Congenital Absence of the Long Head of Biceps and Posterior Radial Head Dislocation

Paramita Mitra¹, Anestis Iossifidis¹

1 Department of Trauma and Orthopaedic Surgery Croydon University Hospital, London, United Kingdom.

Conflict-of-interest statement: The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/

Correspondence to: Anestis Iossifidis, MD, FRCS Ed (orth.) Head of Orthopaedic Surgery, Croydon University Hospital, 530 London Road, Croydon, London, CR7 7YE, United Kingdom.

Email: anestis.iossifidis@gmail.com

Telephone: +0044 (0) 7802404708

Received: June 10, 2020
Revised: June 28, 2020
Accepted: July 1 2020
Published online: August 28, 2020

ABSTRACT

Congenital absence of long head of biceps is an uncommon condition. We report the first case of bilateral congenital absence of long head of biceps tendon in a young male presenting with recurrent anterior right shoulder dislocation associated with an ipsilateral congenital radial head dislocation. This association has not hitherto been described. We present the clinical, imaging and arthroscopic findings, as well as a review of literature to promote awareness of this rare pathology and discuss its role in joint instability and associated congenital abnormalities.

Key words: Shoulder surgery; Shoulder instability; Congenital biceps absence; Congenital radial head dislocation

© 2020 The Author(s). Published by ACT Publishing Group Ltd. All rights reserved.
DISCUSSION

Anatomically, the long biceps tendon originates from both the supraglenoid tubercle and superior labrum. Embryological development of the long head of biceps occurs along with the glenoid labrum and joint capsule from the embryonic mesoderm. Subsequently, the capsule and the ligaments differentiate from the synovial layer. Differentiation of the biceps tendon occurs during the 6th and 8th week of embryonic development, hence any alterations at this crucial period may result in long biceps tendon malformations\(^1\). In some cases, agenesis of LHBT may be associated with other congenital malformations such as glenoid dysplasia\(^2\), radial defects\(^3\) and, as in our case, a congenital posterior dislocation of the elbow.

Review of the literature showed that in congenital absence of the long head of biceps tendon, the patient is often male (10 out of 11 cases) with a mean age of 28 (range 17 to 40), presenting with either shoulder instability (5 cases) or shoulder pain (6 cases) with impingement in 3 of these cases. Biceps muscle bulk and strength are usually normal. A ‘pop eye’ sign is never observed, which differentiates this condition from a tear of the long head of biceps. Imaging studies such as magnetic resonance imaging (MRI) or MRA with gadolinium intra articular contrast are able (a) to detect a shallow or hypoplastic bicipital groove with an absent tendon on T1 fat saturated axial images and (b) differentiate between a ruptured tendon with distal retraction and agenesis. Commonest associated MRI findings were labral tears and redundant capsular-ligamentous complex. In our case, an ultrasound scan could also detect a shallow hypoplastic bicipital groove and an absent biceps tendon. Most arthroscopic procedures in the literature involved repairs of Labrum and / or capsulorrhaphy. All patients had a satisfactory recovery and did not have any recurrence of symptoms\(^2-11\).

The LHBT has been shown to act as a dynamic stabiliser and a depressor of the humeral head during abduction of the glenohumeral joint in the scapular plane\(^12\). Additionally, it acts as an anterior stabiliser by decreasing the forces across the inferior glenohumeral ligament complex\(^13\). It is thought therefore that LHBT absence may predispose the joint to instability. We believe however that this is a correlation and not a causation. It is possible that a capsular malformation occurring during the critical embryonic period of abnormal differentiation and biceps agenesis, may be responsible for the future joint instability. Indeed the most common arthroscopic findings are those of capsular redundancy and labral tears. In addition following capsular ligamentous repair the joint stability is maintained, in our case for 5 years, without recurrence despite LHBT absence, which we think is merely a coexisting developmental pathology.
CONCLUSION
Agenesis of long head of biceps is a rare condition and most reported cases present with the common symptoms of shoulder joint instability. Awareness of this condition is paramount and should prompt the clinician to exclude other associated congenital malformations.

REFERENCES