

Prevalence of imaging abnormalities in adult shoulders: SCRUTINY
(Systematic Review of Shoulder Imaging Abnormalities in Asymptomatic Adult Shoulders)
Part I: The rotator cuff

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TITLE

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ABSTRACT

Aim

We performed a systematic review to determine the prevalence of imaging abnormalities in asymptomatic adult shoulders with a secondary aim to compare prevalence between symptomatic and asymptomatic shoulders. This paper reports on the prevalence of abnormalities of the rotator cuff (RC) tendons.

Methods

We conducted database and citation searches (1/12/2020) to identify studies reporting prevalence of x-ray, ultrasound (US), computed tomography (CT) and magnetic resonance imaging (MRI) abnormalities in asymptomatic adult shoulders. We assessed risk of bias in each study using an existing tool for prevalence studies and explored heterogeneity in prevalence estimates with meta-regression.

Results

Of 79 included studies, 25 US and 20 MRI studies reported useable RC abnormalities prevalence data in 6748 and 1045 asymptomatic shoulders respectively. All studies were considered at high or moderate risk of bias, few were conducted in nationally representative samples and there was large variation in study methodology. We did not pool study-specific prevalence estimates due to heterogeneity within study populations. Meta-regression showed the prevalence of abnormalities increased with age and was generally higher with MRI than US. On average, full thickness tears were present in 5% and 12% of asymptomatic shoulders of 60-year-olds and 11% and 22% of 75-year-olds on US and MRI respectively (Figure 1).

Conclusions

RC abnormalities are present in many asymptomatic shoulders, they increase with age and are more commonly observed on MRI than US. Consequently, abnormalities might be incidental rather than the cause of symptoms in symptomatic individuals. Ways of differentiating between incidental imaging findings and those causing symptoms need to be identified.

Figure 1. PANEL A: Model estimates of prevalence of full thickness rotator cuff (RC) tendon tears on ultrasound. **PANEL B:** Model estimates of prevalence of full thickness RC tendon tears on magnetic resonance imaging.