

## A Rare Case of Unilateral Third Head of Sternocleidomastoid Muscle

Un Caso Raro de una Tercera Cabeza Unilateral del Músculo Esternocleidomastoideo

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CHERIAN, S. J. & NAYAK, S. A rare case of unilateral third head of sternocleidomastoid muscle. *Int. J. Morphol.*, 26(1):99-101, 2008.

**SUMMARY:** A rare case of unilateral third head of sternocleidomastoid muscle was noted during routine dissections for undergraduate medical students. The additional third head originated from the middle third of the clavicle and joined the normal two heads (sternal and clavicular) of the muscle in the middle of the neck. The insertion and nerve supply of the muscle was normal. This case may be important for head and neck surgeons and for plastic surgeons doing muscle graft surgeries.

**KEY WORDS:** Sternocleidomastoid muscle; Anatomical variation; Neck muscle.

### INTRODUCTION

The sternocleidomastoid muscle is a muscle that divides the side of the neck into anterior and posterior triangles. It is an important surgical landmark as it is related to many neurovascular structures in the neck. It originates from two heads. The sternal head is rounded and tendinous. It originates from the upper part of the anterior surface of the manubrium sterni. The clavicular head is flattened and takes origin from the medial one third of the superior surface of the clavicle. The two heads, near their origin are separated from lesser supraclavicular fossa on the surface of the neck. The muscle gets inserted to the lateral surface of the mastoid process and lateral part of the superior nuchal line. The fibres of the muscle cross in such a manner that the clavicular fibres get inserted on to the mastoid process and the sternal fibres get inserted to the superior nuchal line.

The sternocleidomastoid gets its motor supply from the spinal accessory nerve and the proprioceptive innervation from the cervical spinal nerves. The muscle derives its arterial supply from the occipital, posterior auricular, superior thyroid and suprascapular arteries.

The muscle while acting alone flexes the neck laterally and turns the face to the opposite side. When the muscles of the two sides contract simultaneously, they flex the head and neck.

### CASE REPORT

During routine dissections for first year medical students, an additional head (third head) was found in relation to the sternocleidomastoid muscle in a male cadaver aged approximately 65 years. The variation was found on the left side of the neck and was unilateral (Figs. 1 and 2). The additional third head took its origin from the superior surface of the middle one third of the clavicle as a fleshy belly. The size of this belly was half the size of normal clavicular head of the muscle. Its fibres passed deep to the normal clavicular head of the muscle and then blended with the other fibres of sternocleidomastoid. The additional head covered the major neurovascular structures in the subclavian triangle. It was supplied by a branch of spinal accessory nerve.

### DISCUSSION

Sternocleidomastoid muscle presents several variations commonly at its origin. Variations in the insertion are very rare. The sternocleidomastoid shares the same developmental source as the trapezius and hence it can be fused with the trapezius muscle. The fusion of these two muscles is considered to be a normal feature by Bergman *et al.* (1988). The tendinous intersections have been noted in sternocleidomastoid by Bergman *et al.* These intersections

are probably due to the development of the muscle by several myotomes.

Mustafa (2006) has reported a supernumerary cleido-occipital muscle, more or less separate from the sternocleidomastoid muscle. This cliedo-occipital muscle exists in 33% of cases.

The presence of additional bellies bilaterally has been reported by Nayak *et al.* (2006) and Ramesh *et al.* (2007). Coskun *et al.* (2002) have reported multiple variations of

sternocleidomastoid muscles. They observed sternocleido-occipital, cliedomastoid and sternomastoid muscles in the same cadaver unilaterally.

The knowledge of variations of sternocleidomastoid muscle is important for head and neck surgeons. It is also useful for the plastic surgeons. The sternocleidomastoid muscle can be used in several ways during surgery. Conley & Gullane (1980) have explained various uses of the muscle such as a) its use along with a part of clavicle to reconstruct mandible, b) reconstruct mandibular defects, c) transport as a myocutaneous flap for reconstruction of the oral floor and d) use as a suture line to protect carotid and innominate arteries.

The additional head reported by us may not have any functional advantage on the movement of the neck. Since it covers the important neurovascular structures in the lower part of the neck, it might cause difficulties in the surgeries in that region. It may also interfere in invasive techniques. Plastic surgeons can make best use of this additional head for muscle graft surgeries.

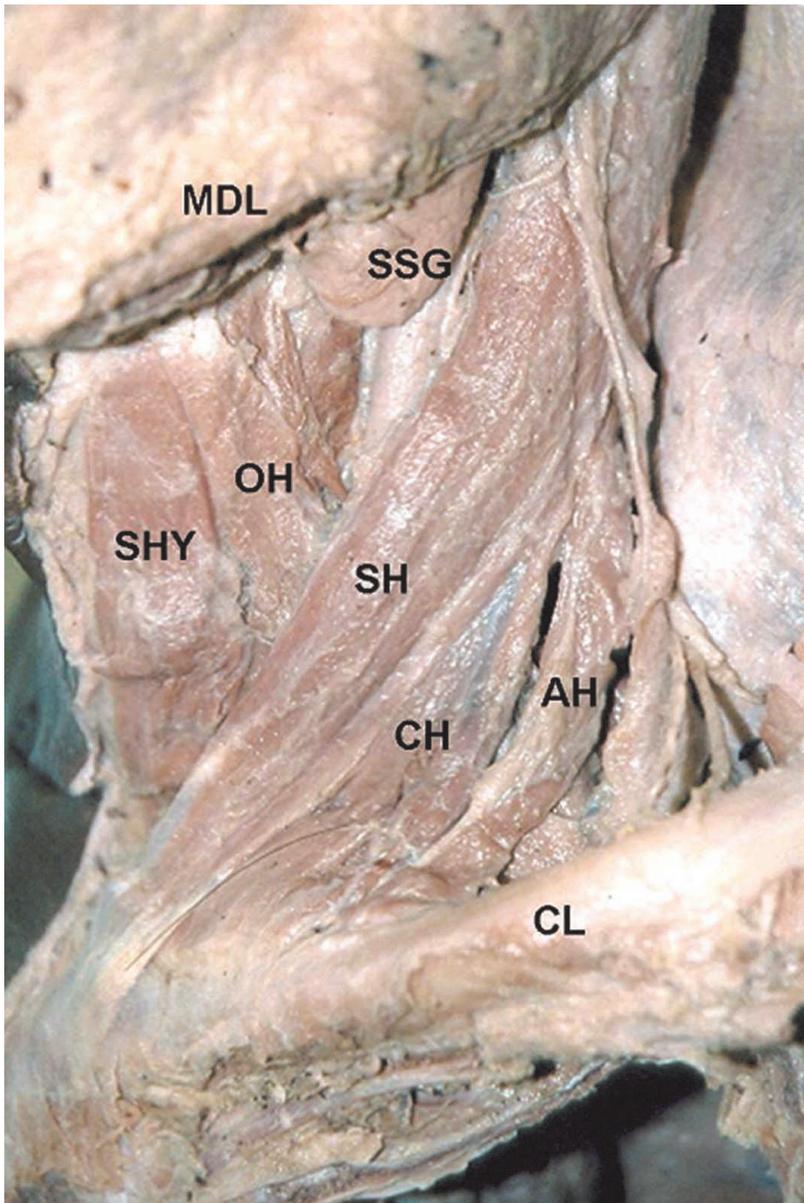


Fig. 1. Superficial dissection of the left side of the neck. SH – sternal head of sternocleidomastoid; CH – clavicular head of sternocleidomastoid; AH – additional third head of sternocleidomastoid; CL – clavicle; SHY – sternohyoid; OH – omohyoid; MDL – mandible; SSG – submandibular salivary gland.

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**RESUMEN:** Un caso raro de una tercera cabeza unilateral del músculo esternocleidomastoideo se observó durante disecciones de rutina para los estudiantes de medicina de pregrado. La tercera cabeza adicional se originó en el tercio medio de la clavícula y se unió a las dos cabezas normales (esternal y clavicular) del músculo en el medio del cuello. La inserción y e inervación del músculo fue normal. Este caso puede ser importante para los cirujanos de cabeza y cuello y para cirujanos plásticos que realizan cirugías de injerto muscular.

**PALABRAS CLAVE:** Músculo esternocleidomastoideo; Variación anatómica; Músculo del cuello.

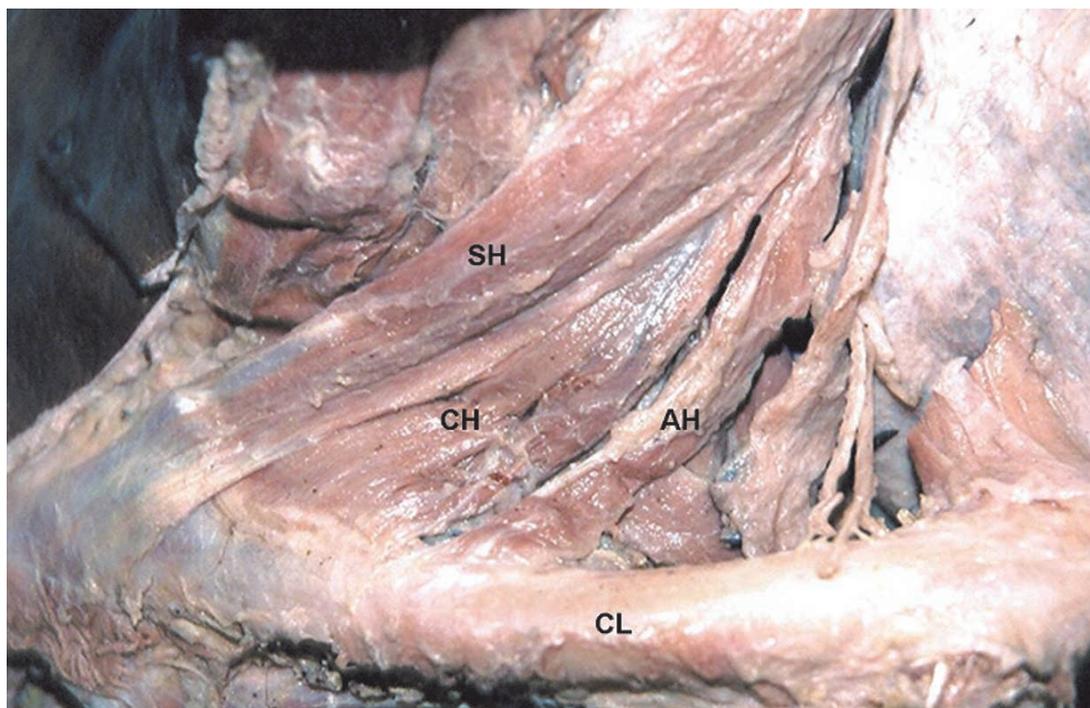


Fig. 2. Superficial dissection of the left side of the neck (closer view of the additional head of sternocleidomastoid muscle). SH – sternal head of sternocleidomastoid muscle; CH – clavicular head of sternocleidomastoid muscle; AH – additional third head of sternocleidomastoid muscle; CL – clavicle.

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Received: 12-11-2007

Accepted: 08-02-2008

