Imaging Findings of AIISpinitis and Their Interpretation

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Background

- Hip arthroscopy has led to its application to various pathological conditions.
- However, some patients complain residual anterior hip pain after surgery.
- We focus on anterior hip pain which caused by tendinosis of direct head of rectus femoris.

→ It was reported as AIISpinitis. (Kaya M. PLoS ONE, 2017)

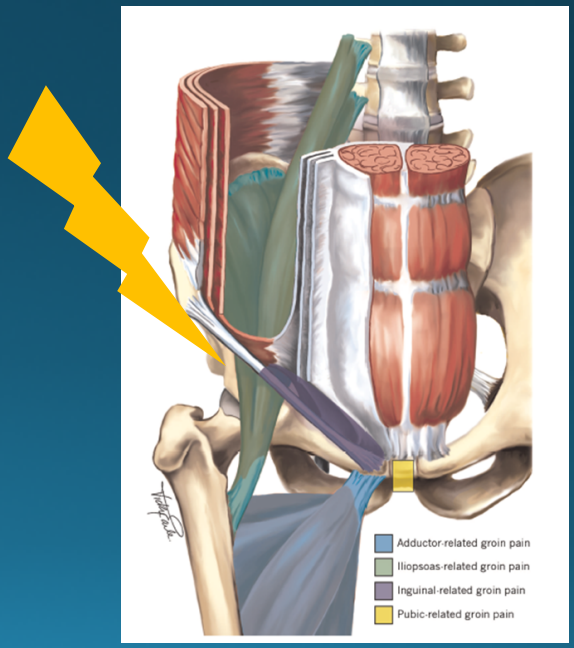
- Endoscopic extra-articular debridement provides rapid relief of its pain.

No study has investigated the imaging findings of AIISpinitis.

Objectives

- To determine the characteristic imaging findings of AIISpinitis.

- To clarify the pathological significance of these findings.



Methods

- Subjects : 62 hips in 58 patients (14-68years) who had undergone endoscopic extra-articular debridement with the diagnosis of AIISpinitis.
- Measurements :

  < Direct head of rectus femoris >

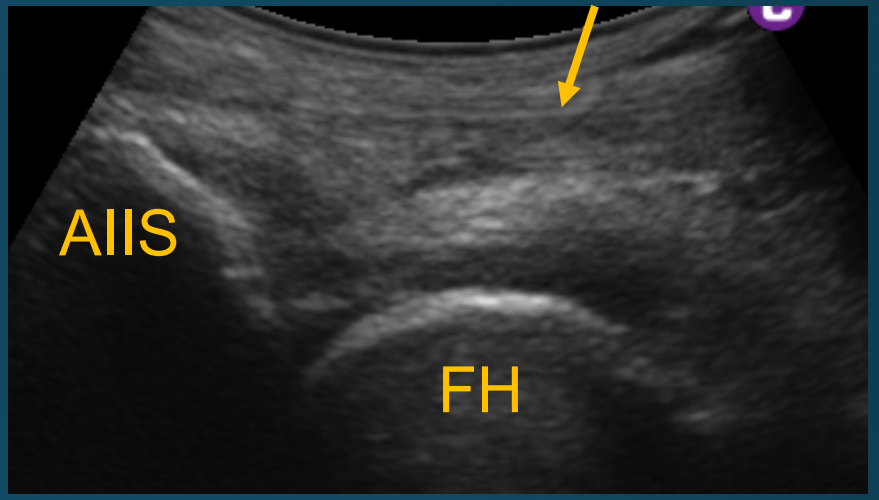
  Positive rates of abnormal findings of preoperative ultrasound and MRI, and their agreement with the injury of direct head of rectus femoris observed endoscopically.

  < Fat pad around AIIS >

  Correlation between preoperative MRI and pathological findings of harvested AIIS fat pad endoscopically.

Ultrasound : long-axis view

Direct head of rectus femoris



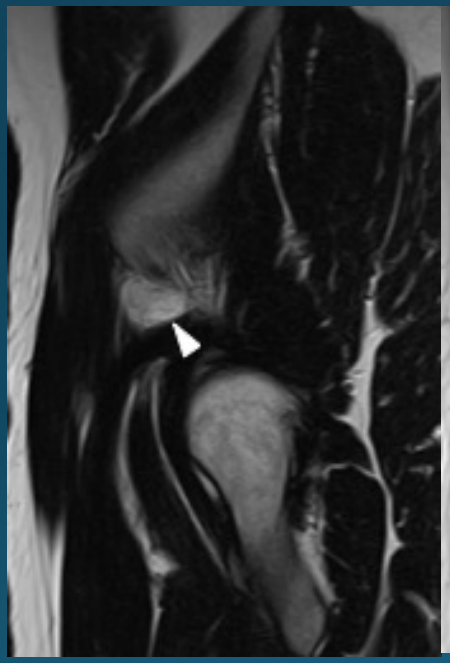
< Abnormal findings >

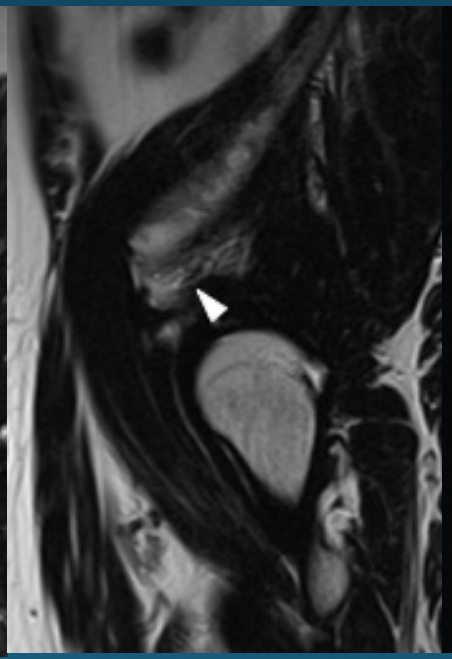
- Disorder of fibrillar pattern
- Hypoechoic area
- Calcification
- Effusion
- Irregularity of AIIS

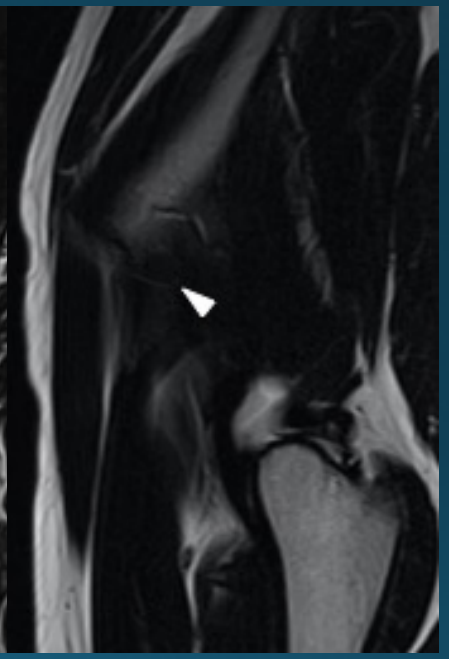
MRI: T2 sagittal

Direct head of rectus femoris

Fat pad around AIIS







Signal change at the origin

Normal

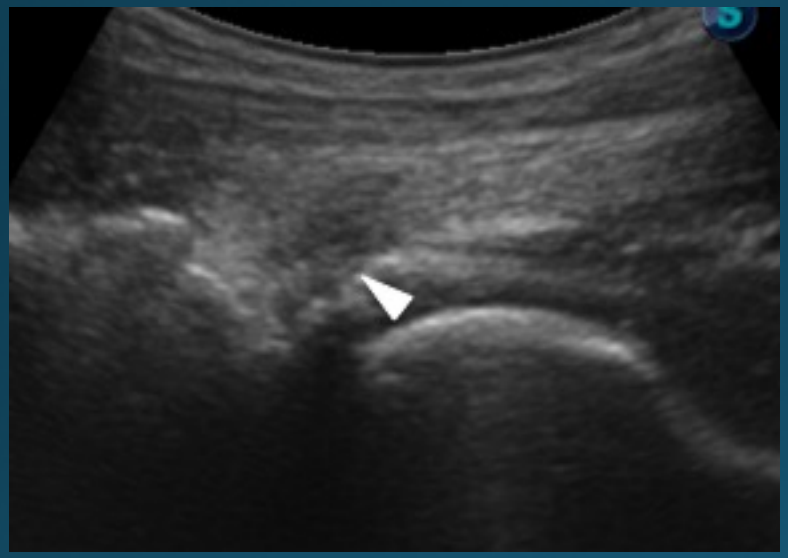
Punctate hypo-intense

Completely hypo-intense

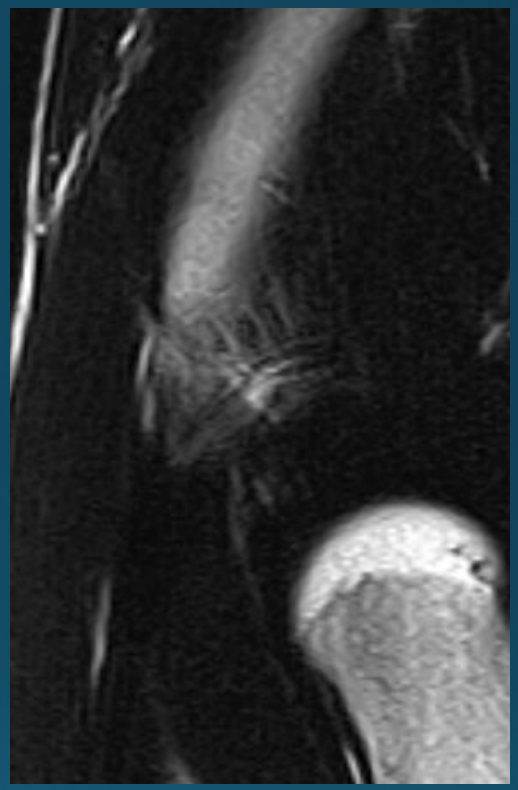
Results

Signal change at the origin : 89%

Hypoechoic area : 85%



κ = 0.43
moderate agreement



κ = 0.69
good agreement

Agreement with the injury of direct head of rectus femoris

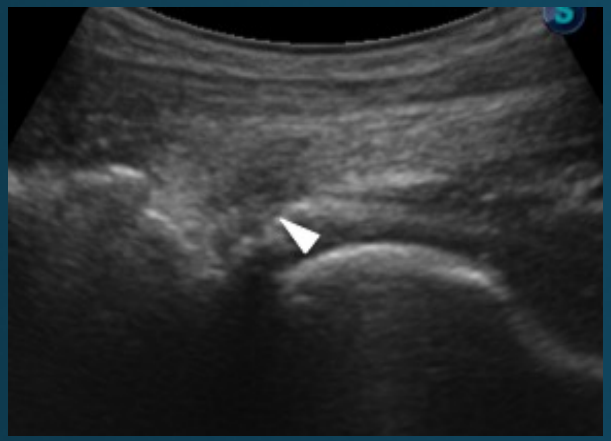
Results : correlation between MRI and pathological findings of fat pad

		Pathological findings		
		Normal	Fibrosis	Scar
MRI	Normal	4	1	0
	Punctate	10	36	3
	Completely	0	4	4

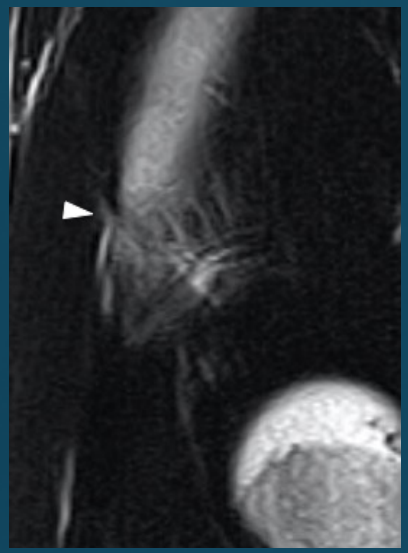
weighted kappa coefficient 0.51 : moderate agreement

Punctate and completely hypo-intense corresponded to fibrosis and scar formation, respectively

Summary

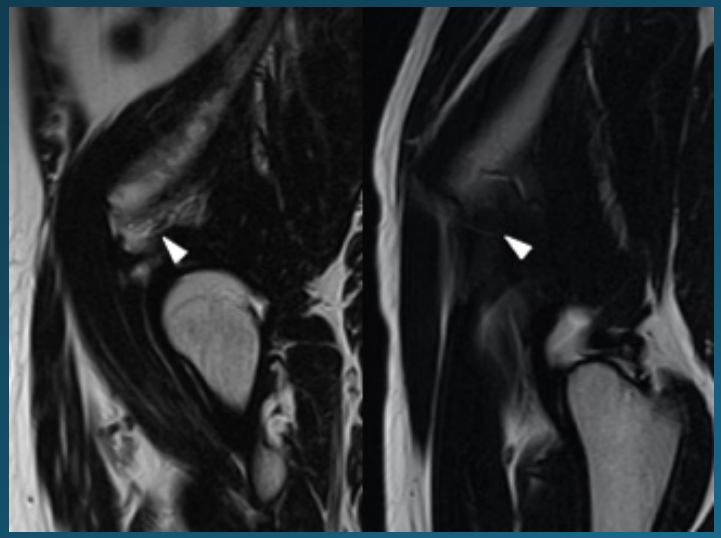


Hypoechoic area

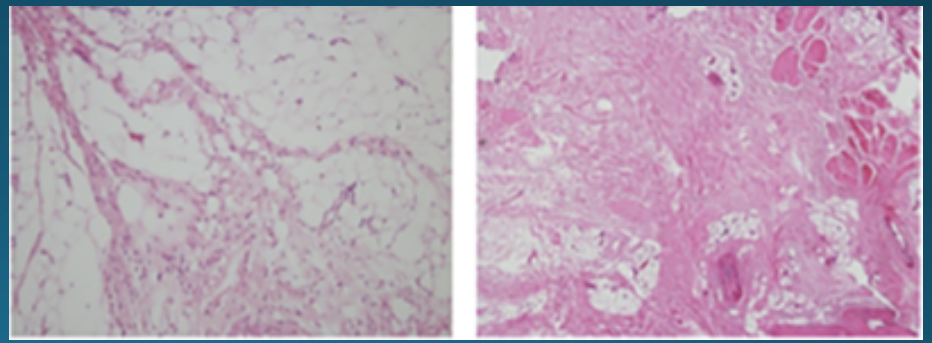


Signal change

Injury of tendon



Signal change of AIIS fat pad



Fibrosis or scar formation

Conclusion

- Hypoechoic area in ultrasound and signal change in MRI indicate the injury of the origin of direct head of rectus femoris which causes tendinosis (AIISpinitis).

- Signal changes of AIIS fat pad reflect the fibrosis or scar formation following chronic inflammation.