History: 43 year old man with elbow pain after working out
Series of Axial PD and IR images
Coronal PD and IR images
Findings

Multiple planes of imaging demonstrate two tendons at the expected location of the distal biceps tendon. The more medial tendon demonstrates a low grade injury/strain with otherwise continuity to the radial tuberosity. The more lateral tendon demonstrates complete disruption with retraction of approximately 2.5cm from the radial tuberosity. A marked amount of edema is seen in the adjacent soft tissues.
Lateral tendon hyperintense (long head of the biceps)

Mild edema about medial tendon (short head of the biceps)
Lateral tendon (long head)

Medial tendon (short head)

Greater edema and injury about the lateral tendon
No lateral tendon

Intact medial tendon
Intact medial tendon at radial tuberosity
Only Medial tendon
Only Medial tendon
Only Medial tendon
Only Medial tendon at insertion
Biceps tendon injury
Biceps tendon injury

Intact medial tendon
Medial tendon at radial tuberosity
Medial tendon at radial tuberosity
Diagnosis: Complete disruption of one tendon in the setting of a bifurcated/bifid distal biceps tendon

Disruption of the distal biceps tendon is much less common than at the proximal attachment and tends to occur in middle aged men, typically older than 40. The short and long heads of the biceps yield tendons at approximately 7cm proximal to the radial tuberosity attachment site. There is a vast variation in the degree of intertwining or decussation between the two tendons. As in this case, at times there is a persistent bifurcated or bifid architecture of the tendons with two separate tendons extending to the radial tuberosity.

When two tendons are present, the short head of the biceps is the more medial of the tendons and has a more distal insertion on the radial tuberostiy. The long head of the biceps is the more lateral tendon and inserts more proximally. In the setting of a selective disruption of one of the tendons, by in large it is the short head but in this example it is the more lateral tendon or long head tendon that is disrupted. However, there has been a strain of the short head seen best on the axial IR images and hence this is not completely, an isolated or selective injury. The importance of these findings is to be aware that injury can have still been sustained even if a tendon attachment is present at the radial tuberosity and surgery may still be necessary for the selective disruption.
Follow up

Repair of selective disruption of the long head
References


http://radsource.us/pathology-of-the-long-head-of-the-biceps-tendon/