EARLY FAILURE OF THE DUAL COAT CORMET 2000 METAL ON METAL ACETABULAR COMPONENT

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Abstract
We report a 10% failure rate for aseptic loosening and an overall revision rate of 15% at a mean follow up of 5 years in 190 patients using the Cormet 2000 Dual coat acetabular component.

Background
The Cormet 2000 Dual coat acetabular component comprised a peripherally expanded hemispheric cobalt chrome shell, plasma sprayed with a further layer of cobalt chrome. This was then coated with a layer of hydroxyapatite. Both layers of the coating were 100µm thick. The resulting surface had a roughness of 138µm, a porosity of 13.9% and a shear strength of 39.6 MPa. This backing has since been abandoned because of a higher than expected incidence of early loosening. We report our experience with this implant.

Methods
This was a retrospective cohort study of patients undergoing hip arthroplasty between April 2001 and March 2004. Surgery was performed at 3 hospitals in our region by 4 experienced hip surgeons carrying out in excess of 100 hip arthroplasties per year and with 10 years experience of uncemented implants. 90 resurfacings were performed via a Ganz trochanteric osteotomy. The acetabulum was routinely reamed to 2mm below the outer diameter of the cup as per the manufacturers recommended technique.

Results
142 hip resurfacings and 48 large diameter metal on metal total hip replacements were implanted in 174 patients. 99 patients were male, 74 female, average age 54.

20 cups (10%) in 19 patients were revised for acetabular loosening at a mean interval of 23 months (0-51). 6 were revised within the first 2 months, 3 of whom subsequently developed a deep infection. 4 were revised for undiagnosed groin pain and found at surgery to have an inflamed psoas bursa presumed secondary to impingement of psoas tendon on the sharply angled rim of the cup. 4 further hips were revised: 1 for primary infection, 1 for a deep infection following revision of a trochanteric osteotomy and 2 for neck fracture following significant trauma. 3 further patients have persistent unexplained groin pain but have declined surgery.

Discussion
The expanded periphery of this implant means that seating it requires considerable force. The acetabulum must also be reamed to a sufficient depth to allow the expanded periphery to engage. Failure to recognise these factors, and the relatively smooth backing of the cup may have contributed to the high rate of early post operative loosening.

Revision in the early post-operative period carries a high risk of infection and particular care must be taken where this is necessary.

Positioning of the cup is critical to avoid painful irritation of psoas.

Failure of the backing to integrate with bone led to an unacceptably high early loosening rate at 5 years. There is evidence supporting the use of a softer and rougher titanium substrate for hydroxyapatite than was used in this implant.

References
(1) J Dumbleton and M Manley JBJS-A Vol 86-A, No11, November 2004

Loose acetabular component 2 ½ Years post implantation

Explanted D cup (Left) and it’s successor