Fourth head of triceps brachii muscle — a case report

Preeti SONJE +
P VATSALASWAMY
Vasanti AROLE

Department of Anatomy, Padmashree Dr. D. Y. Patil Medical College Pune, Maharashtra, INDIA.

Abstract
Variations in the triceps brachii are neither numerous nor common. Each of the heads may be fused, in varying degrees, with neighboring muscles. During routine dissection of a 65-year-old male cadaver in the Department of Anatomy, unusual variation of fourth head of triceps brachii muscle was found. The additional head was seen attached to the upper part of the shaft of humerus on its medial side close to the surgical neck by a thin, slender tendon and the tendon was passing over the neurovascular bundle in the radial groove. A small muscle belly was seen extending from the long tendon and merged with the medial head of triceps. The branch of radial nerve supplying medial head was seen giving a separate branch to the muscle belly of fourth head.

Variation of fourth head of the triceps brachii muscle was seen to have clinical significance.

Introduction
Anatomical variation of biceps and triceps brachii muscle was described by many authors. Though the occurrence of four headed triceps brachii muscle is rare and has been reported before in literature. Such type of variation was reported before by Williams et al. and Wood [1]. This additional head of muscle passing over neurovascular bundle is clinically important.

Normally triceps brachii muscle has got three heads: long head, lateral head and medial head. The long head arises from infraglenoid tubercle of glenoid cavity, the lateral head arises from posterior surface of shaft of humerus above the radial groove and the medial head arises from the posterior surface of shaft of humerus below the radial groove. Sometimes we get additional head of triceps brachii muscle. In this case we found an additional head of triceps brachii muscle arising from posterior surface of shaft of humerus.

Case Report
A long thin and shiny tendon was observed during routine cadaveric dissection of a 65-year-old male cadaver in the Department of Anatomy of Padmashree Dr. D. Y. Patil Medical College Pune, India. The tendon was traced down till the muscle belly was found. Attachment of the tendon was found and its nerve supply was traced and photographs were taken.

Discussion
Normally triceps brachii muscle has three heads: long head, lateral head and medial head. Long head arises from the infraglenoid tubercle of scapula, lateral head arises from posterior surface of shaft of humerus, above the radial groove while medial head arises from posterior surface of shaft of humerus below radial groove. In this case extra head of triceps muscle was seen.
Ipsilateral four-headed triceps brachii muscle was found by Tubbs et al. [3]. They reported an additional attachment site of the medial head of the triceps brachii. This head originated from the posterior aspect of the surgical neck of the humerus. Fabrizio and Clemente demonstrated a single tendon arising from the proximal posteromedial aspect of the shaft of humerus, distal to the shoulder capsule [4]. The tendon of this fourth head passed along the medial aspect of the humerus and gave way to a muscle belly on the medial surface of the distal one-third of the humerus. The tendon of the fourth head passed directly over the neurovascular bundle containing the radial nerve and deep brachial artery at approximately the point where the neurovascular bundle entered the radial sulcus.

Triceps brachii muscle show many variations. Each of the heads may be fused, in varying degrees, with neighboring muscles. The fibers of the long head may extend to the capsule of the shoulder joint above or distally, for a greater extent than usual on the axillary border of the scapula. Macalister described the variations of triceps brachii as follows [5]:

- It may have a fourth head from the medial part of the humerus below the head, by a long, slender tendon, and by an aponeurotic expansion from the capsule of the shoulder – this head blended with the inner (medial) head;
- Macalister has frequently seen the long head split, one attached to the capsule, and the other to the tricipital spine, axillary border, or the first slip was found splitting the capsular ligament, like the curved head of rectus femoris;
- The existence of a slip from the tendon of latissimus dorsi has been seen several times. It was described by Bergman in 1855; and it was also mentioned by Halbertsma under.

**Figure 1.** Extra tendon of triceps brachii muscle arising from posteromedial aspect of upper part of the shaft of humerus close to surgical neck above radial groove. *(DM: deltoid muscle; LOHT: long head of triceps; LHT: lateral head of triceps; FHT: fourth head of triceps)*

**Figure 2.** The tendon was passing over the neurovascular bundle in the radial groove. *(NVB: neurovascular bundle; FHT: fourth head of triceps)*
A fourth head of triceps brachii may arise from various parts on humerus, scapula, shoulder joint capsule or coracoid process [6].

Cheema and Singla also found extra head of triceps brachii muscle originating from humerus from the medial side of surgical neck of humerus, the muscle belly of extra head was blending with the long head of triceps brachii muscle [7].

The fourth head of triceps brachii was arising from the upper part of the posterior aspect of the shaft of the humerus immediately below the capsule of the shoulder joint. The origin was by a long tendon which extended on the medial aspect of arm after crossing the radial nerve and profunda brachii vessels superficially along with the lateral head of triceps brachii. In the lower one third of the posterior aspect of the arm the tendon continued as muscular belly which merged with the medial part of medial head of triceps brachii [8].

**Conclusion**

Relation of extra tendon of triceps brachii muscle passing over the neurovascular bundle has clinical significance in radial nerve palsy and arterial compression. Also patients with weakness and pain in posterior shoulder and arm should be considered having this variant muscle, which is responsible for neurovascular compression. Neurovascular compression may lead to the atrophy of muscles supplied by the neurovascular bundle. It may compress upon the radial nerve or it can also compress the ulnar nerve because of its close proximity with the nerve.

**References**