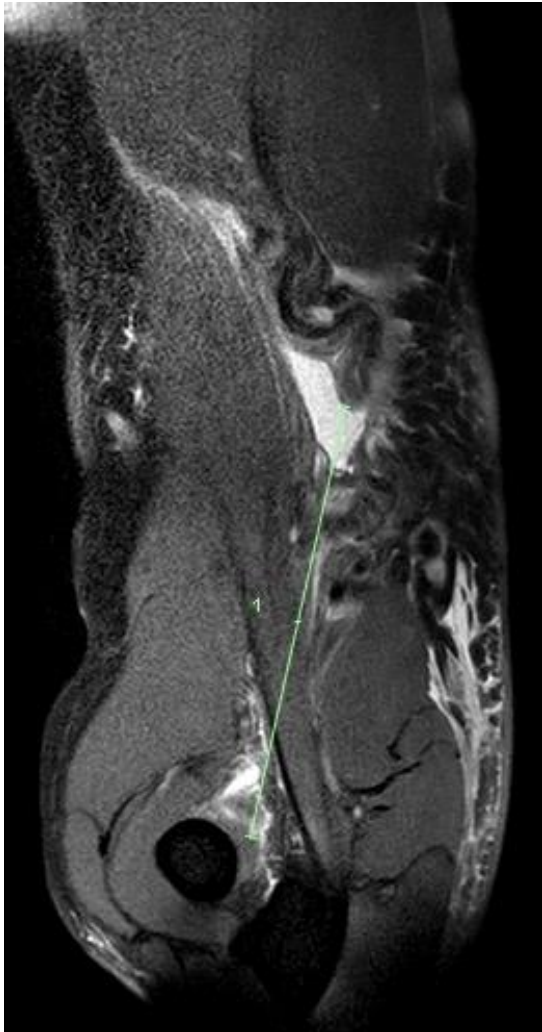


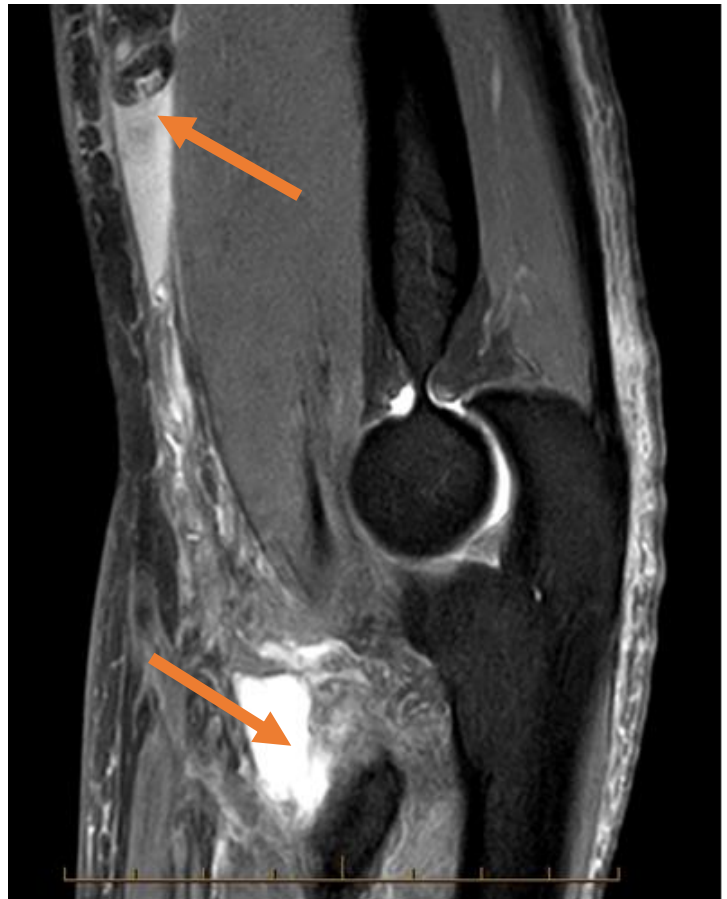
57 year old male gymnast presents with clinical biceps rupture

MRI Right Elbow (Standard protocol PD and PD fat-sat sequences + **Coronal PD FS FABS** sequence):

- Complete avulsion of distal biceps brachii tendon from the radial tuberosity (buckled and retracted 8 cm) with minimal tendon stump remaining at the tuberosity
- Lacertus fibrosus is torn
- No avulsed bone fragment or subcortical marrow oedema signal



FABS – accurately demonstrates stump margins and retraction

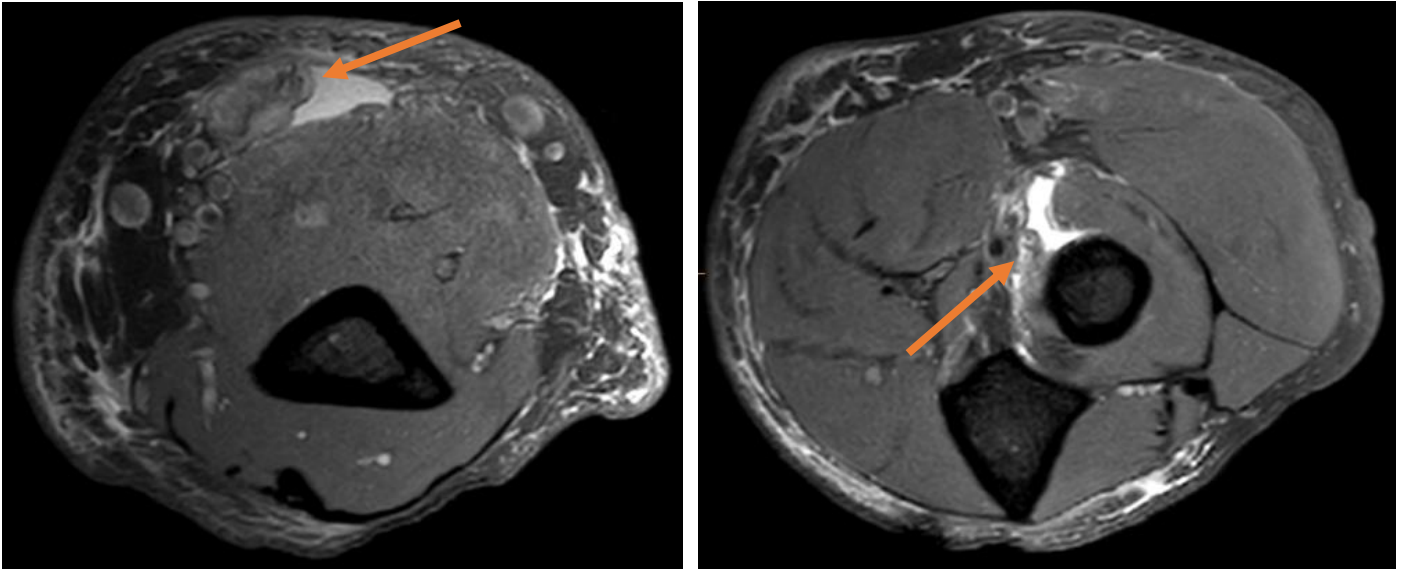


Sag PD SPAIR – stump at radial tuberosity and haematoma occupying defect / bicipitoradial bursa

Discussion

- **Most** commonly - dominant arm males > 40 lifting heavy object (background tendinopathy)
- 2nd most common group is athletes undertaking strength/conditioning training or athletic trauma
- Mechanism often eccentric contraction of biceps with heavy load
- Tear most commonly at/near radial tuberosity tendinous insertion
- Pain and popping sensation antecubital fossa
- Pop-eye defect on clinical exam (retracted tendon with distal defect)
- Limited flexion and supination
- Can fibrose and scar down to brachialis if left untreated

- In complete tear – early surgical repair is often warranted and has been shown to result in superior supination and flexion strength and pain relief compared to conservative management.



Axial PD SPAIR images at *proximal* and *distal* stump levels with haematoma in the defect and diffuse soft tissue oedema

MR Imaging

- Imaging test of choice
 - Routing Tri-planar
 - FABS sequence (elbow Flexed, arm ABducted, wrist Supinated)
 - Slices oriented parallel to long axis of tendon – accurate assess retraction and tuberosity
- Demonstrates
 - Location and extent (partial or complete) of tear
 - Retraction (degree) and integrity of Lacertus Fibrosus can influence surgical approach
 - Bony avulsions / subjacent marrow oedema
 - Condition of tendon stumps
- Classifies tear
 - Complete
 - Partial (can delineate morphology such as bifurcate biceps tendon head anatomy)
 - Tendinopathy
 - Chronic tearing with fibrosis

US Imaging

- Can assess discontinuity and retraction
- Long and short head components can often be delineated

Differential Diagnoses

- Partial v complete tear
- Brachialis tear

Further Reading:

L Chew, M & Giuffre, B. Disorders of the Distal Biceps Brachii Tendon1. Radiographics : a review publication of the RSNA, Inc. 25. 1227-37 (2005).
 Koulouris G et al: Bifid insertion distal biceps brachii tendon with isolated rupture: magnetic resonance findings. J Shoulder Elbow Surg. 18(6):e22-5, (2009).
 Giuffre, B. & Moss, M. Optimal positioning for MRI of the distal biceps brachii tendon: flexed abducted supinated view. Am. J. Roentgenol. 944-946 (2004).
 Stadnick, ME. Distal Biceps Tendon Rupture Elbow. MRI Web Clinic — Jan 2015.