

Journal Club: 30 October 2010  
 Chair: Miss Leela C. Biant  
 Organiser: Miss Sally-Anne Phillips  
 Edinburgh Journal Club

## TOPIC: HIP ARTHROPLASTY

### **Outcomes of revision total hip replacement for infection after grading according to a standard protocol.**

Oussedik SIS, Dodd M.B, Haddad FS  
 J Bone Joint Surg [Br] 2010;92-B:1222-6.

Reviewer: Miss Sally-Anne Phillips ST5 South-East Scotland

**Aim:** To see if single stage revision of THR has better outcomes for infection than two stage exchange

**Method:** Prospective cohort study

50 consecutive patients presented over 2 years to a London tertiary referral centre with chronic infected THR. Diagnosis of infection was made by clinical findings, baseline CRP/ ESR and investigations (hip aspiration/ biopsy). The severity of the infection was then graded and the patient allocated to either single or two-stage revision surgery.

**Outcome Measure:** Harris hip score pre-op, 2years and 5 years

**Results:** 21 men: 29 females; 11 single revisions and 39 two-stage revisions

HHS Scores: Preoperative score were no different in either group.

Post operative an improvement was seen in both groups with a significant difference in the single stage group at 5 years.

### **Critical appraisal**

Important question. Well written paper. Deficiencies in study design rendered the data of little value in answering the stated aim. The patient's selected had a 'chronic' infection but there was no definition of what 'chronic' was i.e. 6 weeks, 6 months or 6 years post surgery. The patient selection for single or 2 stage revision stage was not randomised leading to selection bias; only those with simple criteria were selected to the single stage compared to the more complex patient to the two-stage. This lead to a completely different cohort of patients in each group which the authors then compared using Harris Hip scores. The overall numbers of patients was low, especially in the single stage revision. No mention was made to those lost to follow up. Different

prostheses were used in the single versus two-stage revision, a further possible confounding factor.

The study shows that single stage surgery can be successful for infection post primary hip surgery in the uncomplicated patient. What the study fails to compare is the single versus two-stage revision surgery so either procedure cannot be seen of greater benefit to a patient with a chronic infected THR. There is insufficient data to change current practice.

### **Incidence of metal sensitivity in patients with total joint replacements.**

M.W. Elves, J.N. Wilson, J.T.Scales, H.B.S.Kemp.

BMJ 1975;376-8.

Reviewer: Mr Martin Mitchell ST6 South-East Scotland

**Aim:** Analysis of the phenomenon of metal hypersensitivity in patients with total joint replacements.

**Materials and Methods:** 50 patients selected for study with various types of total joint replacement. These 50 were then sub-divided into two groups;

- |         |   |
|---------|---|
| Group 1 | Included 36 patients with Stanmore metal on metal prosthesis, and 4 with Stanmore special tumour prosthesis |
| Group 2 | 10 patients with a variety of prosthesis being investigated for failure.                                    |

Patients underwent skin patch testing using Nickel, Cobalt, Chromium, Titanium, Molybdenum, and Metavanadate as allergens

Reactions were scored 1-3 according to the severity

#### **Results:**

19/50 (38%), produced positive skin reactions, most commonly to cobalt and nickel.

26/50 had prosthesis deemed to be failing. Of these, 15 had positive skin reactions to metal.

When prosthesis failed without infection or trauma, i.e. aseptic loosening, 73.7% had positive skin reactions.

Of the 24 patients with stable prosthesis, only 4 had skin reactions to metal.

#### **Conclusions:**

Demonstrated trend of metal hypersensitivity in patients with failing total joint replacements

Authors acknowledged that they were unable to state whether the loosening caused the hypersensitivity, or vice versa.

## Critical appraisal

Historical paper, first to note potential immune response to implanted metals. Marked difference noted between patients with a failing and non-failing prosthesis

No selection criteria, patients seemingly selected at random. Heterogeneous study group with multiple prostheses included, with small numbers in each group.

No testing of serum or urinary ion levels despite previous paper highlighting its potential importance.

## Hip resurfacing revised for inflammatory pseudotumours have a poor outcome.

G. Grammatopoulos, H. Pandit, Y.-M. Kwon, R. Gundle, P. McLardy-Smith, D. J. Beard, D. W. Murray, H. S. Gill

J Bone Joint Surg [Br] 2009;91-B:1019-24.

Reviewer: Mr. G.J. Macpherson ST5 South-East Scotland

**Type:** Single centre, multi-surgeon, retrospective, matched case series

**Aims:** Compare complexity and outcome of revision hip surgery performed for pseudotumours compared with revisions for other reasons, and to primary THA.

**Patients and Methods:** 53 metal-on-metal hip resurfacings requiring revision were identified. 49 of these hips were from the authors own region and 4 were from out with the region. They comprised a variety of implants (Birmingham hip resurfacing, Cormet, Conserve plus, ReCap). There were 34 females and 19 males included with a mean age at the time of their resurfacing of 53.7 years (20-71). All but one of the resurfacings had been performed via a posterior approach. The primary diagnosis prior to resurfacing had been OA – 75.5% and OA secondary to DDH, SUFE and AVN – 24.5%.

The patients were split into 3 groups according to the indication for revision: pseudotumour, periprosthetic femoral neck fracture and other indications (loosening, infection, AVN and dislocation).

|                    |                            |
|--------------------|----------------------------|
| Pseudotumour group | - 16 patients (all female) |
| Fracture group     | - 21 patients              |
| Other group        | - 16 patients              |

The authors also established control groups comprising of primary total hip arthroplasties that were matched for gender, age, diagnosis and duration of follow up. This matched group came from a separate study being undertaken at the same time. A ratio of 2 controls to every one MOMHR revision was established.

Pseudotumour control group - 32 patients

Fracture control group - 41 patients

Other control group - 30 patients

**Outcome measures:**

Functional outcomes: Oxford Hip Score - not available on many of the MOMHR revision group from prior to their MOMHR. UCLA activity score - done for MOMHR group but not control group

**Conclusions of the paper:**

The outcomes of revision for MOMHR with pseudotumour are poor. There is a 50% major complication rate and a third will require re-revision.

Revision of MOMHR for pseudotumour takes longer to do.

Revision of MOMHR for other reasons are more straightforward and the results are comparable to primary THA.

**Critical appraisal**

Subject of importance. Well written paper. It adds to the growing body of knowledge of sequelae of pseudotumour complication of metal-on-metal hip surgery. Revision surgery for pseudotumours can be complicated and the outcome is poor. It maybe performed better in tertiary referral units where expertise in surgery, histology, blood analysis, examination of retrieved specimens etc can be centred. Revision of hip resurfacing to THR for any other reason is relatively straightforward.