3. “What was outcome if synovium was removed in both groups of patients with RA?”

The synovium in the rheumatoid arthritis patients showed a greater tendency of bleeding, which was controlled by a thorough hemostasis with electrocautery. As stated before, the synovium resection was performed only until a proper visualization was obtained.

4. “Author reported 2 cases of patellar injury in group B managed conservatively. Was any difference in postoperative rehabilitation of these patients and was any brace given for it. As we delay range of motion exercises and start protective weight bearing in patients with patellar tendon injury. Outcome of these patients at final followup was same as with others?”

In both cases of partial patellar tendon injury that occurred intraoperatively, the lesion was less than one-third of the tendon’s width, therefore we decided not change the postoperative protocol. The results at follow-up did not show differences between the injured knee and the contralateral knee.

5. "Lastly we want to know approximate value of intra operative B.P. kept by anesthetist. As in most cases anesthetist will lower down B.P. for arthroplasty do decrease the blood loss. Did anaesthestist reduce B.P. while whole procedure or selectively."

The anesthesiologist used hypotensive technique for all patients during the entire surgical procedure, meaning a diastolic pressure between 65 and 70 mm Hg and a systolic blood pressure not more than 100 mm Hg, with a tendency to lower the heart rate.

Mohamed Shaher Hasanain, MD
Department of Orthopaedics
Burjeel Hospital for Advanced Surgery Dubai
Dubai, United Arab Emirates

Dragos Apostu, MD*
Department of Orthopaedics and Traumatology
Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca,
Cluj-Napoca, Romania

Attaallh Alrefaee, MD
Samih Tarabichi, MD
Department of Orthopaedics
Burjeel Hospital for Advanced Surgery Dubai
Dubai, United Arab Emirates

*Reprint requests: Dragos Apostu, Department of Orthopaedics and Traumatology, Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca, Cluj-Napoca, Romania.

DOI of original article: https://doi.org/10.1016/j.arth.2018.04.021.

One or more of the authors of this paper have disclosed potential or pertinent conflicts of interest, which may include receipt of payment, either direct or indirect, institutional support, or association with an entity in the biomedical field which may be perceived to have potential conflict of interest with this work. For full disclosure statements refer to https://doi.org/10.1016/j.arth.2018.10.008.

Letter to the Editor on “Indications for MARS-MRI in Patients Treated With Articular Surface Replacement XL Total Hip Arthroplasty”

To the Editor:

I read the recent study by Connelly et al [1] with interest. The high short-term failure rate of metal-on-metal hip arthroplasty (MoMHA) has led to almost all patients requiring regular surveillance. However, surveillance regimens are variable and do not reflect the best evidence [2]. Furthermore, there are numerous important questions which must be answered so that we can modify follow-up protocols accordingly and make them clinically and cost-effective [2–4]. The authors of the present study had access to a large prospective multicenter database, which included patients with the recalled metal-on-metal Articular Surface Replacement (ASR) hip system. This database provides a useful resource to answer some of the important clinical questions around the investigation and management of MoMHA patients with this particular device, and the authors have subsequently written a number of papers using this dataset. However, it is important to keep in mind that the questions posed must be clinically relevant. I would argue in this particular study of ASR XL implants by Connelly et al [1] that the research question is not clinically relevant, as is the case for their other recent paper on ASR hip resurfacings [5].

The ASR XL system has the highest revision rate of any total hip arthroplasty device that I am aware of over recent years. Langton et al [6] reported it to be 49% at 6 years back in 2011. Current registry data from Australia and the United Kingdom consistently report 10-year revision rates for the ASR XL system between 44% and 46% with the ASR hip resurfacing also performing very poorly [7,8]. Both these registries have shown a gradual and steady increase in revision rates over the 10 years for ASR devices, rather than an initial high short-term revision rate followed by a plateau. These observations are consistent with the patterns seen in 10- to 15-year outcomes for non-ASR hip resurfacings and non-ASR total hip arthroplasties, although these other devices have not failed at such a spectacular rate as the ASR [9–11].

Thankfully, the ASR device was recalled by the manufacturer back in 2010 and is no longer implanted. However, there have been substantial medico-legal implications, with the device manufacturers paying billions of dollars in compensation to patients with failing ASR implants [12]. For these reasons, it has been recommended since 2012 that all patients with ASR XL and ASR hip resurfacing implants require annual investigation, which should include cross-sectional imaging in all cases [13].

It is therefore unclear why the studies by Connelly et al [1,5] have investigated how to rationalize the use of metal artefact reduction sequence magnetic resonance imaging (MARS-MRI) imaging in this group of patients with high risk withdrawn implants. The main reason they state relates to the extra cost of these investigations; however, I would propose that this can largely be ignored given the catastrophic failure of this implant design and the need to first protect our patients from future problems. Furthermore, the authors claim that the algorithm they developed was “highly sensitive and specific” and that it “outperformed existing national guidelines” [1]. From the data presented I would question these bold statements. Although the sensitivity presented for the devised algorithm was 86% for detecting adverse local tissue reaction (ALTR) on MARS-MRI for the ASR XL, this is simply not good enough given everything we know about ASR implants and the significant implications of missing ALTR in this high-risk population. I propose that

most patients with these devices still in situ would not consider these results from targeted cross-sectional imaging acceptable.

The authors have used the area under the curve (AUC) to assess the discriminatory ability of their new algorithm (AUC of 50% = a nondiscriminatory algorithm; AUC of 100% = algorithm with perfect discrimination). Although their new algorithm had the highest AUC of the other guidelines assessed, it was still only 63% [1]. This does not therefore represent a clinically useful algorithm, especially given the context of the clinical problem. Furthermore, the confidence intervals for the AUC associated with the new algorithm actually overlap with those from the 2 other sets of guidelines assessed, therefore the authors cannot claim any superiority of their algorithm over existing guidance. Interestingly, in both studies the authors have knowingly compared their algorithm in ASR patients to the non-ASR MoMHA guidance published by the MHRA, rather than using the ASR-specific MHRA guidance, which exclusively recommends cross-sectional imaging in all cases. This therefore makes both the current study and their previous study unnecessary [1,5].

In light of the high revision rate of ASR implants, the widely publicized manufacturer recall, the related medico-legal issues, coupled with the ever increasing revision rate in arthroplasty registries, I would urge clinicians reading these 2 articles by Connelly et al to continue to follow-up patients with the ASR device on a regular basis. This follow-up must include regular cross-sectional imaging, given blood metal ions alone are not adequate in this patient population with Connelly et al [1] themselves reporting that blood metal ions only have a sensitivity between 69% and 75% for identifying ALTR on MARS-MRI. Finally, care should be taken when embarking on future studies to ensure the research questions set are clinically relevant.

Gulraj S. Matharu, MRCS, MRes, DPhil*
Musculoskeletal Research Unit
Bristol Medical School
Southmead Hospital
University of Bristol
Bristol, United Kingdom

Nuffield Department of Orthopaedics
Rheumatology and Musculoskeletal Sciences
University of Oxford
Nuffield Orthopaedic Centre
Oxford, United Kingdom

*Reprint requests: Gulraj S. Matharu, MRCS, MRes, DPhil, Musculoskeletal Research Unit, Bristol Medical School, Southmead Hospital, University of Bristol, 1st Floor Learning & Research Building, Bristol BS10 5NB, United Kingdom.

References

[1] Connelly JW, Galea VP, Laaksonen I, Matuszak SJ, Madanat R, Muratoglu O, et al. Indications for MARS-MRI in patients treated with Articular Surface Replacement XL total hip arthroplasty. J Arthroplasty 2018;33:2906–11. https://doi.org/10.1016/j.arth.2018.04.021.
[2] Matharu GS, Mellon SJ, Murray DW, Pandit HG. Follow-up of metal-on-metal hip arthroplasty patients is currently not evidence based or cost effective. J Arthroplasty 2015;30:1317–23.
[3] Matharu GS, Judge A, Eskelinen A, Murray DW, Pandit HG. What is appropriate surveillance for metal-on-metal hip arthroplasty patients? A clinical update. Acta Orthop 2018;89:29–39.
[4] Matharu GS, Eskelinen A, Judge A, Pandit HG, Murray DW. Revision surgery of metal-on-metal hip arthroplasties for adverse reactions to metal debris: a clinical update. Acta Orthop 2018;89:278–88.
[5] Connelly JW, Galea VP, Matuszak SJ, Madanat R, Muratoglu O, Malchau H. Indications for MARS-MRI in patients treated with metal-on-metal hip resurfacing arthroplasty. J Arthroplasty 2018;33:1919–25.
[6] Langton DJ, Jameson SS, Joyce TJ, Gandhi JN, Sidaginamale R, Mereddy P, et al. Accelerating failure rate of the ASR total hip replacement. J Bone Joint Surg Br 2011;93:1011–6.
[7] Australian Orthopaedic Association National Joint Replacement Registry. Hip, knee & shoulder arthroplasty annual report. https://aoanjrr.sahmri.com/annual-reports-2017; 2017. [accessed 03.11.18].
[8] National Joint Registry for England, Wales, Northern Ireland and the Isle of Man. 14th Annual report. http://www.njrreports.org.uk/Portals/0/PDFdownloads/NJR%2014th%20Annual%20Report%202017.pdf; 2017. [accessed 03.11.18].
[9] Langton DJ, Sidaginamale RP, Avery P, Waller S, Tank G, Lord J, et al. Retrospective cohort study of the performance of the Pinnacle metal on metal (MoM) total hip replacement: a single-centre investigation in combination with the findings of a national retrieval centre. BMJ Open 2016;6:e007847.
[10] Matharu GS, Nandra R, Berryman F, Judge A, Pynsent PB, Dunlop DJ. Risk factors for failure of the 36 mm metal-on-metal Pinnacle total hip replacement system: a retrospective single-centre cohort study. Bone Joint J 2017;99-B:592–600.
[11] Matharu GS, Judge A, Murray DW, Pandit HG. Prevalence of and risk factors for hip resurfacing revision: a cohort study into the second decade after the operation. J Bone Joint Surg Am 2016;98:1444–52.
[12] https://www.nytimes.com/2013/11/20/business/johnson-johnson-to-offer-2-5-billion-hip-device-settlement.html. [accessed 03.11.18]
[13] MHRA. Medical Device Alert: all metal-on-metal (MoM) hip replacements. MDA/2012/036, https://www.gov.uk/drug-device-alerts/medical-device-alert-metal-on-metal-mom-hip-replacements-updated-advice-with-patient-follow-ups; 2012. [accessed 03.11.18].

Response to Letter to the Editor on "Indications for MARS-MRI in Patients Treated With Articular Surface Replacement XL Total Hip Arthroplasty"

In Reply:

We appreciate the thoughtfulness of Dr Matharu's insightful comments on our recent manuscripts. As we know, currently established national follow-up guidelines for metal-on-metal (MoM) hip replacement patients are not evidence-based and vary significantly between countries [1]. With regards to metal artifact reduction sequence magnetic resonance imaging (MARS-MRI) specifically, guidelines vary considerably. The authors agree with the commenting author that the safest and most comprehensive way to identify all adverse local tissue reactions (ALTRs) in MoM hip arthroplasty is to perform MARS-MRI annually on all patients regardless of blood metal ion levels or symptoms. This approach is endorsed by the Medicines and Healthcare Products Regulatory Agency for all Articular Surface Replacement (ASR) patients, but not other MoM implants [2]. However, the authors of the articles in question acknowledge that this type of stringent follow-up is not being performed on ASR patients worldwide and may not be feasible depending on the financial resources available and the country's healthcare environment. MARS-MRI can present a significant burden to patients due to high costs and availability may be limited in some places [3]. Given our large dataset of ASR patients, we sought to determine evidence-based algorithms for identifying the most high-risk patients without requiring annual MARS-MRI on those who were unlikely to exhibit ALTR. We then evaluated our evidence-based algorithms by

DOI of original article: https://doi.org/10.1016/j.arth.2018.10.008.

One or more of the authors of this paper have disclosed potential or pertinent conflicts of interest, which may include receipt of payment, either direct or indirect, institutional support, or association with an entity in the biomedical field which may be perceived to have potential conflict of interest with this work. For full disclosure statements refer to https://doi.org/10.1016/j.arth.2018.10.007.