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Systematic Review Of Shoulder Imaging Abnormalities In Asymptomatic Adult Shoulders (Scrutiny): Abnormalities Of The Acromioclavicular Joint And Subacromial Space

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Faculty Disclosure Information

- My disclosure(s) are
  - Senior consultant in orthopaedics, Helsinki University Hospital
  - Unpaid consultant, Osgenic
  - Stocks and stock options, Osgenic
  - Board member, Finnish Orthopaedic Society

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Background and rationale

- Shoulder imaging often reveals abnormalities[1]
- These findings may not correlate with symptoms[2]
- Key Question: How common are acromioclavicular (AC) joint and subacromial (SA) space imaging abnormalities in **asymptomatic** individuals?

Objectives

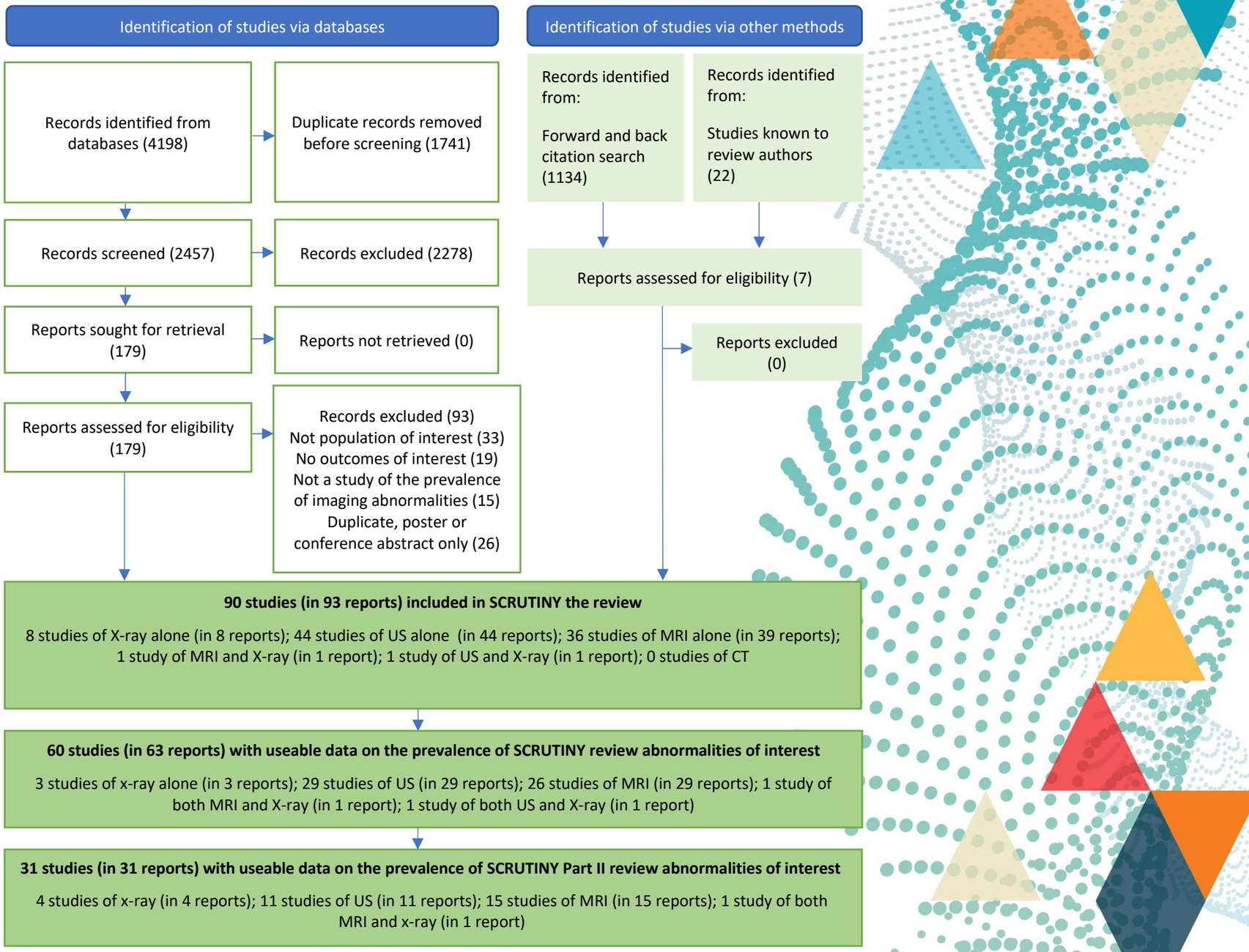
- **Primary Objective**: Assess prevalence of AC joint and SA space abnormalities in asymptomatic adults

- **Secondary Objective**: Compare prevalence between asymptomatic and symptomatic shoulders within the same study populations

Methods

- Systematic review registered in PROSPERO: CRD42018090041
- Searched MEDLINE, Embase, CINAHL, Web of Science to June 2023
  - Included: observational studies with asymptomatic adults ≥18 years
  - Imaging modalities: X-ray, US, MRI (no CT studies found)
- PRISMA 2020 guideline followed[3]

Results



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Study characteristics

- Included studies: 31 with usable prevalence data
- Study types:
  - 1 population-based[4]
  - 16 miscellaneous cohorts
  - 14 athletic populations
- Total shoulders: 3,164
- Modalities: 4 X-ray, 11 US, 15 MRI, 1 both X-ray + MRI

Risk of bias – certainty of evidence

- All 31 studies had high risk of bias
  - Due to selection bias, lack of representative sampling
  - Inconsistent imaging definitions

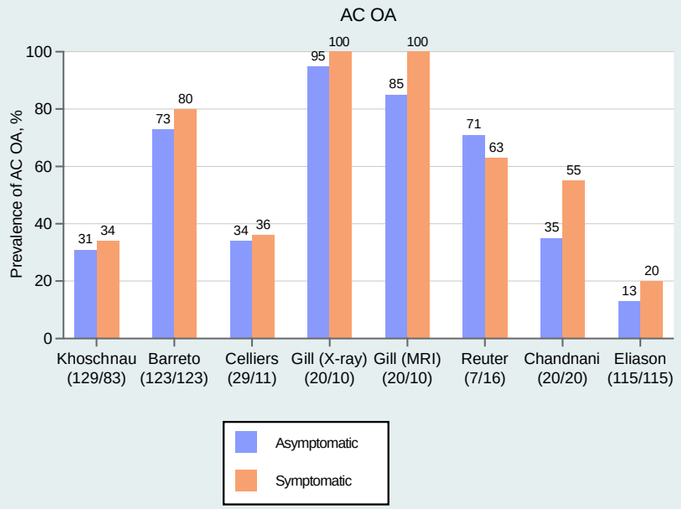
- Certainty of evidence: Very low, using modified GRADE for prognosis[5]

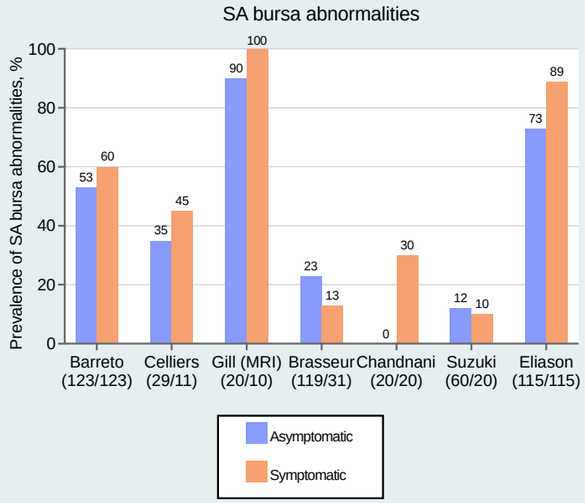
Key findings – asymptomatic shoulders

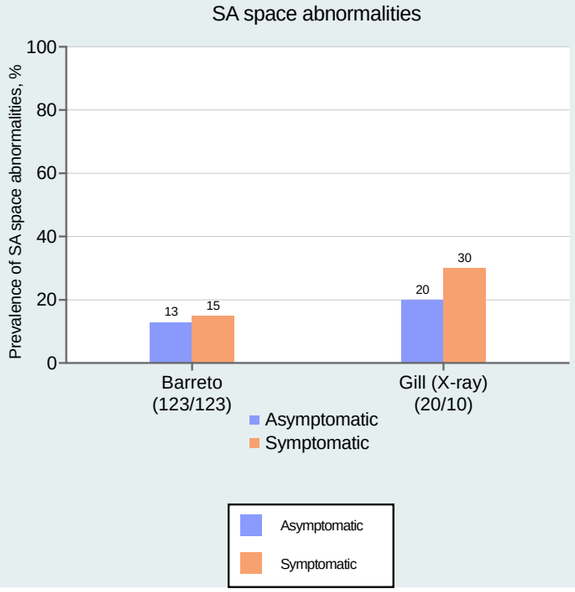
- 1 Population-based study[4] showed AC joint osteoarthritis in 95% (X-ray) or 85% (MRI), SA bursa abnormality in 90%, SA space abnormality in 20%, and SA calcification in 5%
- High variation in non-population cohorts:

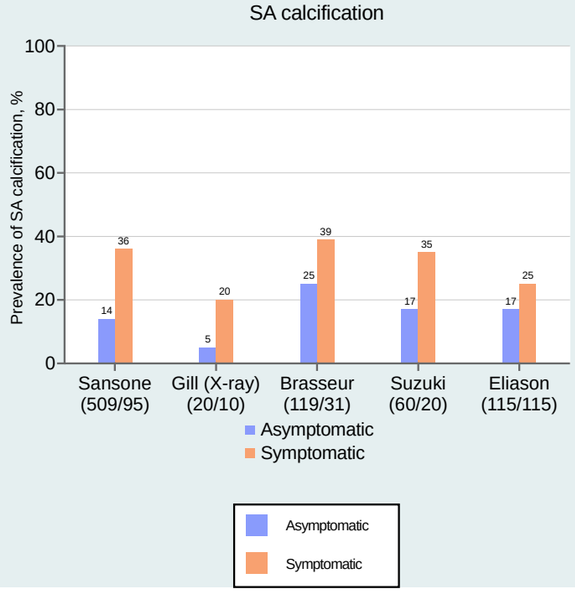
Imaging Abnormality	Total Prevalence (n/N shoulders)	Prevalence Range Among Studies
AC osteoarthritis	27% (483/1794)	0–82%
SA bursa abnormalities	14% (173/1222)	0–79%
SA space abnormalities	14% (172/1233)	0–86%
SA calcification	11% (198/1792)	1–25%

Comparison of asymptomatic and symptomatic shoulders within the same study populations









Conclusion

- **Imaging abnormalities** are common in asymptomatic shoulders (up to 95%) and **similar prevalence** of findings in symptomatic and asymptomatic shoulders
- **Caution needed** when interpreting imaging – may not reflect clinical symptoms.
- **Evidence quality** is very low due to high risk of bias and methodological issues and **heterogeneity** across studies limits comparability (populations, definitions, protocols)

- **Future research needed**: large, standardized, population-based prevalence studies

Full article

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Imaging abnormalities of the acromioclavicular joint and subacromial space are common in asymptomatic shoulders: a systematic review

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References

[1] Stein et al. Detection of acromioclavicular joint pathology in asymptomatic shoulders with magnetic resonance imaging. J Shoulder Elbow Surg. 2001;10(3):204–8.

[2] Barreto et al. Bilateral magnetic resonance imaging findings in individuals with unilateral shoulder pain. J Shoulder Elbow Surg. 2019;28(9):1699–706.

[3] Page et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71.

[4] Gill et al. Prevalence of abnormalities on shoulder MRI in symptomatic and asymptomatic older adults. Int J Rheum Dis. 2014;17(8):863–71.

[5] Iorio et al. Use of GRADE for assessment of evidence about prognosis: rating confidence in estimates of event rates in broad categories of patients. BMJ. 2015;350:h870.