

## Hip & Pelvis

**X-ref** For other Roundups in this issue that cross-reference with Hip & Pelvis see: *Children's orthopaedics round-ups 2 & 4; Knee round-up 4; Oncology round-up 4; Research round-up 6; Trauma round-up 3.*

### Sex differences in CT-acquired measurements of the acetabulum

It is known that the shape of the acetabulum differs between males and females; in this age of robot-assisted and image-guided surgery, it is important to understand how these differences pan out in 3D imaging and change with age. Authors from **Nara (Japan)** aimed to obtain sex-based reference morphology measurements for use with patients having subsequent treatment for joint diseases.<sup>1</sup> The paper is based on the radiological evaluation of 245 patients (490 joints), all of whom had had a CT of the pelvis. The authors adjusted for the obliquity, rotation, and tilt of the pelvis during scan acquisition, and also looked for patterns in parameters based on age and sex. Overall, they were able to report on the commonly used radiological parameters (centre-edge angle, sharp angle, vertical centre anterior angle, and acetabular anteversion). What is interesting about the findings is that the shape of the acetabulum appears to change with age, even in adults. In hip joint disease, it is important to confirm the presence or absence of acetabular hypoplasia and the presence or absence of impingement. This is a useful paper that clarifies that the diagnosis of hip joint disease needs to be judged considering age.



### Highly crosslinked polyethylene at ten years

This is one of those 'reassurance' papers that we have all been expecting – and it is nice to see arrive with no unexpected findings. A group from **Adelaide (Australia)** reported their results of wear rates using a radiostereometric analysis (RSA) technique in a cohort of patients with crosslinked ultra-high molecular weight polyethylene.<sup>2</sup> In many joint registries and previous reports, these seem to have excellent longevity, although it is not completely clear what the actual wear rate is. This paper using RSA technology examines the wear rates of second-generation highly cross-linked polyethylene (XLPE) acetabular liners. It has been previously reported that the wear rate of the first-generation XLPE is 0.03 mm/year to 0.05 mm/year. The paper presented is a brief follow-up of a previously reported RSA study. The cohort is the same as the previous study, and 21 patients (of a possible 48) prospectively enrolled in the previous study all underwent primary cementless

THA with an XLPE acetabular liner (three cycles of 3Mrad annealed), and a standardized 32 mm articulation. Of the original 21 patients, 16 were available for complete final ten-year follow-up. RSA-compatible radiographs were obtained postoperatively and at regular intervals out to ten years. The primary outcome of this study was head migration (penetration) into the acetabular component. The median medial, proximal, anterior, 2D, and 3D wear rates over the decade of the study were reported as -0.001, 0.004, -0.012, 0.000, and 0.002 mm/year, respectively. The problem with this study is that the wear rates are so small that, despite RSA being gold standard for analysis, the migration is starting to reach the limits of what RSA can accurately detect. The results of this study suggest that the wear rate of the second-generation XLPE is about one-tenth of that of the first-generation. It is expected that the risk of loosening due to polyethylene debris will be reduced.

### Direct anterior versus posterolateral approach

There has been an increasing popularity among surgeons of the use of the direct anterior approach (DAA) to hip arthroplasty, with many citing the reasons as earlier discharge and improved patient-reported outcome measures soon after surgery. This is certainly an approach that our patients are demanding, and one that is currently driving patient choice of surgeons. There are some professional concerns about the potential learning curve and the risk to patients, where there may be a higher complication rate. Studies comparing the DAA to other approaches for hip arthroplasty surgery have been exposed to potential