain using walking stick. Plain radiographs showed well fitted femoral prosthesis with good cement mantle. The loose cerclage wire used to secure tip of greater trochanter was left in situ as patient did not complaint of any pain (Fig.1b).

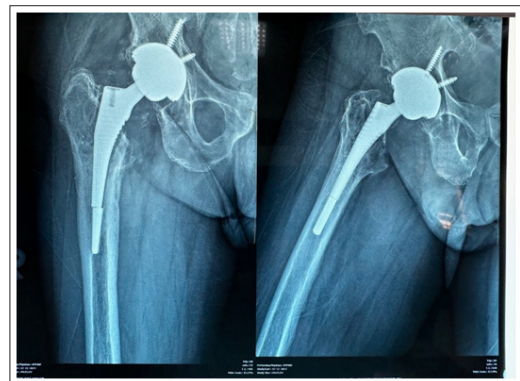


Figure 1: Hip Plain Radiograph at Presentation

Discussions

CoM was first introduced with the aim to reduce loss of metal debris, adhesive and corrosive wear from MoM as well as reducing risk of fracture and squeaking from CoC articulation. However, its use was rapidly declining due to the fear of ions toxicity and poor implant survivorship in addition to the limited data on long term outcome. Mehta et al. in 2021 reported reasonable functional outcome with CoM at 9 years follow up. Failure of CoM does happen in a similar way with MoM

but at a slower rate [1]. Saracco et al. in 2022 concluded that CoM bearing is safe and reliable at long term follow up when the implant is correctly positioned. He also suggested annual monitoring of Co and Cr ion levels with revision be considered should the value exceeded normal range [2].



Figure 2: Pelvic AP Plain Radiograph at 5 Months Post Revision

Conclusions

Thorough pre-operative planning is important prior to any revision THA especially in the event where previous medical records and documentations are not available. In depth knowledge on bearing surfaces will help surgeon to produce the best long-term outcome possible for the patient.

References

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2. Saracco M, Logroscino G, Maccauro G, Urbani A, Ciavardeli Det et al. Ceramic on metal coupling in THA: long term clinical and radiographic outcome using two different short stems. *BMC Musculoskeletal Disorders.* 2022.