

Patient Age and Cartilage Lesion Size are Predictors of Poor Clinical Outcomes in Patients Undergoing Osteochondral Grafting Procedures of the Patella

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1 INTRODUCTION

- Patients with anterior knee pain caused by articular cartilage lesions specific to the patella-femoral joint are difficult to treat because of the joint biomechanics and shear forces.^{1,2}
- There are few studies that report on outcomes from biological restoration procedures within this joint, and no studies have looked at patella-based lesions in isolation.
- In our clinical practice, we have noticed that treatment of larger lesions with osteochondral grafting procedures and patients increasing age often result in poorer clinical outcomes.
- **PURPOSE:** To report on the clinical outcomes on a large series of patients undergoing either a primary osteochondral allograft (OCA) or autograft (OAT) procedures to treat painful osteochondral lesions, isolated to the patella .

2 METHODS

- This is a retrospective clinical outcomes study of patients who underwent an OCA or OAT procedure performed by one of two fellowship trained surgeons between January 1st, 2009 and May 31st, 2019.
- All patients in this study had a minimum 1-year follow-up.
- Surgical indications included: failed conservative care, confirmed osteochondral lesion with bone involvement on MRI, and confirmation with diagnostic arthroscopy of the cartilage surface lesion.
- Measurements of the lesion size were recorded and used to determine graft choice.
- OAT procedures were performed for patients with a lesion <10 mm, per the “standard of care” practice guidelines via an autograft harvested from a non-weight bearing portion of the femoral condyle.
- OCA procedures were performed for patients with larger lesions with a fresh donor allograft, using standard press fit techniques.
- Patients were evaluated using a questionnaire and chart review to determine:
 - Outcome scores via the Kujala and Knee Injury and Osteoarthritis Outcome Score (KOOS);
 - Range of motion at least 6 months from the date of surgery;
 - Rate of complications; and
 - Demographic data including: age, BMI, sex, laterality, surgical indications, and concomitant surgeries.

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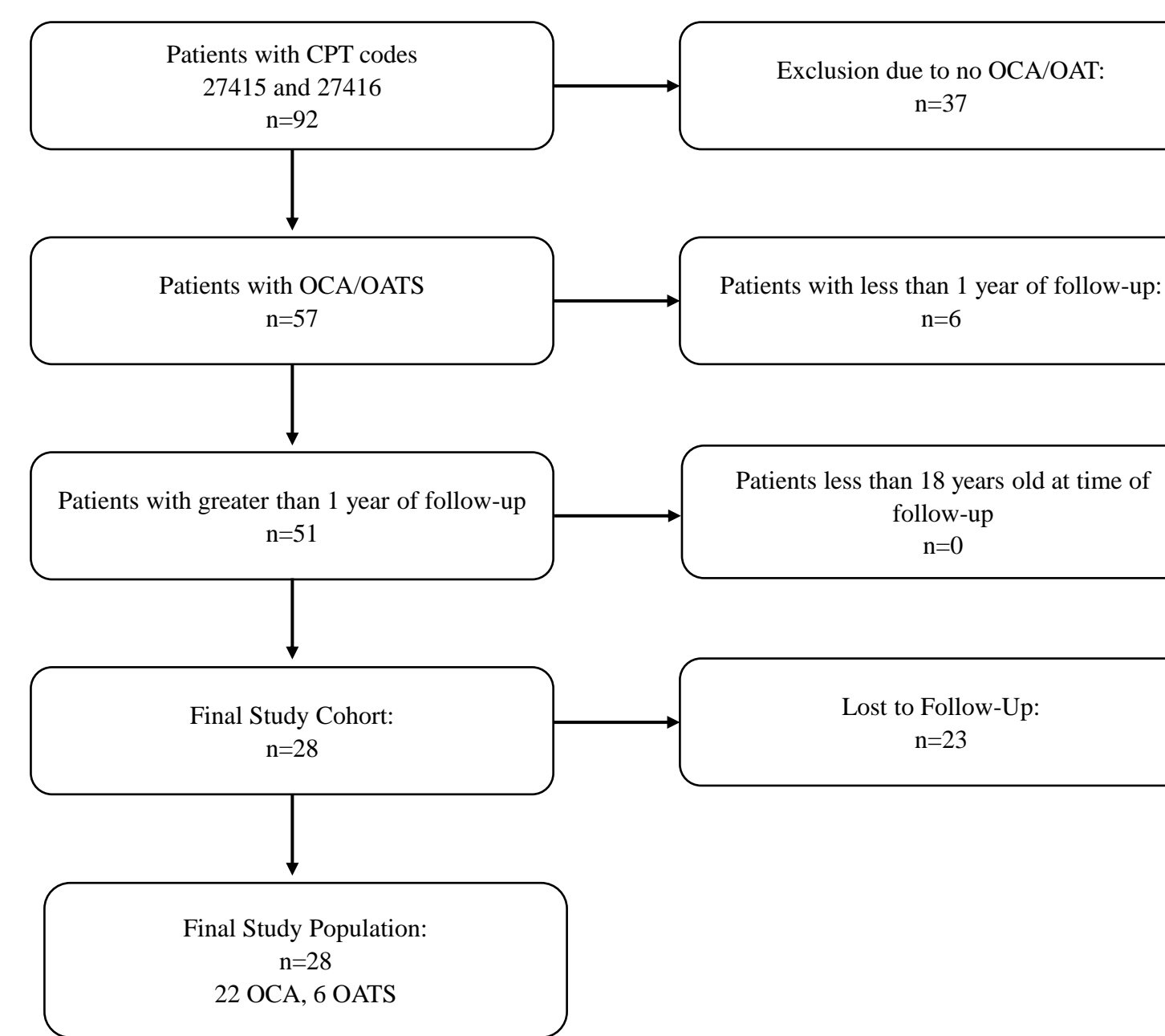


Figure 1. The final study population consisted of 22 OCA and 6 OAT procedures performed in 28 patients (16 females, 12 males) with an average age of 29.8 ± 6.6 years (16-43).

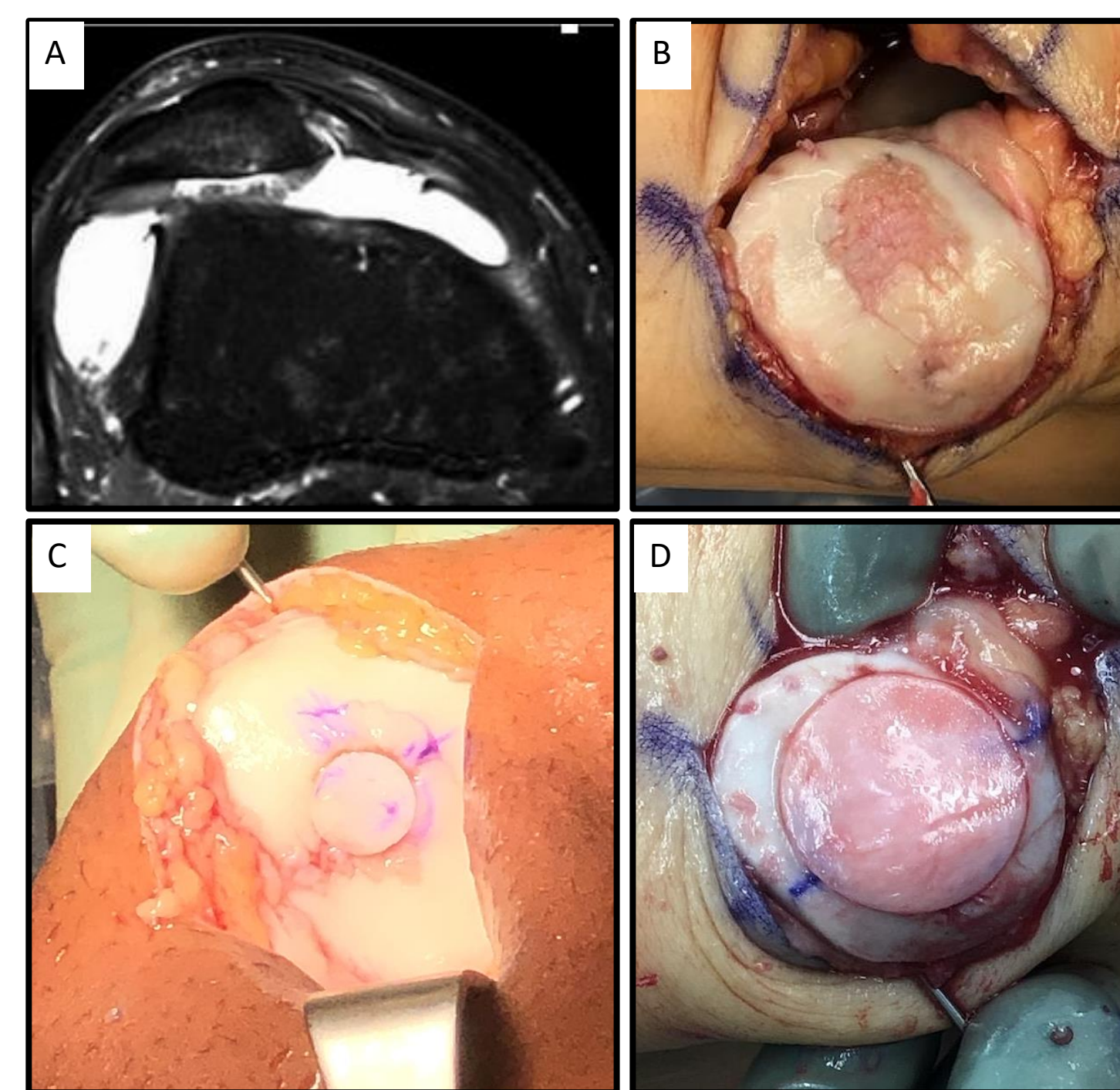


Figure 2. A) MRI of a patient with a large osteochondral lesion of the patella, approximately 15 mm. B) Open exposure, same patellar osteochondral lesion. C) Open example of 10mm osteochondral autograft. D) Open example of 30mm osteochondral allograft.

RESULTS

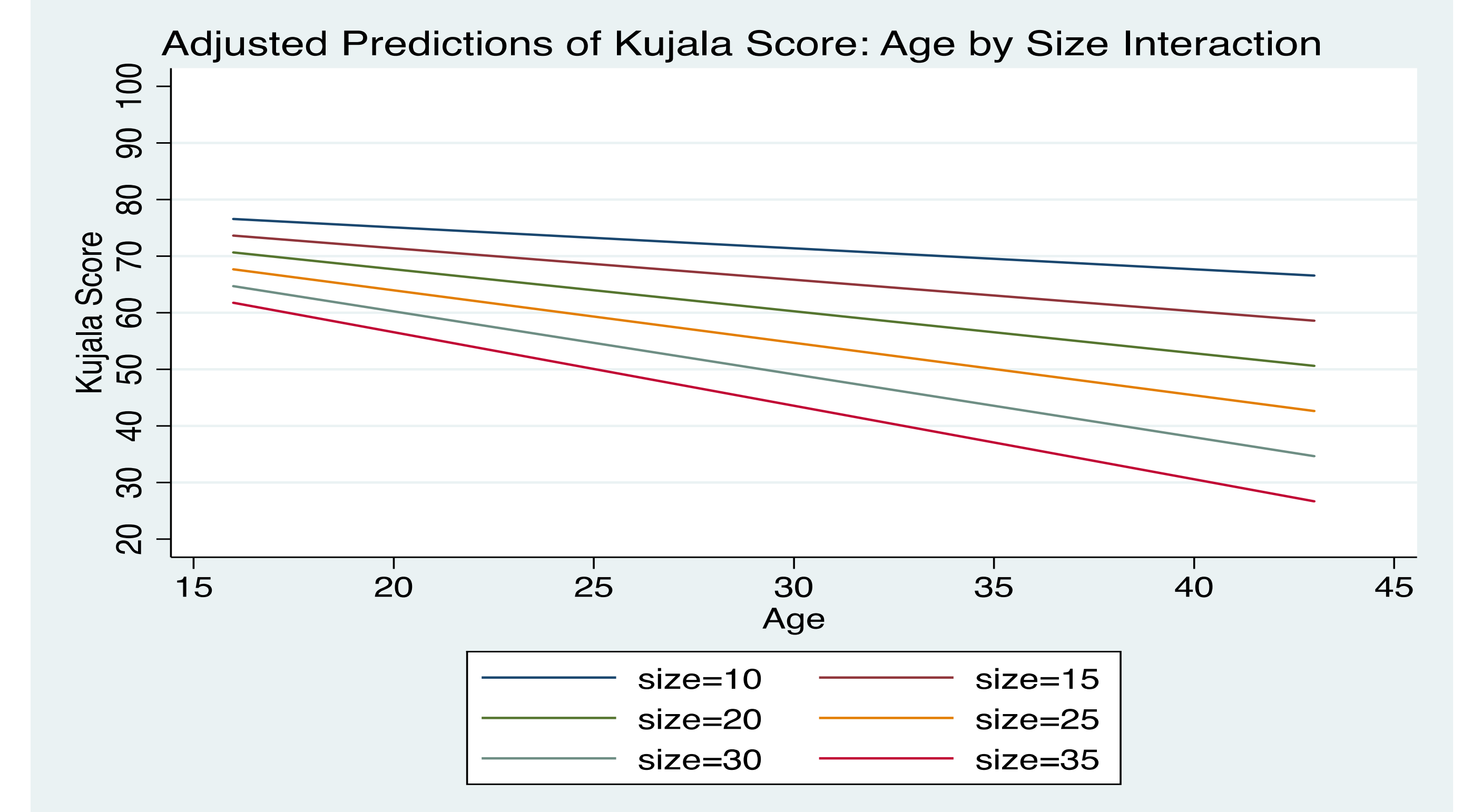


Figure 3. The average Kujala score of the patient cohort was 56.6 ± 24.2 , ranging from 22 to 96. Age and lesion size were found to negatively correlate to Kujala scores ($p < 0.05$).

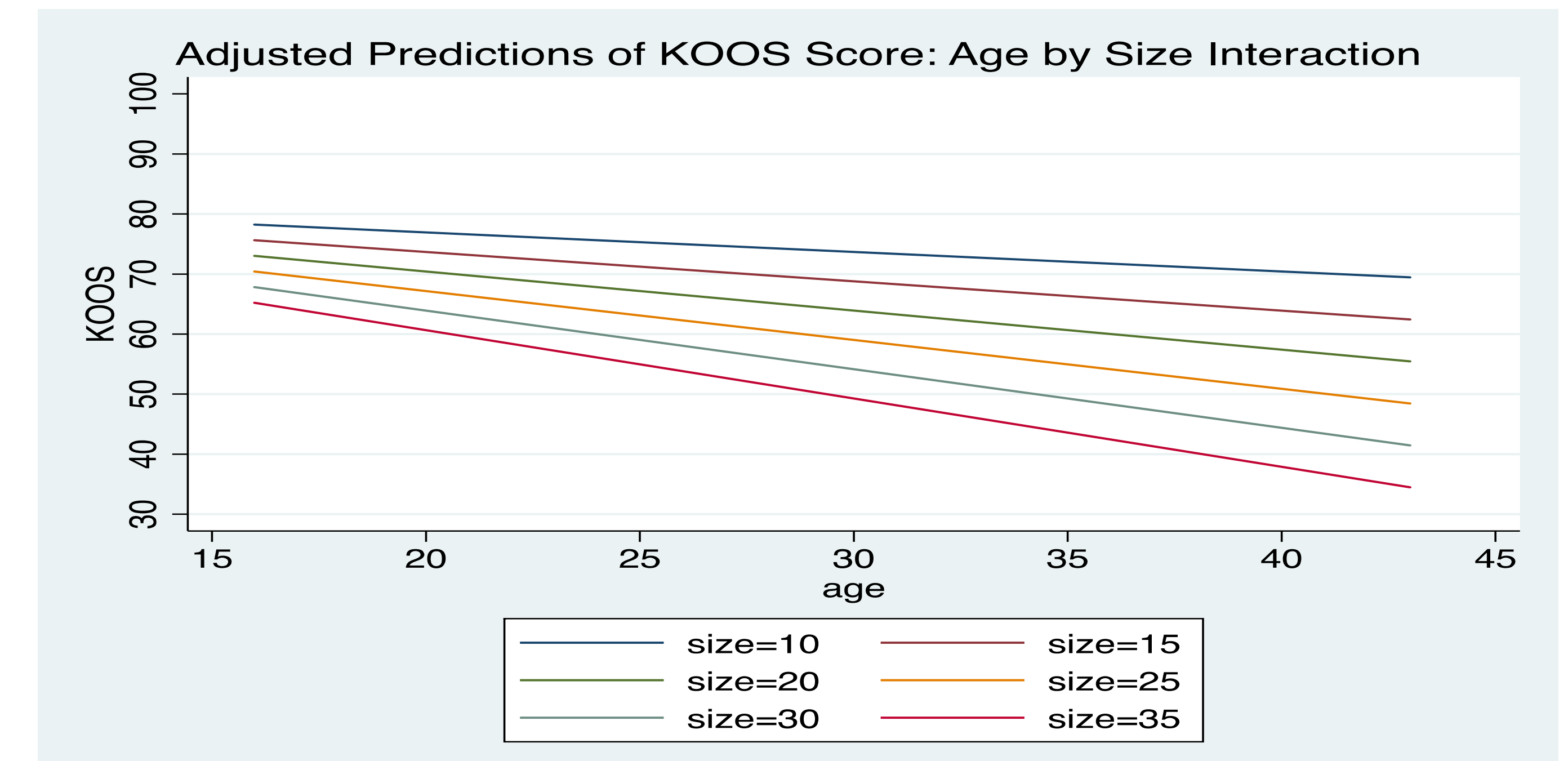


Figure 4. The average KOOS score of the patient cohort was 60.7 ± 22.4 , ranging from 18.5 to 95.1. Age and lesion size were found to negatively correlate to KOOS scores ($p < 0.05$).

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CONCLUSIONS

1. Increasing patient age and increasing lesion size are statistically significant predictors of poor clinical outcomes.
2. Results were compounded when both factors were evaluated simultaneously.
3. These findings will allow orthopaedic surgeons to make more informed decisions in determining patient candidacy and management of expectations for osteochondral grafting procedures of the patellofemoral joint.

References

1. Karataglis et al, Knee, 2005; 2. Cotter et al, AJSM, 2018