



ORIGINAL RESEARCH PAPER

Anatomy

A CASE REPORT ON UNILATERAL VARIATION OF PECTORALIS MINOR MUSCLE

KEY WORDS: Pectoralis minor, coracoid process, medial pectoral nerve, ribs.

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ABSTRACT

During routine anatomical dissection variation in the origin of pectoralis minor was noticed. The muscle was originating from 2nd to 4th ribs. The muscle inserted into medial border & upper surface of coracoid process of scapula & supplied by medial & lateral pectoral nerve. Variation of muscular attachment will play major role in surgical procedure. The reports & documentation of the anatomical variants will be useful for the researchers, clinicians & surgeons.

1. INTRODUCTION

Pectoralis minor is a thin, triangular muscle located in the pectoral region deep to Pectoralis major. The muscle is enclosed within the two lamina of clavipectoral fascia which splits at upper border of pectoralis minor to enclose it & again gets fuse at the lower border of pectoralis minor. [1]

The Pectoralis minor arises from upper border and outer surface of third to fifth ribs, near their costochondral junction, and fascia covering the intercostal muscles. The muscle extends upwards & laterally towards its insertion & gets inserted on to the medial border and upper surface of the Coracoid process of Scapula. The Pectoralis minor is innervated by medial and lateral pectoral nerves. [2] [Fig. 1]



Fig. 1 Pectoralis minor muscle

Pectoralis minor draws the Scapula forwards around the chest wall; and rotates the scapula. The muscle depresses the shoulder [2].

It is an anatomical & clinical landmark, together with the coracoid process, this muscle forms an osseomuscular bridge under which pass the structure of the axilla. It lies in front of the axillary artery. Its upper border gives attachment to the clavipectoral fascia, & is accompanied by the superior thoracic artery, its lower border gives attachment to suspensory ligament of axilla & is accompanied by lateral thoracic artery. [3]

We are reporting a variation in the origin of Pectoralis minor; this will help the surgeons & clinicians to diagnose the axillary artery & brachial plexus compression, which may occur by the muscle. This report will also be helpful for radiologists for accurate imaging of anterior chest wall.

2. CASE REPORT

During routine educational dissection procedure, an unusual

unilateral variation in the attachment of Pectoralis minor was observed in 66 years old female cadaver on left side. While dissecting we did not found any abnormality in anterior chest wall. While dissecting the pectoral region clavicular parts of Deltoid and Pectoralis major were carefully removed from their origins, and reached the Pectoralis minor.

The left Pectoralis minor was originating from 2nd to 4th ribs and costochondral junction [Fig.2]. The muscle was inserted into medial border & upper surface of coracoid process of scapula.

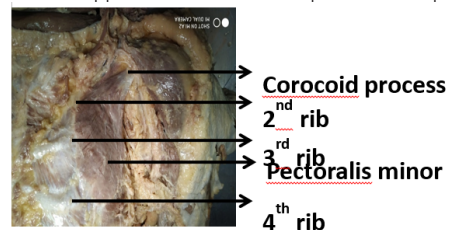


Fig-2 Left Pectoralis minor originating from 2nd to 4th ribs and their costochondral junctions.

3. DISCUSSION

There are many articles regarding variation in origin and insertions of Pectoralis minor are found.

Sinha et al [4] found pectoralis minor was originating from 2nd – 4th ribs and their costochondral junctions bilaterally. In the present case Pectoralis minor was found to be originating from 2nd to 4th ribs and their costochondral junctions on right side. Higher origin of Pectoralis minor may give rise to neurological and vascular complications in arm due to pressure over neurovascular structures during abduction and lateral rotation of shoulder.

An abnormal insertion of Pectoralis minor in living was demonstrated by Homsy et al [5], in ultrasound examination of shoulder, it was found in 58(9.57) out of 606 shoulder which were scanned. Gregory et al [6] documented a case of shoulder stiffness, in which Pectoralis minor was inserted over Supraspinatus tendon. In this case after releasing Pectoralis minor from Supraspinatus, external rotation movement was obtained. Uzel et al [7] reported an abnormal insertion of Pectoralis minor on Coracohumeral ligament, Supraspinatus tendon and capsule of Glenohumeral joint. Lee et al [8] documented abnormal insertion of Pectoralis minor in 13.4% cases as assessed by MRI. Unusual attachment of Pectoralis minor may predispose to muscle tear, 2 cases of isolated

Pectoralis minor tear in football player was reported by Zvijac et al [9]. Gordon et al [10] documented a case of Pseudo- angina pectoralis caused by Pectoralis minor trigger points.

Pectoral muscles develop from the pectoral pre-muscle mass [4]. This pectoral pre-muscle mass lies in the lower cervical region on the medial side of arm bud. It is continuous with the arm pre-muscle sheath, and lies almost entirely anterior to the 1st rib. In a CRL: 11 mm (crown rump length) embryo it reaches to the level of 3rd rib. Two muscles remain as a single columnar mass attached to Humerus, Coracoid process of Scapula, and Clavicular precursors. As the mass differentiates, it flattens out and extends caudoventrally to distal ends of upper ribs. The caudal end of muscle extends till the anterior end of the 5th rib and the muscle begins to assume its adult form, with fibres arising from front of upper five ribs, sternal angle and Clavicle. At this stage, the proximal portion of the muscle has split into major and minor portions, one attached to Humerus and other to the Coracoid process. Both muscles remain fused near their costal attachments. In a CRL: 16 mm embryo two muscles are quite distinct, the Pectoralis minor muscle has now its distinct attachment to 2nd, 3rd, and 4th ribs. This embryological origin may persist later in adulthood [11].

In our case the muscle has a variation in origin where it took origin from 2nd to 4th rib; consequently the length of the muscle was shorter from the normal. This may affect the strength of muscle.

4. CONCLUSION

Pectoralis minor is one among the medial rotator of shoulder, the variation of this muscle may account for the abnormality in the movement of the shoulder joint.

The reports & documentation of variation of Pectoralis minor is very useful for clinicians, radiologists & surgeons for differential diagnosis & management of them.

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