Radiographic severity of arthritis affects functional outcome in total ankle replacement (TAR)
Simon Chambers, Jayasree Ramaskandhan and Malik Siddique

Abstract
Introduction It has been previously demonstrated that radiographic severity of arthritis predicts outcome following knee replacement. In certain circumstances patients may undergo arthroplasty without severe radiographic disease. An example may be the patient with significant chondral damage unsuccessfully treated with arthroscopy. This patient may proceed to joint replacement when their radiographs would not normally merit such intervention. We investigated whether these findings were also applicable to total ankle replacements.

Methods We retrospectively reviewed a single surgeon, single implant series of 178 TAR in 170 patients. Of them 124 patients who took part in the hospital joint registry with minimum 1 year follow up were included for this study. The radiographic severity of arthritis was graded using the Kellgren-Lawrence classification. Pre-op weight-bearing X-rays were reviewed for severity of arthritis by 2 blinded observers: the first author, and an independent colleague from the radiology department. Patients were grouped into 4 sub-groups based on degree of severity of radiographic grading for arthritis – A, B, C, D (for 1, 2, 3, & 4 grades respectively). Data collected included FAOS (Pain, Function & Stiffness), SF-36 Scores and patient satisfaction scores collected prospectively and at 1 and 2 year post-operatively.

Results Groups were similar in terms of demographic data (p>0.1) and pre-operative FAOS scores (p>0.89) for pain, function and stiffness. Group D had the biggest improvement in all domains of FAOS. This reached significance in each domain when compared to group C. No significant differences were demonstrated in SF-36 scores.
Overall 91.1% of patients in group D were satisfied at 2 yrs, compared with 50.0% of patients in groups A,B and C (p<0.001). 93.9% of patients in group D felt that their quality of life had been improved by the surgery, compared to 47% of patients with groups A, B and C (p<0.001). 77.3% of patients from group D said they would have the operation again, vs just 52.2% of patients with grade III or less (p=0.014).
Patients who were “very satisfied” or “somewhat satisfied” post-operatively had an average KL grade of 3.9 pre-operatively. In contrast the “very dissatisfied” and “somewhat dissatisfied” patients had an average KL grade of 2.9 (p<0.05).

Conclusion While this study does not explain all of the dissatisfaction in TAR, radiological severity is an important factor that the surgeon must consider when planning how best to treat their patients. There may be a different pathophysiology in this patient group which is not well served by arthroplasty.