

# CASE REPORT

---

## A CASE REPORT OF BILATERAL SUBCLAVIUS POSTICUS MUSCLE

Ghanshyam Gupta, Seema Prakash, Parveen Ojha

1. Professor, Department of Anatomy, R. N. T. Medical College, Udaipur, Rajasthan.
2. Associate Professor, Department of Anatomy, R. N. T. Medical College, Udaipur, Rajasthan.
3. Assistant Professor, Department of Anatomy, R. N. T. Medical College, Udaipur, Rajasthan.

### CORRESPONDING AUTHOR

Dr. (Mrs.) Parveen Ojha,  
D-17, Hospital Campus,  
M.B.Govt Hospital,  
Udaipur, Rajasthan-313001.  
E-mail: drparveena@yahoo.com  
Ph: 0091 9783718507

**ABSTRACT:** During routine dissection of an adult male cadaver, in the neck region an aberrant muscle subclavius posticus was found on both sides. The muscle had a tendinous attachment anteriorly on the 1<sup>st</sup> costal cartilage along with the subclavius. Long thin belly of this aberrant muscle was superficial to brachial plexus and subclavian artery and was attached posteriorly on to the scapula. Clinical significance of this muscle has been recognized as a possible cause of thoracic outlet syndrome or it may mimic as a mass on radiological investigation in this region. Radiologists and breast surgeons should be aware of this anomaly in scapular region.

**KEY WORDS:** Subclavius posticus; Thoracic outlet syndrome

**INTRODUCTION:** Normally Subclavius muscle originates from the 1<sup>st</sup> costal cartilage and gets inserted on middle third of the inferior surface of clavicle. During routine dissection of an adult male cadaver, in the neck region we found an anomalous muscle passing superficial to brachial plexus and subclavian vessels on both sides (Fig-1). According to the origin and insertion, this aberrant muscle was considered to be Subclavius Posticus. Presence of such anomalous muscle has been recognized as a possible cause of neurovascular compression or thoracic outlet syndrome. Various clinical implications due to presence of such anomalous muscle are discussed in this case report. Clinical significance of this muscle is its potential to cause thoracic outlet syndrome or it may mimic a mass on mammogram.

**CASE REPORT:** During routine dissection of an adult male cadaver, in the neck region, an aberrant muscle subclavius posticus was found on both the sides. (Fig-1) on the right side of neck region after reflecting skin, superficial fascia and deep fascia, contents of anterior and posterior triangles were exposed. During exposure of posterior triangle of neck, we observed long thin belly of a muscle superficial to brachial plexus and subclavian vessels, which shared a common origin with subclavius muscle anteriorly, while posteriorly this muscle was attached to superior angle of scapula, medial to the attachment of inferior belly of omohyoid. It was innervated by suprascapular nerve. Suprascapular nerve was below the transverse scapular ligament and suprascapular artery was passing above the ligament. (Fig-2)

During dissection of left side of posterior triangle of neck, an aberrant muscle (subclavius posticus) was found superficial to brachial plexus and subclavian artery. Like on the right side muscle had a common tendinous origin with subclavius muscle from 1<sup>st</sup> costal cartilage anteriorly. But posteriorly it was found to be attached to the transverse scapular

## CASE REPORT

---

ligament which was extending from suprascapular notch to coracoid process of scapula. On this side nerve supply to this muscle was from nerve to subclavius unlike on the right side. Suprascapular artery and nerve both were passing below transverse scapular ligament. (Fig-3)

**DISCUSSION:** The subclavius posticus muscle was first described by Eisler in 1912 (cited by Akita, 1996)<sup>1</sup>. They are of opinion that origin and insertion of both subclavius posticus muscle and the inferior belly of omohyoid muscle are similar; only the origins of the innervating branches differ. They propose that both muscles are derived from the intermediate region between the subclavius muscle and the inferior belly of omohyoid muscle, it can be innervated by the nerve to the subclavius muscle or by the branch to the omohyoid muscle arising from the ansa cervicalis. It is suggested that these anomalies are derived from a common matrix, these are similar variations rather than different types of anomalies. Therefore, these aberrant muscles could be termed the subclavius posticus, regardless of their innervation.

So far reported incidence of subclavius posticus is 8.9% according to studies in Japanese adult cadaver and in more than 90% cases it is unilateral <sup>[2]</sup>.

Bilateral cases have been reported by Bhattarai *et al.* (2009) <sup>[3]</sup> and Martin *et al.* (2008)<sup>[4]</sup>. But in both the presentations, muscle on both sides had a similar attachment on scapula. In the present study there was variation in attachment to scapula and innervation on both the sides. On the right side muscle was attached to superior angle of scapula and innervated by suprascapular nerve but on the left side it was attached to transverse scapular ligament and innervated by nerve to subclavius.

The anatomical relationships of the subclavius posticus muscle with the brachial plexus and the subclavian vessels is suggestive of a possible cause of the thoracic outlet syndrome and is therefore of clinical significance. Such a muscle could be considered as a possible factor causing the Paget-von Schrötter syndrome. The Paget-von Schrotter syndrome is one type of symptom complex of the thoracic outlet syndrome, and is recognized as spontaneous or effort-related thrombosis of the axillosubclavian vein. By careful examinations, using MRI of the suprascapular region, such aberrant muscles may be diagnosed. It is recommended to take into account the possible existence of these during the examinations of patients with thoracic outlet syndrome, especially in those with symptoms of venous compression. <sup>[2]</sup>

Ozcakar L *et al* <sup>[5]</sup> have reported a case of thoracic outlet syndrome after a tractional injury. Patient had significant atrophy of shoulder muscle and generalized hypoaesthesia, diminished deep tendon reflexes bilaterally. Electrodiagnostic studies were consistent with bilateral brachial plexopathy. MRI studies demonstrated an aberrant muscle (subclavius posticus) and compressive brachial plexus injury on left side. Surgery via transaxillary approach was performed and subclavius posticus was resected. Another important point noteworthy in this case was delay in improvement of muscle strength due to presence of such an anomalous muscle.

Forcada *et al*<sup>[6]</sup> have shown that it could even form a groove on the upper trunk of brachial plexus.

Radiologists and breast surgeons should be aware of this muscle. Incidence of varied supernumerary subclavius muscle has been found to be about 36% in Thais <sup>[7]</sup>. Presence of such muscles could be a predisposing factor in Thoracic outlet syndrome. MRI examination is recommended in such suspected cases. A band of non-enhancing tissue stretching from the first costal cartilage to the superior angle of scapula, iso-intense to the adjacent muscles in the

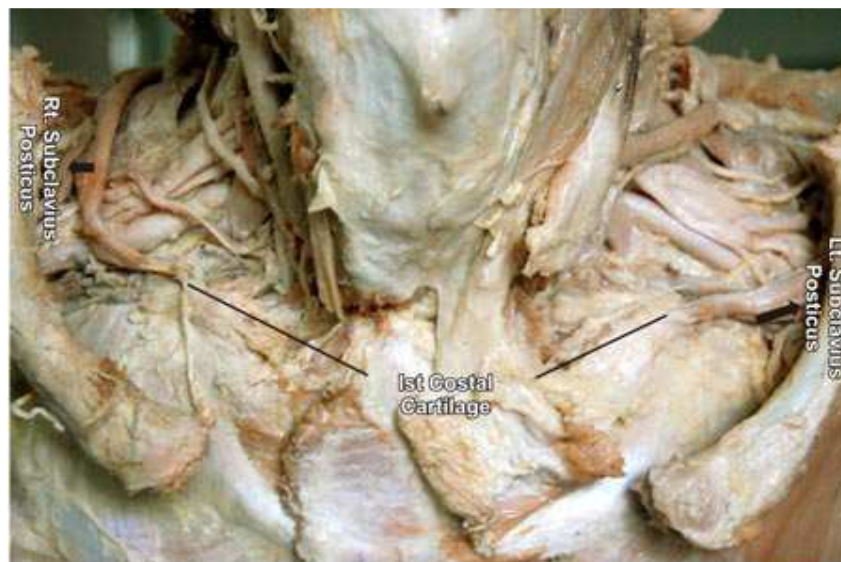
# CASE REPORT

---

presence of a normal subclavius muscle are the classical MRI features of subclavius posticus muscle<sup>[8]</sup>.

## REFERENCES:

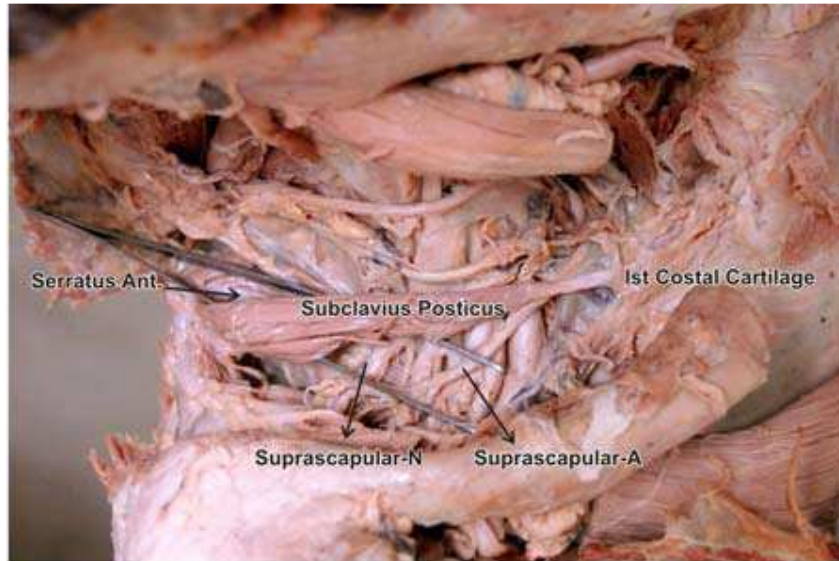
1. Akita K, Tsuboi Y, Sakamoto H and Sato T. A case of muscle subclavius posticus with special reference to its innervation. *Surg Radiol Anat* 1996; 18:335-7.
2. Akita K, Ibukuro K, Yamaguchi K, Heima S and Sato T. The subclavius posticus muscle: a factor in arterial, venous or brachial plexus compression? *Surg Radiol Anat* 2000; 22:111-5.
3. Bhattarai C, Poudel PP, Baral P. Bilateral variation of subclavius muscle in Nepalese: A case report. *Journal of GMC Nepal* 2009 Sept; 2(3):62-64
4. Martin MR, Vyas NM, Sedimayr JC, Wisco JJ. Bilateral variation of subclavius muscle resembling subclavius posticus. *Surgical and Radiologic Anatomy* 2008; 30(2):171-174.
5. Ozcakar L, Guney MS, Ozdag F, Alay S, Kiralp MZ, Gorur R and Saracoglu M. A sledgehammer on the brachial plexus: thoracic outlet syndrome, subclavius posticus muscle and traction in aggregate. *Arch Phys Med Rehabil* 2010 Apr; 91(4):656-8.
6. Forcada P, Rodriguez-Niedenfuhr M, Llusa M and Carrera A. Subclavius posticus muscle: supernumerary muscle as a potential cause for thoracic outlet syndrome. *Clin Anat* 2001; 14:55-7.
7. Piyawinijwong S, Sirisathira N. Supernumerary Subclavius Muscle in Thais: Predisposing cause of Thoracic outlet syndrome. *J Med assoc Thai* 2010; 93:1065-1068
8. Kolpattil S, Harland R, Temperley D. A case of subclavius posticus muscle mimicking a mass on mammogram. *Clinical Radiology* 2009; 64:738-740.



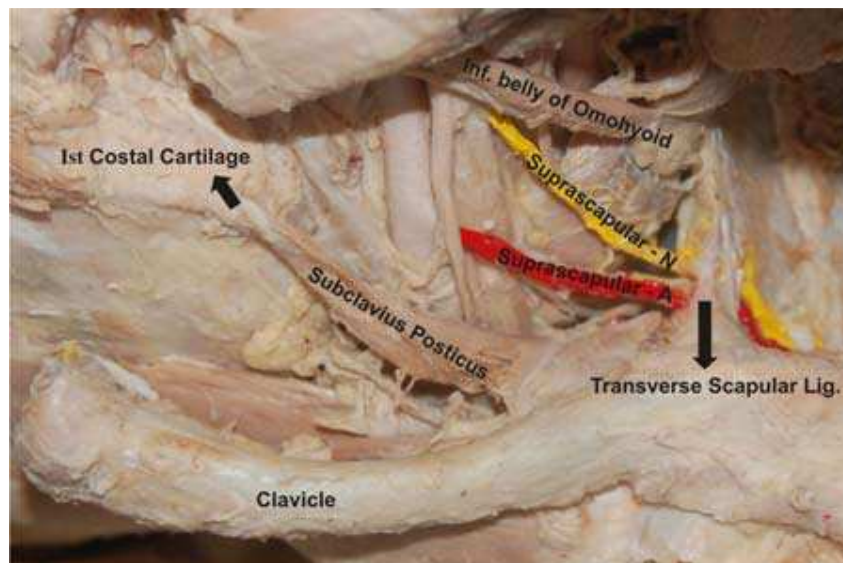
**FIG. 1 BILATERAL SUBCLAVIUS POSTICUS**

# CASE REPORT

---



**FIG. 2 RIGHT SUBCLAVIUS POSTICUS**



**FIG. 3 LEFT SUBCLAVIUS POSTICUS**