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114 revisions Metal-on-Metal (MoM) Total Hip Arthroplasties (THA) with Large Diameter Heads

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INTRODUCTION: Despite encouraging results, concerns were raised due to adverse biological reactions to the MoM technology. Larger heads for failed hip resurfacings are believed to increase range of motion, reduce impingement and dislocation. Thus, larger heads are used as primary implants. However, increased failures were observed.

OBJECTIVES: This study reviews 114 revisions of large diameter MoM-THA's.

METHODS: 114 consecutive revisions (63 females, 51 males) of a large diameter MoM-THA were performed. Patients' age ranged from 26 to 82 years (mean 62,7). The radiographs were analysed for signs of loosening. Intraoperative findings were documented with respect to implant fixation and cone-taper connection. Revision tissues were processed by routine histology. Tissues metal content was measured (Ti, Fe, Co, Cr, Ni).

RESULTS: Patients were revised 46(26-68)mo. after implantation. Clinical symptoms were groin and thigh pain, limping and sub-dislocation. In 61 cases, X-rays showed signs of loosening (osteolysis, radiolucencies).

Intraoperatively, loose cone-taper connection were observed in 94% of cases. Revision tissues showed lymphocytic infiltrations in 106 cases, both diffuse and perivascular infiltrations. 8 cases showed a macrophage-dominated histomorphology. In the tissues Co and Cr were present in all cases. Ti or Fe was present 106 times.

CONCLUSION: Larger heads may improve ROM, prevent impingement and dislocation. Large contact areas of MoM-THA's induce biomaterial-related problems such as clearance and release of metal components. Detection of Ti and Fe correlated with loose cone-taper connections. Increased torque forces may cause failures of cone-taper connection. Fretting and crevice corrosion of a Cobalt-Chrom alloy sleeve and a Titanium taper may also contribute. We conclude that large diameter MoM-THA's are not useful as primary THA.

Disclosure of Interest: None Declared