



A Case Report

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Cleido Occipitalis Cervicis: An anomalous muscle

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ABSTRACT

An additional uncommon muscle fasciculus, Cleido Occipitalis Cervicis (COC) from the anterior border of the trapezius muscle was found during routine dissection. The variant muscle slip was separated from the trapezius muscle and was inserted on the posterior surface of medial two third of shaft of the clavicle as a separate tendon and forms the cleido occipitalis cervicis triangle in the neck. Remaining muscle fibers of trapezius inserted in to the clavicle and scapula as usual. The left external jugular vein was the content of the COC triangle. These variations of the trapezius muscle should be kept in mind during surgical operations or MR imaging observations of the neck region.

Key words: Trapezius, External jugular vein, Cleido occipitalis, variation.

INTRODUCTION

Trapezius is broad superficial trapezoid shaped muscle in the back. Covers and protect most of the important muscles, vessels, nerve of the back, its fibers forms the boundary of the posterior cervical triangle and triangle of auscultation. The muscle originates from medial third of superior nuchal line, external occipital protuberance, nuchal ligament, spinous processes and supra spinous ligament of c7- T12 vertebrae. The insertion is posterior aspect of lateral third of clavicle, medial third of acromion of scapula and the upper lip of the crest of the spine of scapula. [1] Trapezius muscle present three type of fibers; upper, middle and lower. Fibers of the upper part extend from the neck downwards to the shoulders. The middle fibers are smallest and extending transversely. Lowest part of the muscle forms the largest portion of the muscle, and extends upwards superolateral direction. But this muscle is commonly variable especially in its attachment. Variation range from lack of some fibers to the total absence of muscle [2]. The occipital (Upper) fibers are mainly variable in its attachment. The presence of distinct separated bundles of the trapezium muscle is very rarely documented in the literature termed “anomalous cleido-occipitalis muscle” [3] or “cleido-occipitalis cervicalis muscle” [4]. During rotation, retraction and elevation of scapula, the trapezius along with the variant muscle (COC) contracts and may lead to the compression supra clavicular nerve and external jugular vein against the clavicle.

Case Report: During routine dissection for medical students in the department of Anatomy, Krishna Institute of Medical Sciences University, Karad. We found rare supernumerary muscle belly on left side of trapezius muscle in the 56 year old male embalmed cadaver. Some portion of muscle fibers of left side of trapezius (upper/occipital fibers) near clavicle got separated and continued as a separate tendon. This tendon inserted on posterior surface of the medial two third of the shaft of clavicle. The muscle fibers of the variant muscle originated from the medial part of the superior nuchal line. This aberrant muscle resembled to the cleido-occipitalis cervicalis portion of trapezius.

Thus the variant muscle and tendon found may be termed as the 'cleido-occipitalis cervicalis'. This supernumerary belly was supplied by branch of spinal accessory nerve (Figure 1). The external jugular vein passed through the triangle formed by the cleido-occipitalis cervicalis, trapezius and clavicle. As the vein passes between the tendon of cleido-occipitalis cervicalis and clavicle, it may get compressed during certain actions of the trapezius muscle as in rotation and elevation of scapula.

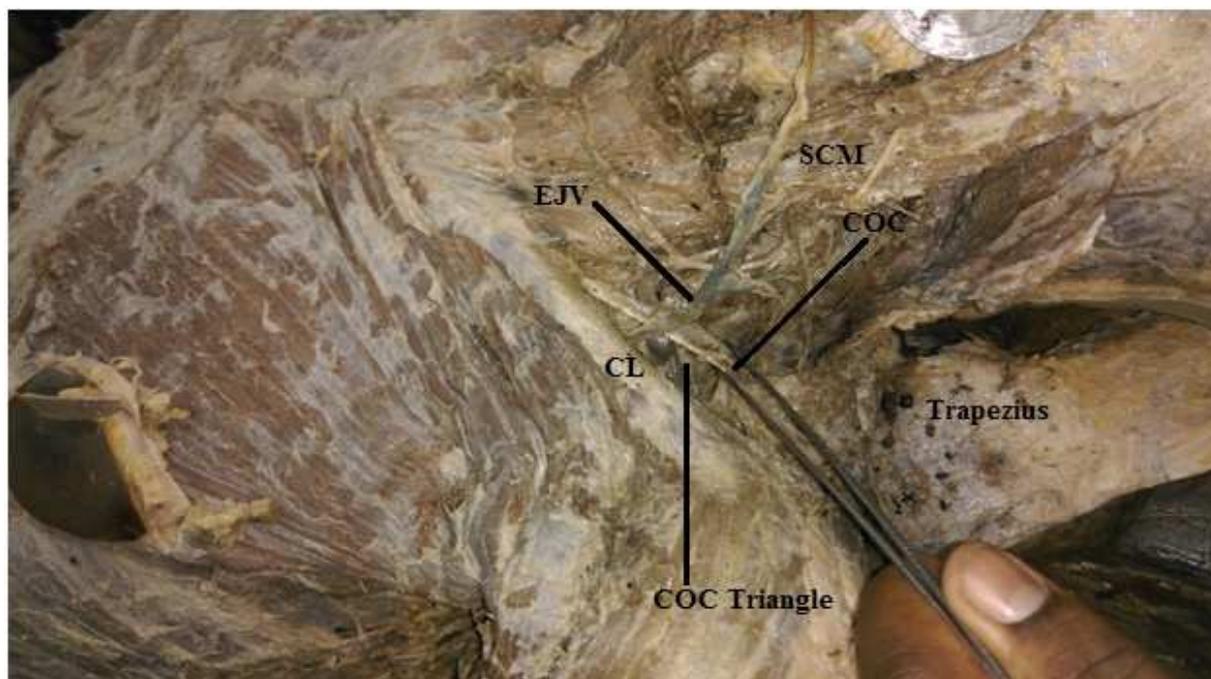


Figure 1: Dissection of left posterior triangle showing EJV (External Jugular Vein) passing through the COC triangle, formed by Trapezius, Cleido Occipitalis Cervicis muscle, and Clavicle, COC (Cleido Occipitalis Cervicis Muscle), SCM (Sterno Cleido Mastoid Muscle), CL (Clavicle), and trapezius muscle

DISCUSSION

The trapezius muscle is variable mainly in its attachments [5]. Most of the variation observed in occipital, cervical, vertebral and clavicular attachments. [6]. Anomalous cleido-occipitalis cervicis muscle is an uncommon muscular variant in the posterior triangle of the neck and it may be unilateral or bilateral. Its reported incidence varies widely between 4% and 33% [7]. In an anomalous cleido-occipitalis muscle, all or part of the cleido-occipitalis division is separate from the remainder of the trapezius muscle and follows a medial course within the posterior triangle. We present a case of separated occipital fasciculus of cleido occipitalis cervicis muscle. Embryologically, Trapezius and sternocleidomastoid muscles are developed from thick columnar mass derived from brachial mesoderm and adjacent myotomes, which divides into ventral part forming sternocleidomastoid muscle and dorsal part forming trapezius muscle. Trapezius is a complex muscle having three distinct divisions (dorsoscapularis superior, dorsoscapularis inferior and cleido-occipitalis). Among which the clavicular portion is associated with cleido-occipital element of sternocleidomastoid muscle in lower mammals and therefore this separated fasciculus can be termed as cleido-occipitalis cervicalis muscle. Wood⁸ described cleido occipitalis as a frequent variation of sternocleidomastoid muscle. Kwak HH⁴ reported cleido occipitalis variation occurs mainly from trapezius muscle. Paraskevas GK⁹ noticed in there literature that, during slight abduction of the ipsilateral arm, the fibrous arch entrapped the supraclavicular nerves, leads to cervical spondylosis, loss of sensation of arm on ipsilateral side and supraspinatus tendinitis. Rahman HA and Kwak HH *et al.* [3, 4] observed that their homologous muscular variations did not compress any vascular or nervous structures. In our study External jugular vein was the main content of the COC triangle, and the vein may compress due to contraction of the trapezius and Cleido Occipitalis cervicis muscles. External jugular vein is used in various procedures like transjugular liver biopsy, catheterization for hemodialysis, etc. Therefore any muscular and vascular variation in the neck should be kept in mind by the surgeons, radiologist,

and plastic surgeons. In addition, an anomalous muscle of the posterior triangle of the neck may induce difficulties during vein catheterization [10, 11].

CONCLUSION

Knowledge of varying course of superficial veins and aberrant muscle of the head and neck region, is not only important for the anatomists but also for the surgeons operating at this level and to anesthesiologist, clinicians who perform safe and accurate catheterization of veins, trans-jugular Porto-systemic shunts or selective venous samplings, and for interventional radiologists, magnetic resonance imaging scans of the cervical region.

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