

CASE REPORT

AN ABERRANT MUSCLE IN THE NECK – A CASE REPORT

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ABSTRACT: During routine dissection of a 65 year old male cadaver, an unusual muscle was found on the right side of the neck. The aberrant muscle had a common origin with sternothyroid. Its distal end was a fleshy belly attached to the posterior aspects of manubrium sternum and medial end of first costal cartilage. The muscle ascended in supero-lateral direction crossing anterior to the common carotid artery and ascended as a slender tendon along the anterior wall of carotid sheath. In the middle third of the neck, it was accompanied by descendens hypoglossi. The tendon merged with the anterior wall of the carotid sheath in the upper part of the neck and was not discernible as a separate entity. Along with the carotid sheath, it was inserted to the base of the skull.

Developmentally, the muscle appears to be the separated fibres from stylohyoid and sternohyoid line (supra- and infra- hyoid muscles) that has lost its intermittent attachment to hyoid bone. Based on its attachments, the muscle can assist sternocleidomastoid in ipsilateral tilting of the head. As the muscle was found to be crossing in front of the common carotid artery, the contraction of this muscle could compress the artery resulting in clinical symptoms. The opposite side of the neck did not show similar muscle. We did not find similar case reported in the literature.

KEY WORDS: Aberrant muscle, sternothyroid, sternohyoid.

INTRODUCTION: Infrahyoid and suprahyoid muscles play a significant role in deglutition and speech by moving hyoid bone and thyroid cartilage. Various anomalous suprahyoid and infrahyoid muscles have been reported in the literature e.g. unusual insertion of the stylohyoid & digastric muscles, an unusual occurrence of levator submandibuli muscle (Banjo muscle), duplicated or other anomalies of omohyoid, anomalous belly of sternothyroid muscle or appearance of levator claviculae muscle (1-6).

Both sternohyoid & sternothyroid muscles take origin from posterior aspect of manubrium of sternum. Sternohyoid has additional attachments to posterior aspect of the capsule of the sternoclavicular joint and medial end of the clavicle. Sternothyroid has an additional attachment to posterior edge of the first costal cartilage. Sternohyoid and sternothyroid ascend on either side of

CASE REPORT

midline, the latter being wider and deeper to the former, and get inserted to inferior border of body of hyoid and oblique line on the lamina of the thyroid cartilage respectively. We are reporting a rare case of an aberrant muscle in the neck taking origin between sternohyoid and sternothyroid, sharing similar origin as sternothyroid.

MATERIALS AND METHODS: During routine dissection for undergraduates, an unusual muscle was noted in the right side of neck of a 65 year old male cadaver. Its attachments, relations and nerve supply were noted. Left side was also studied for the presence of similar anomaly.

OBSERVATIONS: During routine dissection, an unusual muscle was noted in the right side of the neck of a 65 year old male cadaver. At its caudal end, the muscle was attached medially to upper posterior surface of manubrium sternum and laterally to posterior aspect of medial end of first costal cartilage. At its origin, it was lying between the origins of sternohyoid & sternothyroid muscles. In its caudal part, the muscle was made of fleshy belly measuring 7 cm in length. The fleshy belly crossed in front of the common carotid artery in the lower part of the neck. In the mid region of the neck, the muscle ascended as a slender tendon. It was flush with the anterior wall of the carotid sheath and ascended towards the base of the skull. In the upper part above the level of hyoid bone, the tendon blended with anterior wall of the carotid sheath and could not be discerned as a separate entity. Along with the carotid sheath, it ascended to the base of the skull and was attached around the margins of the carotid canal and jugular foramen and to the anterior aspect of the base of the styloid process.

'Descendens hypoglossi'- the superior root of the 'ansa cervicalis'- containing fibres from the ventral ramus of first cervical nerve accompanied the tendon in the mid region (shown in the photograph) below the level of hyoid bone. It gave a branch to the aberrant muscle in its fleshy part and then joined with 'descendens cervicalis' to complete the ansa cervicalis which continued to supply the sternohyoid & sternothyroid.

No such muscle was found on the left side. No other anomalies were found in the neck.

DISCUSSION: DEVELOPMENTAL SIGNIFICANCE: The aberrant muscle found in this case represents anomalous myogenesis. Due to faulty cleavage of the muscle mass during development, frequently we see an accessory slip of a muscle. In this case, an intermediate layer of muscle has been separated between sternohyoid and sternothyroid. It can be hypothesized that, suprahyoid and infrahyoid muscles form a continuous band of muscles extending from base of the skull to sternum with intermittent attachment to hyoid bone. The cranial suprahyoid part forms the stylohyoid line and caudal infrahyoid part form the sternohyoid line. The accessory muscle in this case possibly represents separated fibres of sternohyoid and stylohyoid line of muscles. In this case, the muscle has lost its intermediate attachment to hyoid bone. Thus, the muscle extends from the sternum to the base of the skull close to the base of styloid process without an intermediate attachment to the hyoid bone.

Although the direction of this aberrant muscle was similar to that of sternocleidomastoid, it was not considered as separated fibres of sternocleidomastoid as its origin was positioned in a deeper plane sandwiched between the sternohyoid and sternothyroid muscles; and like sternothyroid &

CASE REPORT

sternohyoid muscles, it was taking origin from the posterior aspect of the manubrium of sternum unlike the sternocleidomastoid (from the anterior aspect of manubrium of sternum).

FUNCTIONAL SIGNIFICANCE: Based on its attachments, the muscle can act to cause weak ipsilateral tilting of the head aiding the sternocleidomastoid.

CLINICAL SIGNIFICANCE: From its origin, the aberrant muscle deviated laterally crossing in front of the common carotid artery (shown in photograph) to ascend in the anterior wall of carotid sheath. The direction of the muscle and its relation to common carotid artery makes it likely for the muscle to compress the artery which could result in clinical symptoms.

The knowledge of presence of such an aberrant muscle although rare helps the surgeon operating in the region during radical neck dissections or in contemplating the causes for compression of common carotid artery clinically or during radiological studies.

Although numerous reports are cited in literature regarding variations in both the suprahyoid and infrahyoid muscles, we did not find similar case being reported in the literature.

REFERENCES:

1. Ozgur Z, Govsa F, Celik S, Ozgur T. An unreported anatomical finding: Unusual insertion of the stylohyoid & digastric muscles. *Surgical & Radiological Anatomy* 2010; 32(5): 513-7
2. Banjo AO. Levator submandibuli muscle (Banjo muscle): a rare muscle in human beings; anatomy, morphogenesis, function & incidence. *Afr J Med Sci* 2009 : 38(1): 1-8
3. Kim DI, Kim HJ, Park JY, Lee KS. Variation of the infrahyoid muscle: duplicated omohyoid & appearance of the levator glandulae thyroideae muscle. *Yonsei Med J* 2010 : 51(6): 984-6
4. Nayak SR, Rai R, Krishnamurthy A, Prabhu LV, Potu BK. An anomalous belly of sternothyroid muscle and its significance. *Rom J Morphol Embryol*. 2009; 50(2): 307-8
5. Rai R, Ranade A, Nayak S, Vadgaonkar R, Mangala P, Krishnamurthy A. A study of anatomical variability of the omohyoid muscle and its clinical relevance. *Clinics (Sao Paulo)*. 2008; 63(4): 521-4
6. Carpo JA, Spinner RL. The levator Claviculae muscle. *Clinical Anatomy*. 2007 : 20(8): 968-9
7. san Standring. *Grays's Anatomy – The anatomical basis for clinical practice*. In: Head and Neck. 39th ed. Elsevier Churchill Livingstone, 2008: 441-725.
8. oore Keith L, Dalley Arthur F. *Clinically Oriented Anatomy*. In: Neck. 5th ed. Lippincott Williams & Wilkins, 2006: 1046- 1124.

CASE REPORT



FIGURE 1: Right lateral view of the neck showing the aberrant muscle.

- a. Common Carotid artery
- b. Tendon of the aberrant muscle accompanied by descendens hypoglossi
- c. Fleshy belly of the aberrant muscle
- d. Descendens hypoglossi piercing the muscle after supplying it – proceeding to supply sternohyoid & sternothyroid
- e. Sternothyroid muscle



FIGURE2: Right lateral view of the neck showing the aberrant muscle

- a1. Sternocleidomastoid detached from its origin
- b1. Accessory muscle taking origin between sternohyoid & sternothyroid
- c1. Sternothyroid
- d1. Sternohyoid (cut lower end)

CASE REPORT



FIGURE3: Right lateral view of the neck showing the aberrant muscle
a2. Detached sternocleidomastoid with clavicle
b2. Sternal head of sternocleidomastoid (Cut)