

PECTORALIS MINOR MUSCLE. AN UNUSUAL INSERTION

Fernando Musso, Rogério Albuquerque Azeredo, Dulcino Tose
and João Guilherme Tavares Marchiori

Department of Morphology, Superior School of the Santa Casa de Misericórdia de Vitória (EMESCAM), Vitória, ES, Brazil.

ABSTRACT

Variations in the insertion of the pectoralis minor muscle have been described. Although much of them were considered to be functionally normal, others may be associated in certain conditions with discomfort related to shoulder movement. Here we described a bilateral, symmetric insertional variation of the pectoralis minor muscle that was found during a routine dissection of upper limbs. In this variation, the tendon crossed the superior surface of the coracoid process to insert on the major tubercle of the humerus head, where it fused with the tendon of the supraspinatus muscle. This variation could be the cause of pain during certain shoulder movements as a result of neurovascular compression, and may lead to mechanical alterations in the muscular dynamics of the shoulder.

Key words: Muscle variation, pectoralis minor muscle, upper limb

The pectoralis minor muscle is one of the muscles that connects the upper limbs to the thorax. This muscle, which is situated posterior to the pectoralis major, arises from the anterior surfaces of the second to the fifth ribs and inserts on the medial margin of the coracoid process where its tendon fuses with the tendon of the coracobraquialis muscle [2].

Many insertional variations have been described for the pectoralis minor muscle, and involve the supraspinatus tendon muscle, clavicle, shoulder capsular ligaments, coraco-acromial ligament, minor and major humeral tubercles, glenoidal labrum of the glenohumeral joint [8], coracobraquialis muscle [5], shoulder articular capsule and major humeral tubercle [7]. Le Double [4] described three anomalous insertions of the pectoralis muscle. An ectopic tendon of the pectoralis minor was also found during exploratory surgery in a patient who reported pain during shoulder movements, the cause of which could be diagnosed by radiological and conventional semiotic examinations [6]. Variations in the insertion of this muscle could be the condition known as antero-internal conflict of the scapula [1]. Using ultrasonic and tomographic methods, Homsí *et al* [3] found that 9.6% of the patients examined showed variation in the insertion of the pectoralis minor muscle.

During a routine dissection of upper limbs, we found a bilateral symmetric variation of the insertion of the pectoralis minor muscle. The tendon crossed the superior surface of the coracoid process and then fused with the tendon of the supraspinatus muscle prior to insertion on the major tubercle of the humerus head. During its course, a laminar expansion of the tendon inserted on the upper surface of the coracoid process, close to the coracoclavicular ligament. Between the scapula and clavicle, the tendon was separated by two synovial bursae. This insertional variation is considered to be normal in comparative anatomy.

The muscular insertion described here was comparable to the type I variation of Le Double [4], who reported that in 16% of 106 dissections the tendon crossed the superior surface of the coracoid process and fused with the supraspinatus tendon prior to insertion on the major tubercle of the humerus. The case described here is peculiar because of its bilateral symmetry, which has not previously been reported in the literature.

REFERENCES

1. Apoil A (1992) Le conflit antero-interne de l'épaule. *Ann. Radiol.* **35**, 161-166.
2. Gardner E, Gray DJ, O'Rahilly R (1964) *Anatomia. Estudo Regional do Corpo Humano*. 2nd edn. Guanabara Koogan: Rio de Janeiro.
3. Homsí C, Rodrigues MB, Silva JJ, Stump X, Morgan G (2003) Aspect echographic des anomalies d'insertion du muscle pectoralis minor (petit pectoral). *J. Radiol.* **84**, 1007-1011.

Correspondence to: Dr. Fernando Musso
Departamento de Morfologia, Escola Superior de Ciências da Santa Casa de Misericórdia de Vitória (EMESCAM), CP 5135, CEP 29045-402, Vitória, ES, Brasil. Tel: (55) (27) 3334-3545, Fax: (55) (27) 3334-3513, E-mail: anatomia@emescam.br

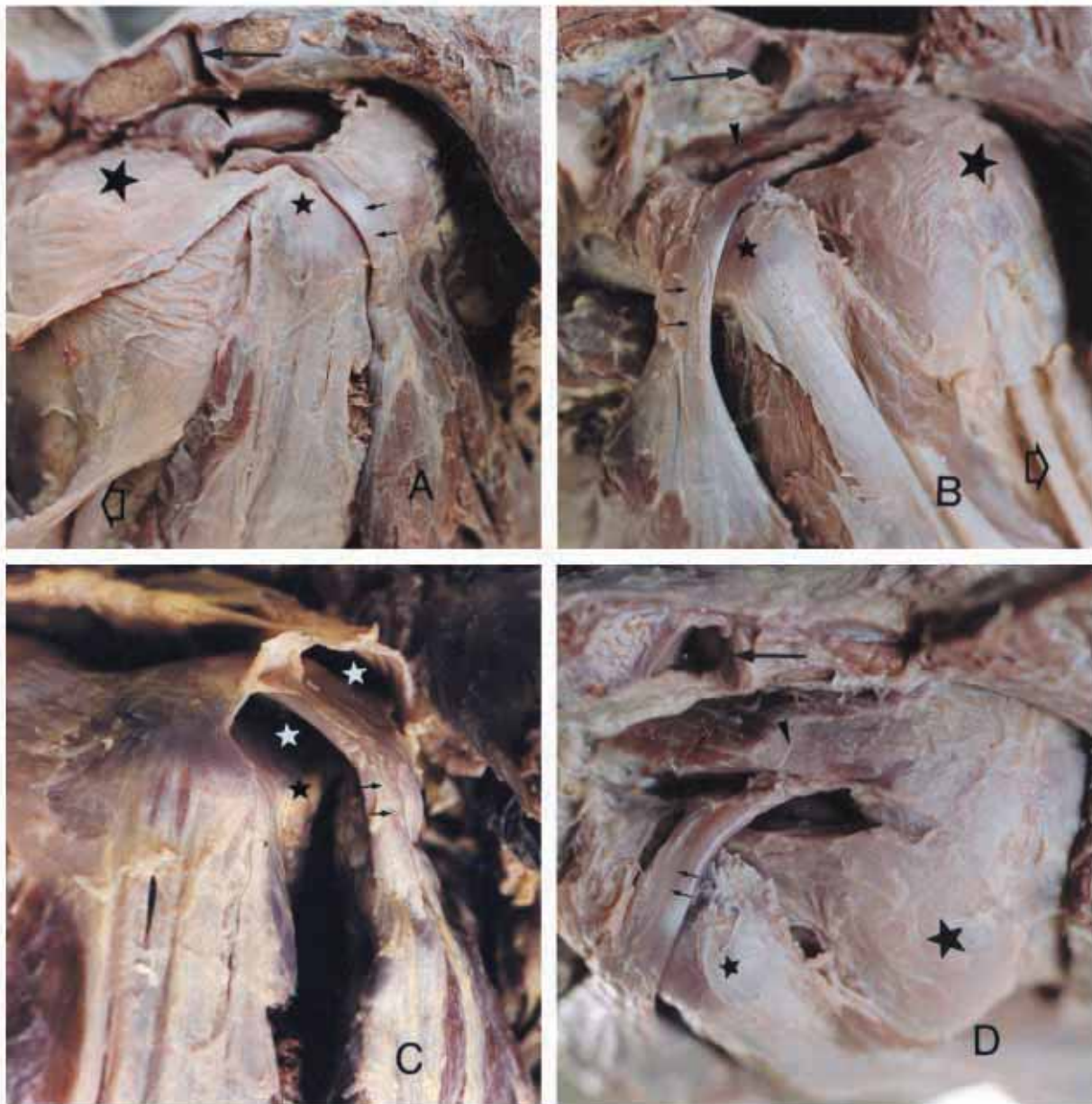


Figure 1. **A** and **B.** Anterior view of the right and left shoulder, respectively. **C.** Arrangement of the coracoid process and associated structures. **D.** Upper view of the left shoulder; **small star** - coracoid process, **small arrows** - tendon of the minor pectoralis muscle, **white stars** - sinovial bursae, **large star** - humerus head, **arrowhead** - supraspinatus muscle, **large arrow** - acromio-clavicular articulation, **open arrow** - long head of the tendon of the biceps braquialis muscle.

4. Le Double AF (1897) *Traité des Variations du Système Musculaire de l'Homme et Leur Signification au Point de Vue de l'Anthropologie*. Libraire C. Reinwald, Schleicher Frères: Paris.
5. Mac Alister A (1867) *J. Anat. Phys.* **11**, 317, apud Le Double AF (1897) *Traité des Variations du Système Musculaire de l'Homme et Leur Signification au Point de Vue de l'Anthropologie*. Libraire C. Reinwald, Schleicher Frères: Paris.
6. Samuel P, Blanchard JP (1984) Syndrome de la coiffe des rotateurs par anomalie d'insertion du petit pectoral. *Rev. Chir. Orthop.* **70**, 401-404.
7. Testut L, Latarget A (1929) *Traité d'Anatomie Humaine*. 9th edn. G. Doin & Cie: Paris.
8. Wood J (1867) On the muscular variations and their relation to comparative anatomy. *J. Anat. Phys.* **1**, 44-59, apud Testut L, Latarget A (1929) *Traité d'Anatomie Humaine*. 9th edn., G. Doin & Cie: Paris.

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