

Unusual insertion of the pectoralis minor muscle

Yuliyana Kartelov, Lazar Jelev, Dimka Hinova-Palova, Adrian Paloff,
Wladimir Ovtcharoff*

*Department of Anatomy, Histology and Embryology, Medical University of Sofia
BG-1431 Sofia, Bulgaria*

In this report the authors described an interesting variation in the insertion of the pectoralis minor muscle. It was found during routine anatomical dissections of the upper limbs and shoulder joints. In one left upper limb and one dissected left shoulder joint the pectoralis minor tendon was divided into a lateral portion attached as usual to the coracoid process and a small medial portion attached to the capsule of the shoulder joint and the glenoid labrum. The possible clinical implications of the abnormal pectoralis minor tendon is discussed.

Key words: pectoralis minor muscle; abnormal tendon; variation; clinical significance

Introduction

The pectoralis minor is a flat triangular muscle located on the upper-lateral part of the thorax, posterior to pectoralis major muscle. It is commonly composed of three muscular slips arising from the third, fourth and fifth ribs near their cartilages. Upwards and laterally the muscular slips converged to insert into the medial border and superior surface of the coracoid process of the scapula. In some rare cases, however, the pectoralis minor may have some additional insertion points [3-5,7,8].

Case report

Two cases of unusual insertion of the pectoralis minor were accidentally found during routine anatomical dissections of the upper limbs and shoulder joints from the autopsy material available at the Department of Anatomy, Histology and Embryology of the Medical University of Sofia. In both cases, one left upper limb (Fig. 1) and one left dissected shoulder joint (Fig. 2), the tendon of the pectoralis minor was divided into two portions – a medial and lateral. The lateral portion was attached to the medial border and superior surface of the coracoid process of the scapula. The small aberrant medial portion turned around the upper surface of the coracoid process and inserted into the capsule of the shoulder joint and the upper-posterior part of the glenoid labrum. We found also an interesting synovial bursa between the lower surface of the medial tendinous portion and the upper surface of the coracoid process.

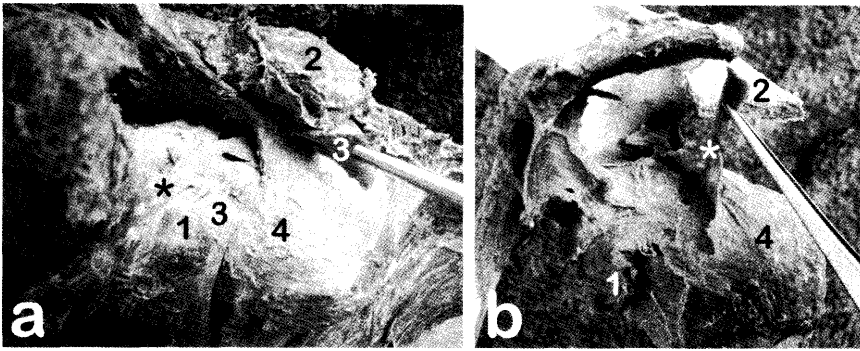


Fig. 1. Photographs of the reported variant incertion (asterisk) of the pectoralis minor found in a dissected upper limb (a) and isolated shoulder joint (b). 1, coracoid process of the scapula; 2, acromion; 3, coracoacromial ligament; 4, humeral head covered by the shoulder joint capsule.

Discussion

Many insertional variations of the pectoralis minor have been described in the literature. In addition to the usual coracoid insertion, some portion of the tendon have been found attached to the acromioclavicular ligament, the supraspinatous tendon, the glenoid labrum, the shoulder joint capsule, the greater or lesser tubercles of the humerus [3-5,7,8]. Most of these variations were described on cadaver dissection, but recently such unusual insertions have been also observed in patients by means of modern imaging techniques. By ultrasonographic and CT methods, Homsí et al. [2] found that in 9.6% of the patients the pectoralis minor showed some variations in its insertion. Moreover, an ectopic tendon of the pectoralis minor was observed during exploratory surgery in a patient reporting pain during shoulder movement [6]. By that reason, some authors claimed the variations in the insertion of the pectoralis minor as a possible cause of antero-internal conflict of the scapula [1].

References

1. Apóila. Le conflit antero-interne de l'épaule. *Ann Radiol (Paris)* 1992; 35:161-166.
2. Homsí C, Rodrigues MB, Silva JJ, Stump X, Morgan G. Aspect échographique des anomalies d'insertion du muscle pectoralis minor (petit pectoral). *J Radiol* 2003 ;84:1007-1011.
3. Le Double A-F. 1897. *Muscles des parois de la poitrine*. In: *Traité des Variations du Système Musculaire de l'Homme*. Tome I. Paris: Schleicher Frères. pp 243-286.
4. Macalister A. Additional observations on muscular anomalies in human anatomy (third series), with a catalogue of the principal muscular variations hitherto published. *Trans Roy Irish Acad* 1875;25:85-86.
5. Musso F, Azeredo RA, Tose D, Marchiori JGT. Pectoralis minor muscle. An unusual insertion. *Braz J morphol Sci* 2004;21:139-140.
6. Samuel P, Blanchard JP. Syndrome de la coiffe des rotateurs par anomalie d'insertion du petit pectoral. *Rev Chir Orthop* 1984;70:401-404.
7. Uzel AP, Bertino R, Caix P, Boileau P. Bilateral variation of the pectoralis minor muscle discovered during practical dissection. *Surg Radiol Anat* 2008; 30:679-682.
8. Wood J. On human muscular variations and their relation to comparative anatomy. *J Anat Physiol* 1867;1:44-59.