

A thyreotrachealis muscle - a case report

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SUMMARY

During regular cadaveric dissection, a 65-year-old male cadaver had a variant muscle in front of the trachea. The muscle had a lower attachment from the anterior surface of the tracheal rings, passed obliquely superficial to the isthmus, left the lobe of the thyroid gland and merged with the left cricothyroid and inferior constrictor muscle. The muscle was located deep to the infrahyoid group of muscles, superficial to the trachea and thyroid gland. It was observed that the muscle received a nerve supply from the *ansa cervicalis*.

Key words: Sternothyroid muscle – Larynx – Trachea – Muscular variations – Thyreotrachealis muscle

INTRODUCTION

This muscular fascicle is a very rare anatomical variation. However, Gruber has previously reported it in 1851 as thyreo-trachealis muscle. The muscle has been described with two bundles arising from the fourth ring of the trachea and passing over the cricothyroid muscle and thyroid isthmus to be attached into the thyroid cartilage (Gruber, 1851). The thyreo-trachealis muscle has been reported with an incidence range from 6.5% (Macalister, 1875; Le Double, 1897) to 26% (Gruber, 1851). However, with the exception of the above-mentioned classical studies, no other recent reports described this muscular variation.

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CASE REPORT

During regular dissection classes for first-year medical students, a formalin embalmed male cadaver aged about 65 years revealed a thyreotrachealis muscle in the infrahyoid group muscles. The lower attachment of the muscle was in the form of four slips that were attached to the anterior surface of the fifth, sixth, seventh, and eighth tracheal rings. Later the muscle passed obliquely, over the isthmus and the left lobe of the thyroid gland, and merged with the left cricothyroid and inferior constrictor muscle of the pharynx (Fig. 1). The muscle was approximately 7 cm in length and 0.5 cm in breadth. A small twig from the *ansa cervicalis* supplied this abnormal muscle.

DISCUSSION

There are very few reports published on the variations of the infrahyoid muscles, such as the presence of the cleidohyoideus muscle (Kim et al., 2009; Stark et al., 2009), the duplicated omohyoid muscle (Rai et al., 2007), or accessory bellies from the sternothyroid or the sternocleidohyoid muscles (Nayak et al., 2009; Wu et al., 2010). The thyro-trachealis is an infrahyoid additional muscle which has morphological, embryological, and clinical implications.

Gruber (1851) first described this muscle originated from the inner border of the middle part of the thyroid cartilage anterior to the origin of the cricothyroid with two bundles, one median, and one lateral; it passed over the cricothyroid muscle and over the isthmus of the thyroid body to be inserted into the fourth ring of the trachea. However, the present muscle differs in its origin and insertion from the description above. The muscle

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arose as a single bundle from the oblique line of the thyroid cartilage close to the inferior constrictor. Later the muscle divided into four slips to be attached to the anterior surface of the 5-8 tracheal rings.

Gruber (1851) found it in 21 cases in a sample of 80 cadavers (18 cases in males and in 3 cases in females). However, Macalister (1875) found it in 5 cadavers of an overall sample of 80 cadavers. Le Double (1897) has found it in 4 cases in an overall sample of 60 cadavers (3 male and 1 female). Earlier reports have shown that the muscle is more frequent in males than in females – the present case was also a male cadaver. This is the first report of this muscle among the Asian population. The origin of the muscle has been reported as stemming from the *sternothyroideus blastema* (Fürbringer, 1875).

However the present abnormal muscle can be useful in certain clinical procedures, as it can be used as an infrahyoid muscle flap in order to close the pharyngeal fistula or the oesophageal perforation and other otolaryngological conditions (Seidl et al., 2007). Awareness of this additional muscle could be useful to the head and neck, as well as plastic surgeons in the abovementioned conditions. The presence of this muscle in front of the trachea causes no detrimental effects to the subject, as it is far off from the neurovascular structures. Hence there is no chance of compres-



Fig. 1. Anterior view of the neck. The infrahyoid muscles have been removed to show the thyro-trachealis muscle. AM- additional muscle (Thyro-trachealis); IC- Inferior constrictor muscle; TR- Trachea; TG- Thyroid gland.

sion by this muscle. The present muscle may mislead the diagnosis of thyroid swellings. Thyroid swellings are routinely diagnosed with the fact that they move up and down during deglutition. However, in the present case there is a muscle in front of the isthmus and lobe of the gland, which may restrict the movement of the gland during deglutition and lead to misdiagnosis. If the subjects with this variation develop a benign or malignant growth of the thyroid gland, this muscle does not allow the tumour to grow in front, and as a result the tumour grows in the backward direction and may compress the carotid sheath and its contents. Tracheostomy procedures may be complicated by this muscle, as the surgeons have to divide it in order to explore the tracheal rings. Presence of this muscle has an advantage to the head and neck, otolaryngological and plastic surgeons.

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