ISAKOS

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

11th Biennial ISAKOS Congress • June 4-8, 2017 • Shanghai, China

Paper #36

Tear Progression of Symptomatic Full-Thickness and Partial-Thickness Rotator Cuff Tears as Measured by Repeated MRI

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Summary:
This study analyzed the natural course of nonoperatively-treated symptomatic full-thickness and partial-thickness rotator cuff tears and identified the risk factors affecting tear size enlargement. It turned out that full-thickness tears showed a higher enlargement rate than partial-thickness tears and full-thickness tear was the most important risk factor for tear enlargement.

Abstract:
Introduction
The purpose of the present study was to analyze the natural course of nonoperatively-treated symptomatic full-thickness and partial-thickness rotator cuff tears and to identify risk factors affecting tear size enlargement.

Methods
One-hundred twenty-two patients who received nonsurgical treatment for a partial or full-thickness supraspinatus tear were included in this study. All rotator cuff tears were diagnosed with magnetic resonance imaging(MRI) and MRI was used for follow-up studies in all the patients. Follow-up MRI was performed after at least a six-month interval. We evaluated the correlation between tear size enlargement and follow-up period. Eleven risk factors were analyzed by both univariate and multivariate analyses to identify factors that affect rotator cuff tear size enlargement. The mean follow-up period was 24.4 ± 19.5 months.

Result
Thirty-four patients (27.9%) had an initial full thickness tear and eighty-eight patients (72.1%) had a partial thickness tear. Out of the entire one hundred twenty-two patients, tear size increased in fifty-one patients (41.8%), not changed in sixty-five patients (53.3%), and decreased in six patients (4.9%). Twenty-eight patients (82.4%) of full-thickness tears increased in size; while twenty-three patients (26.1%) of partial-thickness tears increased in size. Full-thickness tears showed a higher enlargement rate than partial-thickness tears in the three groups categorized with follow-up period (6~12 months, P=0.067; 12~24 months, P=0.002; over 24 months, P<0.001). Having a full-thickness tear was the most important risk factor according to logistic regression analysis for progression (P < 0.001).

Conclusion
This study found that 82.4% of symptomatic full-thickness rotator cuff tears increased in size, while 26.1% of symptomatic partial-thickness tears increased in size over a two-year period. Full-thickness tears showed a higher enlargement rate than partial-thickness tears regardless of a follow-up period. The univariate and multivariate analyses presented in this study suggest that having a full-thickness tear was the most reliable risk factor for tear

enlargement.