INTRODUCTION
Anteromedial gonarthrosis (AMG) is a distinct phenotype of knee osteoarthritis (OA), with a specific pattern of disease\(^1\). There is full thickness cartilage loss anteromedially, progressing to an area of damaged cartilage, and then to an area of macroscopically normal cartilage posteriorly. (Figure 1).

METHOD
Sixteen unicompartmental resection specimens of patients with primary medial compartment AMG were assessed. The samples were stained with Haematoxylin and Eosin and Saffnin-O stains and scored using the modified Mankin grade, and the OOCHAS assessment tool. Each specimen was assessed at five regions (Bone, T1, T2, T3, and N) along the antero-posterior axis (Figure 2), by two observers.

RESULTS
From anterior to posterior the staining showed a consistent increase in structural integrity and cellularity of the cartilage, matched by a qualitative increase in GAG content. Average modified Mankin and OOCHAS scores showed a progressive decrease in grade (p<0.001) (Figure 3). The OOCHAS had a good correlation with the modified Mankin grade (r=0.886) (Figure 4) and there was good intra- and inter-observer variability with both assessment tools (ICCs of 0.87 and 0.88 respectively).

DISCUSSION
We conclude that there is a progressive decrease in histological score from anterior to posterior in AMG and the macroscopically normal cartilage seen posteriorly is histologically normal. We have shown an excellent correlation between the modified Mankin and OOCHAS grades and we found equally high reliability, reproducibility and variability for both grading systems. We found the OOCHAS easier and quicker to use.

Our findings have implications for OA research that use samples obtained from patients undergoing joint replacement. In the past, many studies have used samples from hip and knee OA joints but are often not specific in reporting the precise geographical region from which the tissue is obtained. The consistent pattern of OA damage seen presents an excellent opportunity for further study as a spatial model of OA progression. In an effort to standardize models of disease for study, we believe that this presents an attractive model of human OA cartilage damage. It is highly desirable to be able to study cartilage at earlier stages of disease and we are in the process of investigating this further.