

# Right Sided Costocoracoid Ligament- A Case Report

CHANDRIKA G TELI, VANITHA, H S KADLIMATTI, NILESH KATE

## ABSTRACT

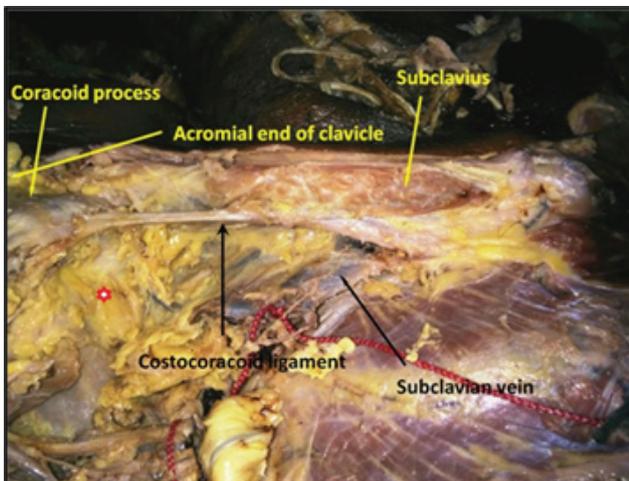
During routine dissection for first year medical students, we observed a thick fibrous band extending from first costal cartilage to the acromion process of scapula, along the inferior margin of subclavius muscle on right side. The fibrous band, identified as costocoracoid ligament, was very strong unyielding to even cuts/ pressure by forceps. The costocoracoid ligament had pulled acromion process forward so strongly that the acromion process was easily seen below the lateral end of clavicle, and 1.5 cm anterior to head of humerus. Left side was not showing any such variation.

Presence of costocoracoid ligament may result in fixation of the scapula to the first rib, resulting in cosmetic deformity with rounding of the shoulders and loss of the anterior clavicular contour. Movements requiring rotation or retraction of the scapula may be limited. Congenitally short costocoracoid ligament condition shows autosomal dominant inheritance, can be surgically corrected. Ours is the first such report of costocoracoid ligament in cadaver, since it is seen only in right limb so suggesting acquired (probable traumatic) cause.

**Keywords:** Clavipectoral fascia, Coracoclavicular ligament, Subclavian vein occlusion

## CASE REPORT

During routine dissection for first year medical students in Employee's State Insurance Corporation (ESIC) Medical College, Gulbarga, Karnataka, INDIA, we observed a thick fibrous band extending from first costal cartilage to the acromion process of scapula, along the inferior margin of subclavius muscle on right side. The fibrous band, identified



**[Table/Fig-1]:** Showing costocoracoid ligament extending from 1<sup>st</sup> costal cartilage to acromion process, along inferior margin of subclavius. Note the prominent acromion process, placed anterior to head of humerus. [Red star]

as costocoracoid ligament. It was very strong, unyielding to even cuts/ pressure by forceps. The costocoracoid ligament had pulled acromion process forward so strongly that the acromion process was easily seen below the lateral end of clavicle, and 1.5 cm anterior to head of humerus [Table/Fig-1]. The left side did not exhibit any such band; the clavipectoral fascia was soft, of loose connective tissue character.

## DISCUSSION

The clavipectoral fascia fills the gap between pectoralis minor and subclavius covers axillary vessels, nerves and subclavius muscle. It is attached to the clavicle along anterior and posterior margins of groove for subclavius. The posterior layer fuses with the fascial sling for omohyoid, axillary vessels. Medially, it blends with the fascia over the first two intercostal spaces and is attached to the first ribs. Laterally, it is thick and dense, reaches the coracoid process, blends with coracoclavicular ligament. If the clavipectoral fascia thickens and forms a strong band across the first rib and coracoid process; it is identified as costocoracoid ligament [1].

We did not find any study reporting costocoracoid ligament in cadavers. Bamforth et al., [2] described congenital shortness of the costocoracoid ligament in a Canadian family. Due to fixation of the scapula to the first rib, cosmetic deformity with rounding of the shoulders and loss of the anterior clavicular

contour was presenting feature noted in affected persons. Rotation and retraction of the scapula were limited, but they could carry out normal activities. Short costocoracoid ligament can be sometimes ossified so surgical treatment consists of excision of the ligament. The abnormality results in a pectoral girdle which is reminiscent of that seen in monotremes [2].

The costoclavicular space is bounded anteriorly by clavicle and subclavius muscle, the subclavian tendon, and costocoracoid ligament. The first rib and insertion of the anterior and middle scalene muscles form posteromedial border and posterolateral boundary is formed by upper border of scapula. Trauma, congenital anomalies, and variant muscles or tendons can still reduce the space [3]. Poor posture and sagging shoulders, clavicle or first rib fracture with extensive callus formation, constituting thoracic outlet syndrome can be the presenting symptoms [3-5]. The symptoms can be reproduced with shoulder abduction. With shoulder abduction the scapula and coracoid to moves downward, presses the brachial plexus into the subclavius muscle and costocoracoid ligament [6].

Major etiological factors causing compression and irritation of the subclavian vein are the costocoracoid ligament, the subclavius muscle and tendon, the scalenus anticus muscle, and the angle of the first rib and clavicle [7-9]. McCleery et al., in a detailed description of subclavian occlusion syndrome, recommended resection of a portion of the subclavius muscle and tendon, division of the costocoracoid ligament, and division of the anterior scalene attachment to the first rib as treatment [7]. Congenitally short costocoracoid ligament condition shows autosomal dominant inheritance [10]. So we suggest a through clinical examination can help clinicians to find and correct more of such cases.

## CONCLUSION

Presence of costocoracoid ligament may result in fixation of the scapula to the first rib, resulting in cosmetic deformity with rounding of the shoulders and loss of the anterior clavicular contour rotation or retraction of the scapula may be limited. It may give rise to compression of brachial plexus or subclavian vein. In present case as it is observed only on right side, we suggest it as an occurrence of acquired cause, probably trauma.

## REFERENCES

- [1] Bannister L.H, Berry M.M, Collins P. (1995) Gray's Anatomy, 39<sup>th</sup> ed., Churchill Livingstone, Medical division of Longman Group, UK, 1566-68.
- [2] Bamforth JS, Bell MH, Hall JG, Salter RB. Congenital shortness of the costocoracoid ligament. *Am J Med Genet.*1989; 33(4): 444-46.
- [3] Atasoy E. Thoracic outlet syndrome anatomy. *Hand Clin.*2004; 20:7-14.
- [4] Brantigan CO, Roos DB. Etiology of neurogenic thoracic outlet syndrome. *Hand Clin.* 2004;20(1):17-22.
- [5] Watson LA, Pizzari T, Balster S. Thoracic outlet syndrome part 1: Clinical manifestations, differentiation and treatment pathways. *Man Ther.* 2009;14(6):586-95.
- [6] Nichols AW. Diagnosis and management of thoracic outlet syndrome. *Curr Sports Med Rep.*2009; 8(5):240-49.
- [7] McCleery KS, Kesterson JE, Kirtley JA and Love RB. Subclavius and anterior scalene muscle compression as a cause of intermittent obstruction of the subclavian veins. *Ann. Surg.* 1951;133(5):588-602.
- [8] Loe RA. Primary subclavian vein occlusion. *Am J Surg.* 1957; 94:159
- [9] Ofstun MS and Merindino KA. Bilateral obstruction of the subclavian veins. *Am J Surg.* 1961; 101(6):803.
- [10] Omim.org/clinical synopsis/122580 published yr 1989, updated yr 1994, cited on 5/5/2015 available on www.omim.org.

### AUTHOR(S):

1. Dr. Chandrika G Teli
2. Dr. Vanitha
3. Dr. H S Kadlimatti
4. Dr. Nilesh Kate

### PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Anatomy, ESIC Medical College, Gulbarga, Karnataka, India.
2. Tutor, Department of Anatomy, ESIC Medical College, Gulbarga, Karnataka, India.
3. Professor and Head, Department of Anatomy, ESIC Medical College, Gulbarga, Karnataka, India.

4. Associate Professor, Department of Physiology, ESIC Medical College, Gulbarga, Karnataka, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Chandrika G Teli,  
Assistant Professor, Department of Anatomy, Esic Medical College, Gulbarga, Karnataka-585105, India.  
E-mail: chandrikatelikate@gmail.com

### FINANCIAL OR OTHER COMPETING INTERESTS:

None.

Date of Publishing: **Oct 01, 2015**