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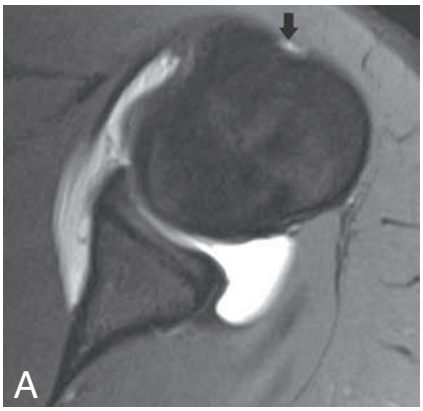
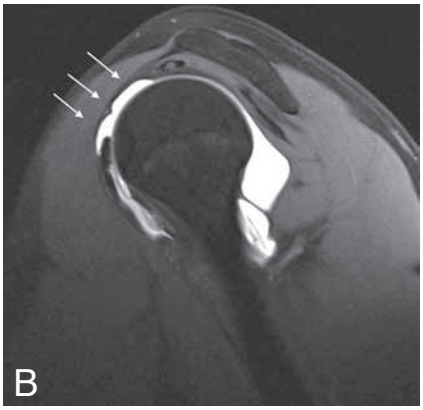
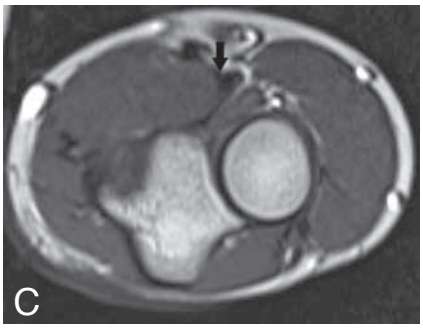
IMAGES IN CLINICAL RADIOLOGY







Congenital absence of long head of the biceps tendon

P. Gillardin[1], F.M. Vanhoenacker[2], T. Wauters[3], A.I. De Backer[1]

A 22-year-old male was referred to the shoulder surgeon with right shoulder pain after a forced adduction trauma of the upper extremity, and a missing biceps tendon on ultrasound. Previous medical history consisted of VATER association characterized by crossed ectopy of the left kidney, vertebral defects, pes equinovarus, and ventricular septum defect. Right renal dysplasia was treated with nefrectomy. Clinical examination of the shoulder showed evidence of sprain of the acromioclavicular joint. There was no "Popeye" sign to indicate a torn retracted biceps in the distal arm. On Magnetic Resonance Arthrography, absence of the tendon of the long head of the biceps and a shallow intertubercular groove was noted (Fig. A, black arrow on an axial image). In addition, there was no stump of the proximal biceps in the rotator cuff interval identified to suggest a torn and retracted biceps tendon (Fig. B, white arrows indicating the rotator cuff interval on a sagittal image). The short head of the biceps tendon was seen arising from the coracoid process, and there was a normal muscle bulk of the biceps brachii. The rotator cuff and labrum were normal. Subsequent Magnetic Resonance Imaging (MRI) of the elbow revealed a normal distal biceps tendon (Fig. C, black arrow on an axial T1-weighted image). Patient was treated conservatively including physiotherapy.

Comment

Congenital absence of the long head of the biceps tendon (LHBT) is rare, and may occur bilaterally. This anomaly has been reported to occur as the result of an insult to the fetus during the sixth or seventh week of gestation, at which time the long head of the biceps tendon is developing. Although the incidence of this anomaly is unknown, it seems to be extremely rare. It often presents as an incidental finding on imaging done for nonspecific shoulder pain, but it has been described in patient with unstable shoulders. Congenital absence of the LHBT is associated with other congenital anomalies such as the VATER association, characterized by vertebral defects, anal atresia, tracheo-esophageal fistula with esophageal atresia, radial anomalies, and renal anomalies. Therefore, search for these associated congenital anomalies is advocated.

On MRI, absence of the tendon of the LHBT and a smooth and shallow intertubercular groove in the absence of a torn and retracted biceps tendon are the key imaging findings. The origin of the short head of the biceps tendon on the coracoid process is normal and the volume of the muscle belly of the biceps brachii muscle appears within normal limits. Other associated finding may consist of a hypoplastic superior labrum and attenuated anterior, middle and inferior glenohumeral ligaments. Congenital absence of the LHBT has to be differentiated from acquired traumatic tendon tear. Clinically, the absence of a "Popeye sign" and the lack of a history of trauma are major clues to the differential diagnosis with the more frequent rupture of the LHBT. On MRI, there is no distal tendon retraction. A shallow groove may also result from osteophyte formation due to chronic rotator cuff tear. In the latter case, the groove is irregularly delineated, in contrast to the rather smooth appearance in congenital absence of the LHBT. Finally, differential diagnosis has to be made with an extrasynovial course of the LHBT lying within the fibrous capsule or passing through the supraspinatus tendon.

Reference

1. Franco J.C., Knapp T.P., Mandelbaum B.R.: Congenital absence of the long head of the biceps tendon. A case report. *J Bone Joint Surg Am*, 2005, 87: 1584-1586.

From: 1. Department of Radiology, AZ Sint-Lucas, 2. Department of Radiology, UZ Gent, Department of Radiology, UZ Antwerpen, Department of Radiology, AZ Sint-Maarten, Duffel, 3. Orthopaedic Surgery, Mechelen, Belgium.