

**STERNO-COSTO-CHONDRO-CORACOIDAN MUSCLE - A CASE REPORT****SRIDHAR.K*¹, RAJESH.B¹ AND SANGEETHA.K³**

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ABSTRACT

Pectoralis minimus is a rare muscle usually found in the pectoral region. The aberrant muscle in the present report was arising from the first two costal cartilages and the second chondro-sternal joint of right side. The tendon of the muscle inserted into the superior surface of coracoid process and continued laterally to merge with coracoacromial ligament and coracohumeral ligament. This muscle was unique in its attachment and not reported previously. Pectoralis minimus may help in scapulo humeral rhythm. The knowledge of this aberrant muscle helps radiologist and surgeons in the diagnosis and surgical interventions of the area.

KEY WORDS: Pectoralis minimus, Sterno-chondro-coracoidan muscle, chondro-sternal joint.

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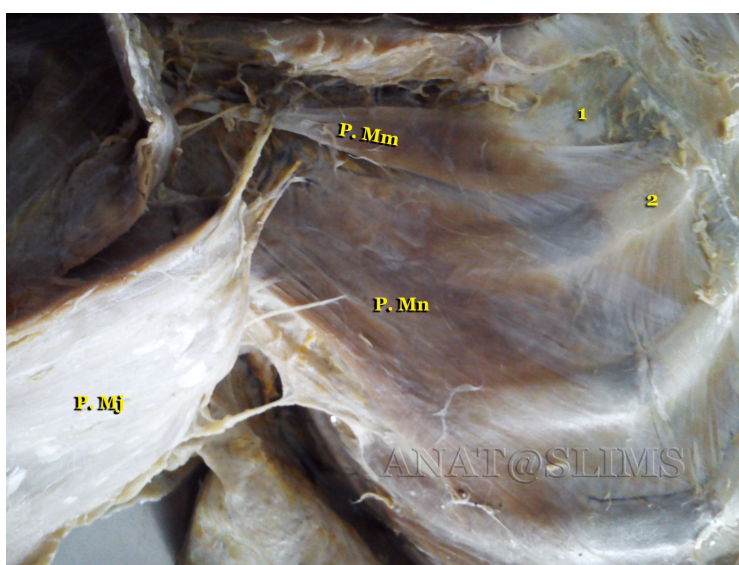
INTRODUCTION

Pectoral region consists of three muscles, Pectoralis major, Pectoralis minor and Subclavius, which are present in the anterior wall of thorax¹. Presences of aberrant muscles at pectoral region have been reported by many authors²⁻⁴. Among these a third type of pectoralis muscle named Pectoralis minimus is the most frequently reported muscle in this region. In many reports it was present unilaterally and few were bilateral. Here we report a case of Pectoralis minimus muscle

which was detected during routine dissection for undergraduates.

Case Report

An aberrant muscle was found in the right pectoral region of a 50 year-old male cadaver during routine dissection for undergraduates at Department of Anatomy of Sri Lakshmi narayana Institute of Medical Sciences, Puducherry. No gross abnormalities or evidence of any axillary or thoracic procedures were observed.



P. Mj – Pectoralis major, *P. Mn* – Pectoralis minor, *P. Mm* – Pectoralis minimus
1&2 – 1st & 2nd costal cartilages

Figure 1
Shows the origin of Pectoralis minimus.

Pectoralis minimus muscle was present deep to the Pectoralis major muscle and superomedial to the Pectoralis minor muscle. This muscle took origin from the first two ribs near the costochondral junction, costal cartilages of these ribs and also from the second chondrosternal joint. The muscle becomes tendinous laterally, passes superficial to the insertion of Pectoralis minor muscle and gets inserted into the superior surface of the coracoid process and merged laterally with coracoacromial

ligament as well as coracohumeral ligament. The muscle was enclosed within the costo-coracoid membrane - a part of clavipectoral fascia. The thoracoacromial artery usually passes above the upper border of Pectoralis minor, but in the present case it passes above Pectoralis minimus and some of the branches pass between the Pectoralis minor and the minimus. The muscle was supplied by lateral pectoral nerve.



Figure 2
Shows the insertion of Pectoralis minimus

DISCUSSION

Pectoral muscles develop from the pectoral pre-muscle mass which extends from the level of the 2nd rib to the proximal portion of the humerus in the fifth week of intrauterine life⁶. The pectoral muscles assume their final forms through a combination of migration, fusion and apoptosis of the muscle cell precursors⁷. Pectoralis Minimus is a rare muscle which is not studied in detail. Ebenezer and Rathinam reported left side Pectoralis minimus muscle arising from the medial end of the first rib and lateral to the origin of the subclavius muscle and inserted into the coracoid process⁸. Hardy and Fabrizio⁴ reported the presence of Pectoralis quartus which takes origin from 5th costal cartilage and inserted into the fascia covering

coracobrachialis. They have also reported about the presence of an accessory muscle extending from external oblique aponeurosis to the fascia over coracobrachialis muscle. Another variant muscle named Sterno-clavicularis was reported by Sontakke & Joshis; the muscle named so because it took origin from manubrium sternum and inserted into the clavicle. It protects the underlying neurovascular structures that travel on its inferior surface. During hyperextension of the arm patients can have vascular symptoms^{3,9} and may cause Thoracic compression syndrome^{10,11}. In our case, since the insertion of minimus is on coracoid process, coracoacromial ligament and coracohumeral ligament, it may assist with Pectoralis minor in scapulohumeral rhythm.

Table 1
Comparison of previous reports with the present case report & its Uniqueness

Presence of Unilateral/bilateral	Origin	Insertion	Reported by
Previous cases			
Unilateral – left side	1st rib	Coracoid process	Ebenezer and Rathinam (2013)
Unilateral– right side	2nd costal cartilage	Coracoid process	Rai et al. (2008)
Unilateral– left side	1st costochondral joint	Coracoid process	Soni et al. (2008)
Bilateral	Right - 1st costal cartilage & manubrium sterni	Upper surface of shoulder joint.	Turgut (2000)
	Left - 2nd costal cartilage and costochondral joint	capsule of shoulder joint, clavicle & fascia of subclavius	
Present case			
Unilateral	1 st & 2nd costal cartilage Chondro-sternal joint	Coracoid process Coraco-humeral & Coraco acromial ligaments	

Turgut et al., named the aberrant Pectoralis minimus muscle as Sterno-costo-coracoidian Muscle as per the insertion of their finding². In the present case also the muscle can be named so or it can be called as “Sterno-costo-chondro-coracoidian” as per its attachment. In most the previous reports the aberrant muscle was supplied by lateral pectoral nerve⁶, and in the present case also the muscle was supplied by the same nerve. Pectoralis minor is commonly used as a landmark during surgeries of axillary region. Presence of the Pectoralis minimus muscle may disturb this landmark. A clear knowledge of anatomic variations of Pectoral musculature is important in planning and executing surgery of the chest wall⁶. Aberrant

pectoral muscles may be mistaken for masses or tumours during CT or MRI scans.

CONCLUSION

Pectoralis minimus, is a rare anatomic variant of Pectoral region. The present case is unique in its attachment and the muscle can be named as which may have role in scapula-humeral rhythm. The variant muscle develops due to failure of pectoral premuscle mass in undergoing apoptosis. Awareness of possibility of such anomalous muscles helps surgeons and physicians during physical examination and surgical intervention of chest wall.

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