Article:
Burnett, C, Wright, P, Keenan, A-M orcid.org/0000-0003-0926-0397 et al. (2 more authors) (2018) Magnetic Resonance Imaging of synovitis in knees of patients with osteoarthritis without injected contrast agents using T1 quantification. Radiography, 24 (4). pp. 283-288. ISSN 1078-8174

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Figure legends

Figure 1 Example images showing sample positions of the regions of interest for measuring the T_1 values of synovitis. In Figure 1a, a sagittal VIBE WE image after the administration of intravenous gadolinium is shown. A ROI is shown in the synovitis within the suprapatellar pouch. The positions of the ROI is copied onto the T_1 map (Figure1b) for measurement of T_1 values for synovitis. Figure 1c shows ROI placement on a black and white T_1 map for ease of visualisation.

Figure 2 Comparison of mean T1 values (with 95 % confidence intervals) of structures of the knee in patients with osteoarthritis.

Figure 3 An example of the images produced from this study, demonstrating synovitis in the knee of a patient with osteoarthritis. Figure 3a shows a sagittal knee VIBE WE image following the administration of intravenous gadolinium. Figure 3b is a sagittal T_1 map of the same patient showing synovitis within the knee joint without the need for an injection. On the T_1 image, the areas of synovitis are represented by green and yellow pixels (T_1 ~1005 ms) and red pixels representing higher values of T_1 (over 3500 ms) and fat represented by blue pixels (T_1 ~350 ms). The colour maps are for a visual overview of the T_1 data. Formal assessment of the values should be done on a pixel by pixel level due to the colour scale and T_1 ranges attributed by Osirix®.

Figure 4 Sagittal knee MRI scans of a patient depicting synovitis with a synovial effusion.
(a) Post gadolinium enhanced SPGR MRI scan (b) Inversion Recovery Magnitude image.

The ROI located on synovitis on the post contrast image (green circle) has been copied to the inversion recovery scan. The ROI of the inversion recovery scan returns a value of zero confirming that the correct inversion time has been selected for inverting the signal from synovitis and the signal from the synovitis has been suppressed.