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Title

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MRI Low Signal Prominence at the Anteroinferior Glenohumeral Joint Recess: Frequency, Associated MRI Findings, and Arthroscopic Correlation



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BACKGROUND

- Shoulder MRI occasionally shows a low signal prominence at the anteroinferior glenohumeral joint (GHJ) recess resembling thickened capsular tissue which has an uncertain clinical significance.

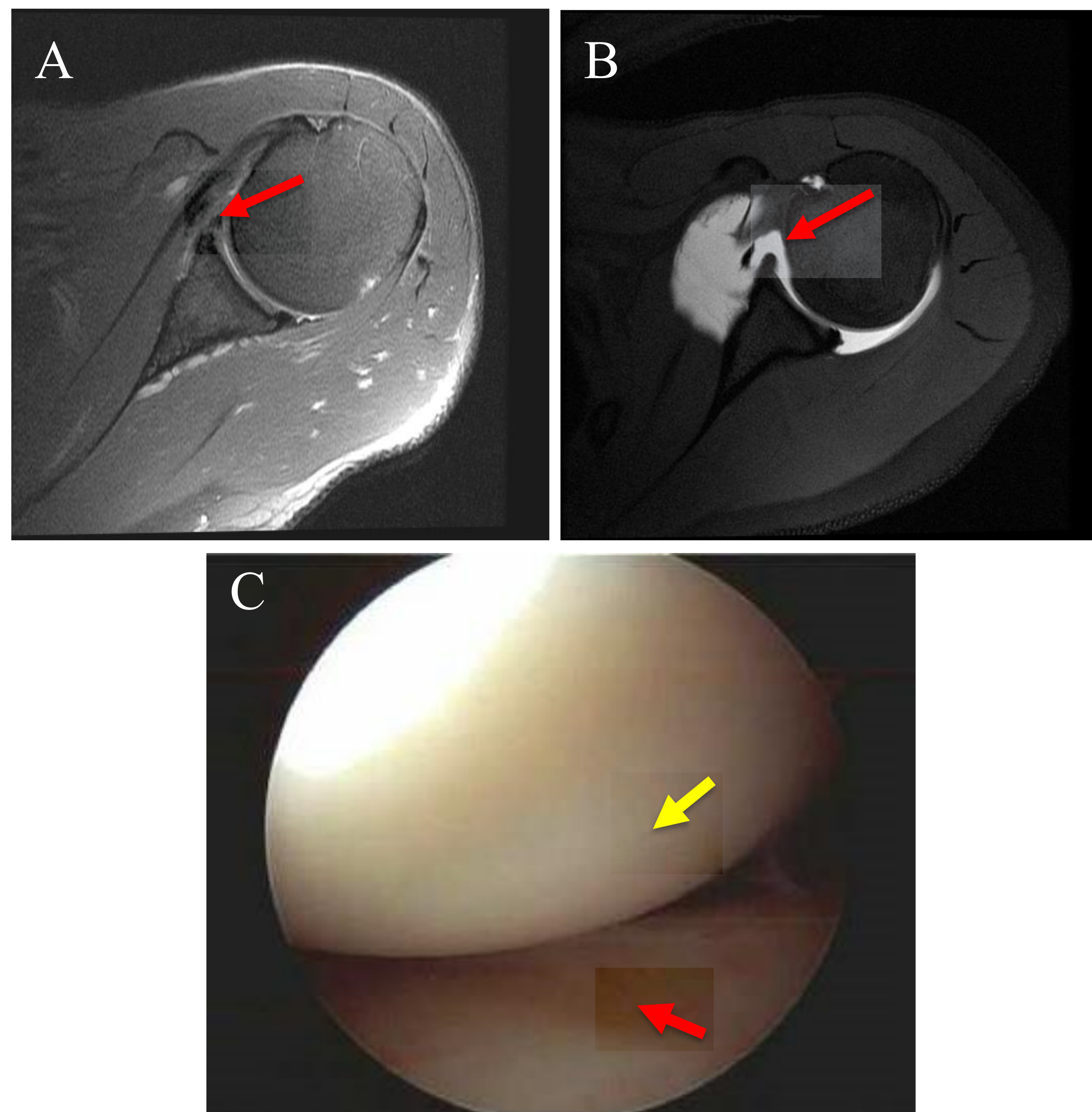


Figure A. MR axial PD fat saturated. Arrow points to where the low signal prominence is visualized.

Figure B. MR axial T1 fat saturated arthrogram. Arrow highlights the GHJ filled with hyperintense gadolinium contrast.

Figure C. Arthroscopic image of normal glenohumeral joint with arrows to humeral head (yellow) and glenoid (red).

OBJECTIVES

- To examine the frequency of this finding on MR and if it is visualized on arthroscopy.
- To correlate with other common shoulder pathologies seen on MR.

METHODS

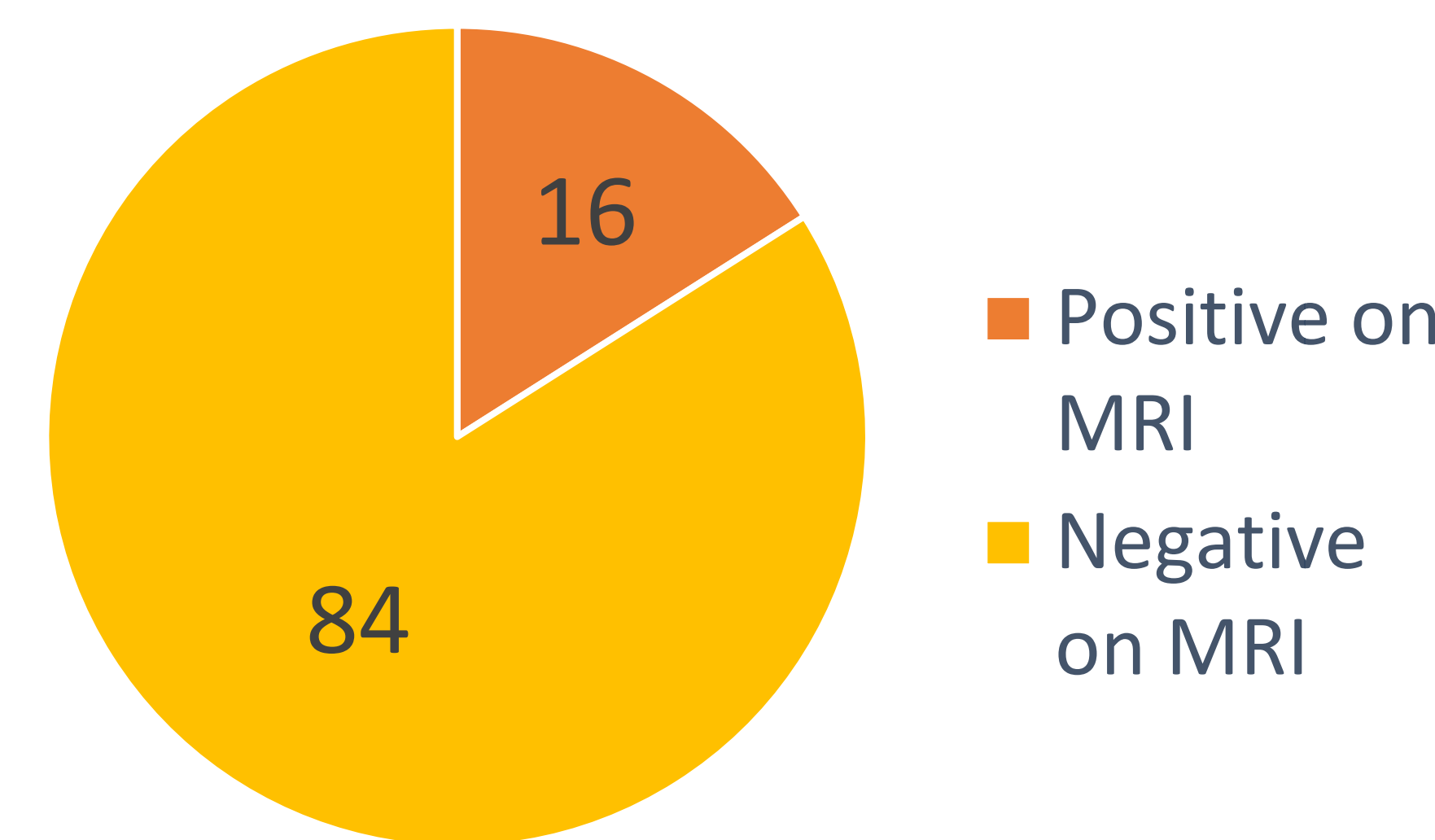
- Retrospective chart review of 112 shoulder MRI (n=97) and MR arthrography (n=15) exams performed at UCDMC between June 2016 and July 2020 who had subsequent arthroscopy within one year.
- Imaging exams were reviewed by a musculoskeletal radiologist and senior radiology resident and assessed for infolding along with ancillary shoulder findings.
- Arthroscopies were reviewed by a subspecialty orthopaedist for prominent capsular infolding at the anteroinferior GHJ recess.

RESULTS

Patient Characteristic	Value	P-value
Age (mean ± SD)	50.8 ± 16.6	
Sex (%)		
Male	58	
Female	42	0.802
Prior Shoulder Surgery (%)	76	0.447
History of Shoulder Dislocation (%)	84	0.587
History of GHJ Instability (%)	80	0.491

Table 1. Patient characteristics with associated p-values, none of which were significant

Proportion with Low Signal on MRI



Capsular Infolding Seen on Arthroscopy

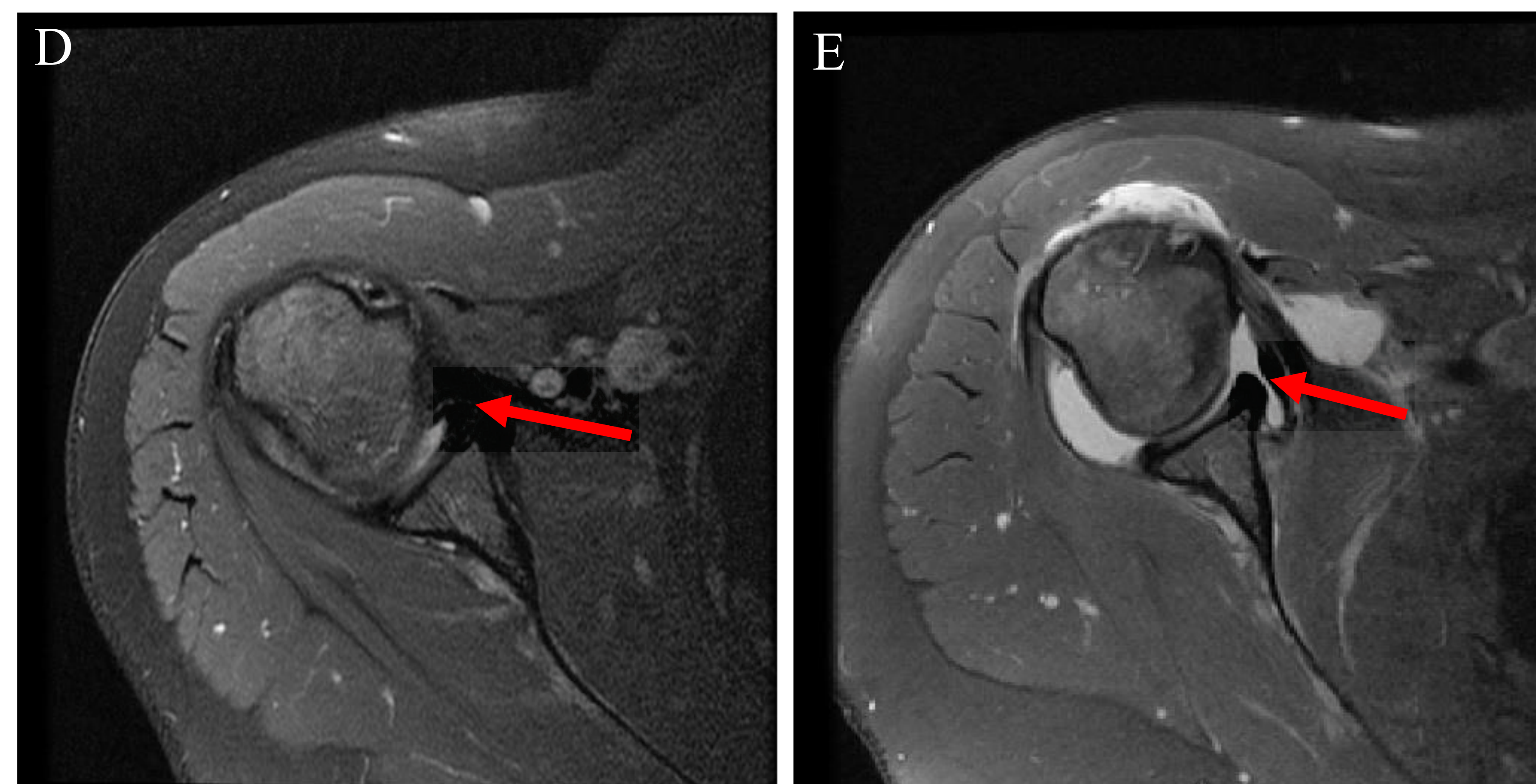
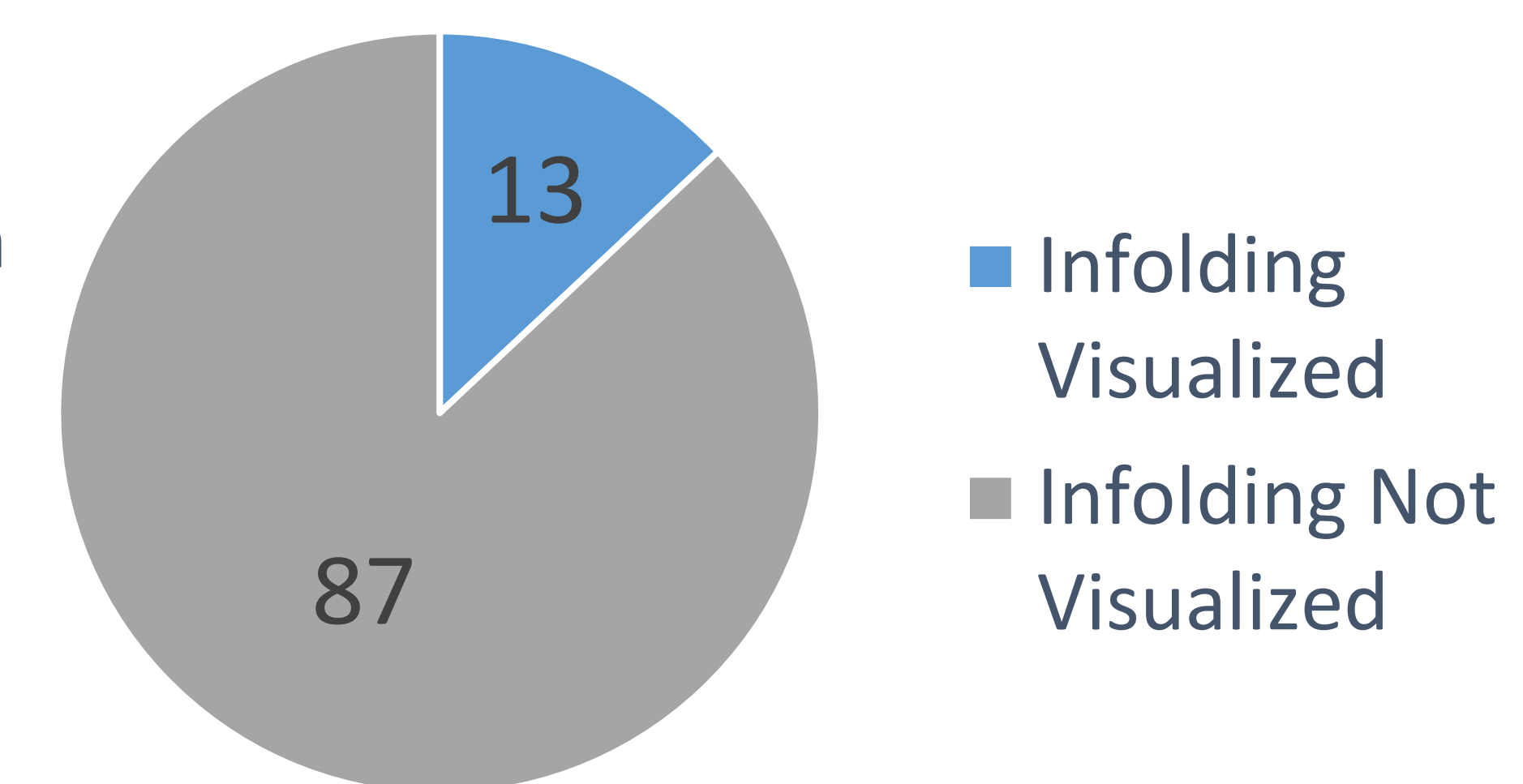


Figure D. MR axial PD fat saturated, arrow pointing to low-intermediate signal.

Figure E. MR axial PD arthrogram fat-saturated with arrow exhibiting loss of the signal after contrast administration.

RESULTS CONT.

- The MRI finding is **negatively associated** ($p < 0.05$) with a moderate or large GHJ effusion
 - The association strengthens when including arthrogram cases ($p < 0.01$)
- This MR finding is **NOT** significantly associated ($p > 0.05$) with ancillary shoulder imaging findings:
 - full-thickness rotator cuff tears
 - Bankart lesions
 - adhesive capsulitis
 - GHJ osteoarthritis
 - humeral head subluxation
 - humeral head external rotation
 - thickened middle glenohumeral ligament
 - humeral avulsion of the glenohumeral ligament

CONCLUSIONS

- The MRI finding was usually not accompanied by capsular infolding on arthroscopy.
- There is no significant association with other common abnormalities on MRI or with a history of shoulder surgery, dislocation, or instability.
- It is less commonly observed in the presence of a significant joint effusion or on MR arthrogram.