

Case Report:

Axillary arch muscle and its surgical significance: a case report

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Abstract:

The axillary arch muscles have been described as having variable and sometimes multiple insertions. The axillary arch muscle is an anomalous muscular slip of Latissimus dorsi, which arises from its upper edge and crosses the axillary vessels and nerves, and joins with either the tendon of Pectoralis major, or Coracobrachialis, or fascia over Biceps brachii. We report a rare case of right unilateral axillary arch muscle in 60 year old male cadaver during routine undergraduate dissection of upper limb. The axillary arch muscle arose from the coracoid process of scapula and it divided into two slips. One slip joined the lateral margin of Subscapularis and another slip joined the lateral margin of Latissimus dorsi. The stem of these two muscle slips was arching over the posterior cord of the Brachial plexus. Recognizing that the axillary arch can present in various complex forms is important in surgeries in the axillary region, as it can compress the neurovascular bundle of the axilla, cause difficulty in axillary lymph node dissection and Latissimus dorsi flap reconstructive surgeries.

Key words: axillary arch muscle, coracoid process, subscapularis, latissimus dorsi, posterior cord of brachial plexus

Background:

The axillary arch muscle is also called as Langer's muscle or axillopectoral muscle or musculus dorso-epitrochlearis^[1]. It is a rare muscular anomaly of the axilla^[2]. The Axillary arch muscle has been described as having variable and sometimes multiple insertions. The axillary arch muscle is an anomalous muscular slip of Latissimus dorsi, which arises from its upper edge and crosses the axillary vessels and nerves, and joins with either the tendon of Pectoralis major, or Coracobrachialis, or fascia over Biceps brachii^[3]. This arch is thought to be a vestige of panniculus carnosus muscle of lower mammals^[1]. The incidence of axillary arch muscle is 7% in Japanese population, 10% in Belgian population, and 0.25% in British

population^[4]. Only a very few cases of axillary arch muscle have been reported from Indian population. The clinical significance of the axillary arch muscle has been implicated as a potential cause of neurovascular compression in the cervico-axillary region and in hyperabduction syndrome^[2]. We reported a unique case of an axillary arch with multiple insertions, an anomaly that has not been previously described in literature.

Case report:

During routine dissection of the upper limb for undergraduate students of our college, we came across an accessory muscle slip in the right axillary region of a male cadaver aged about 60 years. This accessory muscle slip referred to as axillary arch

muscle was arising from the right coracoid process. The axillary arch muscle further divided into two slips- one slip joined the lateral border of Latissimus dorsi and the other slip joined the lateral border of Subscapularis (**Fig.1**). The stem of the axillary arch muscle was arching over the posterior cord of Brachial plexus, separating it from the rest of the neurovascular bundle of the axilla. This muscle received a twig from the Thoracodorsal nerve.

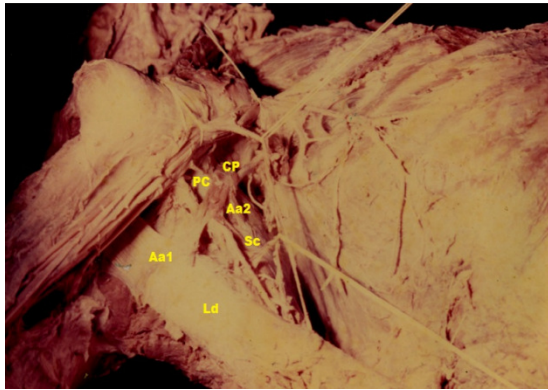


Fig.1 Right axillary region of a male cadaver. Aa1- Axillary arch muscle slip extending upto lateral border of Latissimus dorsi, Aa2- Axillary arch muscle slip extending upto lateral border of Subscapularis, CP- Coracoid process, PC- posterior cord of Brachial plexus, Ld- Latissimus dorsi, Sc- Subscapularis.

The stem of the axillary arch muscle measured about 2cm in length from the coracoid process, 1.5 cm in breadth and 0.5cm in thickness. The slip to lateral border of Latissimus dorsi measured 5cm in length from the coracoid process to lateral border of Latissimus dorsi, 1cm in breadth and 0.5cm in thickness. The other slip measured 3cm in length from the coracoid process to the lateral border of

Subscapularis, 0.5cm in breadth and 0.5cm in thickness. The muscle anatomy was normal on the left axillary region.

Discussion:

Axillary arch muscle was first described by Ramsay in 1795 and it was confirmed by Langer in 1864^[2].

Compression of the neurovascular bundle by fascial arch, or by tendinous arch, or by muscle itself, commonly causes symptoms particularly in the limbs. This occurs usually at the root of the limbs. A fascial arch above the clavicle causing compression of the subclavian vein, has been reported and was found to be Paget-von Schrotter syndrome ^[4]. Similarly, a fascial arch below the clavicle, like axillary arch muscle, has every chance of producing compression of the axillary vessels and nerves.

Kathole MA, et al., has reported a case in which Axillary artery was dilated proximal to the Axillary arch muscle ^[5]. Guy MS, et al., has reported, that patients with axillary arch had a higher incidence of neurologic symptoms of upper limb^[6]. Hafner F, et al., reported a case of axillary vein compression due to axillary arch muscle of Langer. The patient had intermittent swelling and pain in the affected arm which was relieved after resection of the muscle^[7]. Keshtgar MRS, et al., have reported that axillary arch muscles have clinical importance in axillary lymph node dissection during surgery for carcinoma of the breast and also during Latissimus dorsi and Pectoralis major flap reconstructive surgeries^[8].

Conclusion: Knowledge of this axillary arch muscle is of much significance in making a diagnosis and treatment of cases of neurovascular compression of the axillary region.

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