Case Report

A Rare Anomalous Muscle of the Neck:
A Case with the Supernumerärer Bauch
des Musculus sternocleidomastoideus (Gruber, 1885)

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Summary: A rare anomalous muscle was found in the left cervical region of an 89-year-old Japanese male.

The muscle arose from the mastoid process of the temporal bone by a common tendon with the M. sternocleidomastoideus, and gradually increased in width as it ran medially and downwards between the M. sternocleidomastoideus and the posterior belly of the M. digastricus to its insertion into the lower edge of the hyoid bone, the carotid sheath and the fascia of the superior belly of the M. omohyoideus. It was supplied from its inner surface by a branch from the accessory nerve.

In view of its nerve supply and topography, the muscle is assumed to be an aberrant bundle given off in an inferomedialward direction from the M. sternocleidomastoideus. A review of previous reports describing the presence of an anomalous muscle in the lateral cervical region suggested that the muscle is homologous to the Supernumerärer Bauch des M. sternocleidomastoideus (Gruber, 1885).

From the standpoint of comparative anatomy, the human M. sternocleidomastoideus is considered to be formed by a superficial layer, which consists of the Sternomastoideus superficialis, the Sternooccipitalis and the Cleidooccipitalis, and a deep layer, which is composed of the Sternomastoideus profundus and the Cleidomastoideus. On the other hand, the M. trapezius is regarded as being formed by the Dorsoscapularis superior, the Dorsoscapularis inferior and the Cleidooccipitocervicalis. In this connection, there have been suggestions that the Cleidooccipitocervicalis should be included in the category of the M. sternocleidomastoideus (Streissler, 1900). Moreover, the report of Eisler (1912) quotes claims made from the standpoint of ontogeny and nerve supply that the M. sternocleidomastoideus and the M. trapezius are muscles which belong to the same series.

In accordance with the foregoing comparative-anatomical situation, Mori (1964) mentioned that anomalous muscles, that is, the M. cleidooccipitalis, the M. cleidomastoideus, etc., occurred in the region between the M. sternocleidomastoideus and the M. trapezius, namely, in the posterior triangle of the neck. In addition, it has been reported by many investigators that the M. supraclavicularis proprius, the M. sternoclavicularis, the M. omocervicalis, etc.
occurred in the posterior triangle.

However, an anomalous muscle, derived from the M. sternocleidomastoideus and occurring in the region medial to it, has rarely been reported.

In the course of anatomical dissection training for students of the Medical College of Oita during the 1982 school year, the present authors happened to encounter a rare anomalous muscle which had been derived from the M. sternocleidomastoideus. The present paper reports details of this case and attempts to discuss its true nature.

Findings and Discussion

The anomalous muscle was observed in the left cervical region of a Japanese male (cadaver number 88; age 89 years at the time of death due to heart failure). It was a grossly triangular, plate-like muscle, which arose by a common tendon with the M. sternocleidomastoideus from the anterior edge of the mastoid process of the temporal bone. It gradually increased in width as it ran medially and downwards between the M. sternocleidomastoideus and the posterior belly of the M. digastricus. At the carotid triangle, it crossed superficially to the common carotid artery, the internal jugular vein and the vagus nerve. The fasciculus of the upper margin of the muscle converged to form a slender tendon, which was attached to the lower edge of the body of the hyoid bone. The other fasciculi inserted into the carotid sheath and the fascia of the superior belly of the M. omohyoideus.

The lower margin of the muscle was covered inferolaterally by the M. sternocleidomastoideus. The muscle was 10 cm long along its upper edge, 10.5 cm long along its lower margin, and its maximum width at the insertion was 4.2 cm.

The muscle was supplied from its inner surface by a branch from the accessory nerve. The accessory nerve, after giving off this branch to the muscle at the level of the posterior belly of the M. digastricus, separated into two branches. One anastomosed with a branch from the second cervical nerve to enter the M. sternocleidomastoideus, while the other ran to the M. trapezius. This latter branch anastomosed with a branch from the third cervical nerve before entry into the M. trapezius. The M. trapezius also received a branch from the fourth cervical nerve.

The M. sternocleidomastoideus arose by a sternal head from the manubrium of the sternum and by a clavicular head from the medial part of the clavicle, and inserted into the mastoid process of the temporal bone and the superior nuchal line of the occipital bone. There were no remarkable findings for the Mm. suprahyoidei or the Mm. infrahyoidei.

The anomalous muscle found by the present authors was supplied by the accessory nerve, and attached to the temporal bone by a common tendon with the M. sternocleidomastoideus. Thus, from the standpoint of the observed topography and nerve supply, it seems appropriate to consider this muscle as having derived from the M. sternocleidomastoideus.

In the study on the human M. sternocleidomastoideus by Yoshizaki (1961) utilizing the intramuscular distribution of the nerve as a criterion, this muscle was described as consisting of four parts, that is, the sternomastoid, sternoooccipital, cleidomastoid and cleidooccipital portions. Among these, the sternomastoid portion, the medial region of the sternoooccipital portion and the cleidomastoid portion were supplied mainly by the accessory nerve. Our muscle was supplied only by the accessory nerve, so that it should be regarded as being an aberrant bundle from the sternomastoid...
portion, the medial region of the sterno-occipital portion and the cleidomastoid portion of the M. sternocleidomastoideus.

In 1885, Gruber reported an anomalous muscle which had a fleshy origin from the anterior edge of the tendon of insertion of the M. sternocleidomastoideus at a spot 45 mm below the mastoid process of the temporal bone. It crossed superficially to the vessels and nerve within the Trigonum omo-hyoideus as it ran anteriorly and downwards to its insertion by a slender, band-like tendon into the body of the hyoid bone. It was supplied by a branch from the accessory nerve. Gruber gave the name “Supernumerärer Bauch des Musculus sternocleidomastoideus” to this muscle. Comparison of our muscle with the Supernumerärer Bauch des Musculus sternocleidomastoideus indicates that the insertion of the former was more extensive than that of the latter. That is, our muscle revealed insertion not only into the body of the hyoid bone but also into the carotid sheath and the fascia of the superior belly of the M. omohyoides. However, if the Supernumerärer Bauch and our muscle are compared on the basis of their relationship to the M. sternocleidomastoideus, their nerve supply and relation to adjacent muscles, it would seem that these muscles should be regarded as essentially homologous.

Perrin (1870) described one case with a slender muscular band which had its origin from the mastoid process of the temporal bone and the adjoining portion of the superior curved line of the occipital bone, situated between the insertions of the M. sternocleidomastoideus and the M. cleidoccipitalis. It crossed superficially to the M. sternocleidomastoideus in a medialward and downward direction, and inserted into the body of the hyoid bone. Perrin called the band an “occipito-hyoid slip”. Due to the absence of the M. stylohyoideus in this case and on the basis of comparative-anatomical considerations, Perrin regarded the slip and the M. stylohyoideus as belonging to the same series. However, if the location of the slip is considered in relation to the M. sternocleidomastoideus, the present authors cannot agree with the view of Perrin concerning the true nature of this slip. Rather, it would seem more appropriate to regard the “occipito-hyoid slip” as an aberrant bundle given off from the M. sternocleidomastoideus towards the hyoid bone and as being essentially homologous to our muscle.

In addition, Walsham (quoted from Testut, 1884) and Testut (1884) reported the occurrence of a slender fasciculus which had its origin from the anterior edge of the mastoid process of the temporal bone and coursed medially and downwards along the anterior margin of the M. sternocleidomastoideus to insert into the carotid sheath at the level of the thyroid cartilage. Testut used the name “Faisceau musculaire masto-carotidien” for this fasciculus. Although the nerve supply of this fasciculus is not known, Testut regarded it as an aberrant bundle from the M. sternocleidomastoideus. From the viewpoint of topography, it seems reasonable to consider that the Faisceau musculaire masto-carotidien is essentially homologous to our muscle.

References

3) Mori, M.: Statistics on the musculature of


7) Walsham: quoted from Testut (1884).

PLATE
Explanation of Figures

Abbreviations

*: Anomalous muscle  O: M. omohyoideus
A: N. accessorius  P: M. pectoralis major
CC: A. carotis communis  S: M. sternohyoideus
D: M. digastricus  SCM: M. sternocleidomastoideus
JI: V. jugularis interna  TS: A. temporalis superficialis
M: M. masseter  V: N. vagus

Plate I

Fig. 1. Anterolateral view.

Fig. 2. Anterolateral view. The M. sternocleidomastoideus has been severed at its belly and has been reflected laterally so as to expose the insertion of the anomalous muscle.

Fig. 3. Anterolateral view. The anomalous muscle has been reflected laterally and downwards so as to expose its nerve supply (arrow).