Estimating the dimensions of the rotator interval with use of magnetic resonance arthrography

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Purpose

The goal of the present study was to define the dimensions of the normal rotator interval with magnetic resonance arthrography and to compare these dimensions with those in shoulders with known chronic anterior instability in order to determine if abnormalities of the rotator interval might be better understood and estimated preoperatively.

Methods

We retrospectively reviewed a consecutive series of 202 shoulders that had undergone magnetic resonance arthrography between 2004 and 2005. Of these, 120 shoulders were included in the present study. These shoulders were divided into two groups according to the diagnosis. Group I comprised fifty shoulders with no instability, and Group II comprised seventy shoulders with chronic anterior instability. With use of magnetic resonance arthrography, the base and height of the rotator interval and the diameter of the glenoid were measured. Then, the area of the rotator interval and the rotator interval index were calculated.

Results

In Group I, the mean estimated rotator interval dimensions (height and base), the mean calculated rotator interval area, and the mean rotation interval index were 16.73 mm, 48.59 mm, 406.47 mm2, and 0.64, respectively. In Group II, these values were 21.87 mm, 49.40 mm, 540.06 mm2, and 0.94, respectively. The shoulders in Group II differed significantly from the shoulders in Group I in terms of rotator interval height, rotator interval area, and rotator interval index ($p<0.01$ for all).

Conclusions

There are significant differences in the dimensions of the rotator interval between patients with and without recurrent anterior shoulder instability. Estimating the dimensions of the rotator interval with use of magnetic resonance arthrography may be valuable for assessing patients preoperatively.

Key Words: Rotator interval, MR-arthrography