

Revision of Total Hip Arthroplasty for the Diagnosis of Metal Related Pathology in Patients with Non Metal/Metal Bearings

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Introduction

There are increasing reports of problems arising between the femoral head and the trunnion of primary hip replacements (THR). This has been termed trunnionosis, taperosis or Metal related Pathology (MRP) and the author has had 5 cases of hip revisions with this condition in patients with non metal on metal bearings performed at Epworth Healthcare. The aim of this study was to describe these cases and investigate the prevalence and factors associated with this condition using data from the Australian Orthopaedic Association National Joint Replacement Registry

Methodology

The authors' cases are described and the prevalence of this condition was determined by analysing all THR using modern bearing surfaces revised for MRP that were recorded by the Registry. The cumulative percent revision (CPR) for MRP was determined and further analyses based on patient and prosthesis characteristics were performed. The Kaplan-Meier estimates of survivorship were used to describe the time to first revision.

Results

The author inserted 546 M/L Taper stems and Trilogy cups from 2004 to 2017 with a cumulative percent revision of 3.7% at 10 years. Of the twelve revisions, five patients have been revised for MRP, all with a chrome cobalt head/XLPE bearing and with raised cobalt and chromium blood ions. Intra operative examination demonstrated metal staining at the head/trunnion junction with soft tissue damage (Figs 1&2). Retrieval analyses revealed fretting corrosion at the head trunnion interface (Figs 3&4). All prostheses were well fixed and the femoral head was changed to a titanium sleeve and ceramic head with no further problems at latest follow-up.

An analysis was then performed of Registry data to determine the magnitude of the problem in Australia.. There were only 62 (0.6%) primary THR revisions for MRP of a total of 335,668 THR with a bearing surface other than metal/metal The revisions involved included 48 cementless and 9 cemented stems. There were 7 procedures with 28mm femoral heads, 16 with 32mm heads, 31 with 36mm heads and 3 procedures with ≥40mm femoral heads. There was a higher revision for MRP with larger, chrome cobalt heads on titanium stems and with V40 tapers.

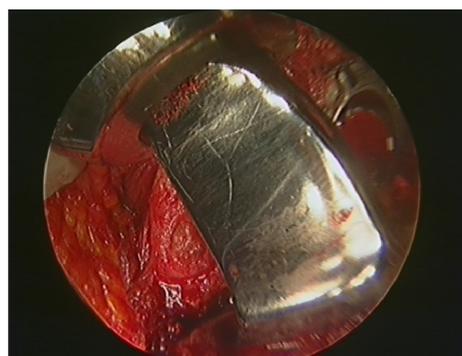


Figure 1

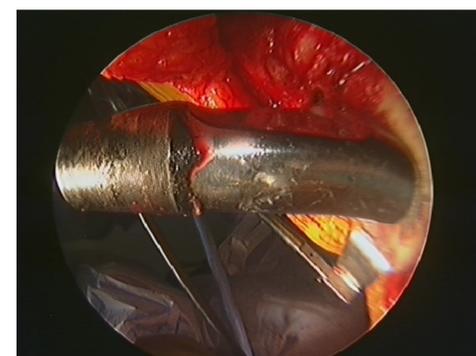


Figure 2

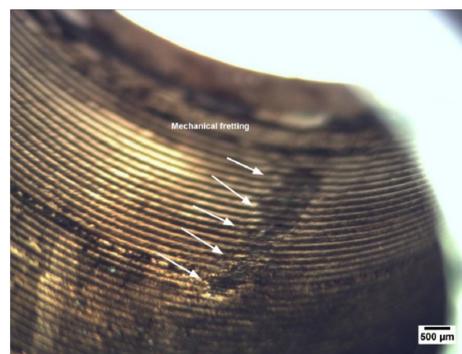


Figure 3

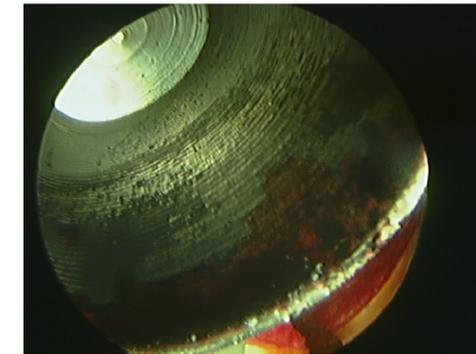


Figure 4

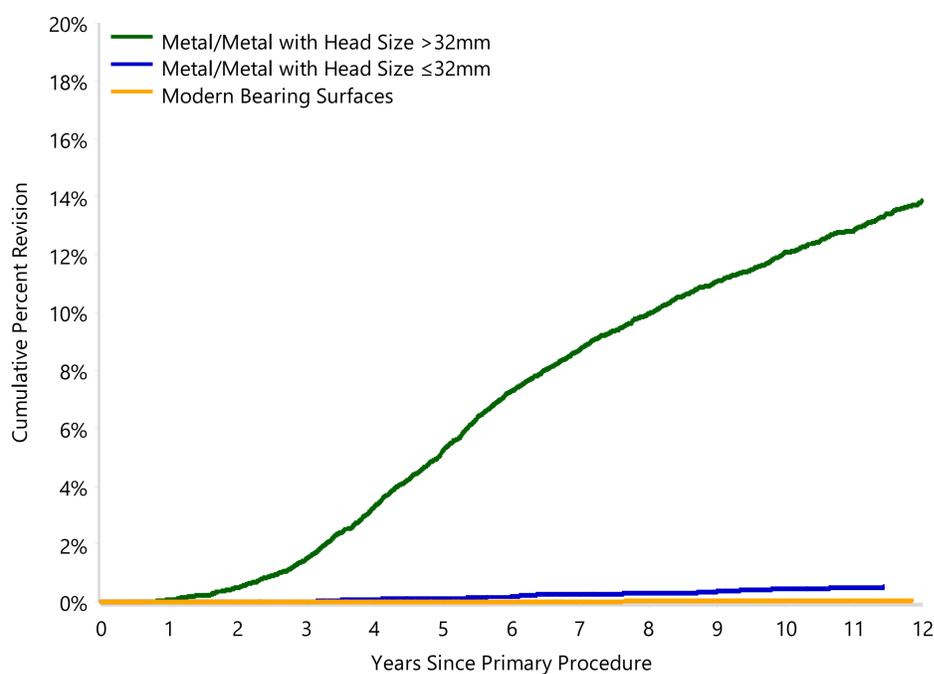


Figure 5 shows the Cumulative Percent Revision of Primary THR of non MoM modern bearing Surfaces compared to small and large head MoM (All Primary Diagnoses, Revision for Metal Related Pathology)

Conclusions

The prevalence of revision of a primary THR with modern bearing surfaces for the diagnosis of MRP is low. However if a patient presents with a painful THR then trunnionosis may be a potential diagnosis. Increased awareness of this problem may prompt appropriate investigation, diagnosis and treatment.