

SUPERFICIAL MYLOHYOID MUSCLE (A CASE REPORT)

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ABSTRACT

In the submandibular region of a female cadaver anomalous bilateral superficial mylohyoid muscles were detected. The bilateral superficial mylohyoid muscles were located between the right and the left anterior bellies of the digastric muscles. Each arose from the medial aspect of the corresponding lower portions of the anterior bellies of the digastric muscles and crossed transversely towards the midline and were attached to the lower half of the mylohyoid raphe. There were also thin bands of muscular fibers which originated from the fascia on the posterior surface of the anterior belly of the digastric and crossed over and fused with the superficial mylohyoid of the opposite side. The superficial mylohyoid muscles were enclosed in connective tissue, which received its arterial supply from the branches of the submental artery.

This muscle is thought to be a remnant of an evolutionary form which had existed in the past.

Key Words: Bilateral Superficial Mylohyoid Muscle

INTRODUCTION

The mylohyoid muscle is a part of the oral diaphragm. It arises by two halves from the mylohyoid line of the mandible. The muscle fibers slope downwards, the posterior fibers insert to the anterior surface of the hyoid bone and the anterior fibers interdigitate in a midline raphe(1). The embryological development of the anterior bellies of the digastric and the mylohyoid muscles is from the first pharyngeal or mandibular arch(2). The variations of the mylohyoid muscle are rare when compared to the variations of the anterior bellies of the digastric muscle. Malpas(3), reported that the mylohyoid muscles may not extend to the

hyoid bone; instead they may fuse with neighboring muscles. Macalister (4) described a case, in which the mylohyoid muscle was absent and replaced by a large anterior belly of the digastric muscle. Further, Macalister found that the mylohyoid raphe was interrupted or completely absent in some of his cases. Gruber (5) described a mylohyoid muscle which broke up into distinct bundles by lobes of the submandibular gland. Hamy et Chudzinks observed three cases which have been cited by Le Double (6) in which the mylohyoid muscle was inserted to the intermediate tendon of the digastric muscle.

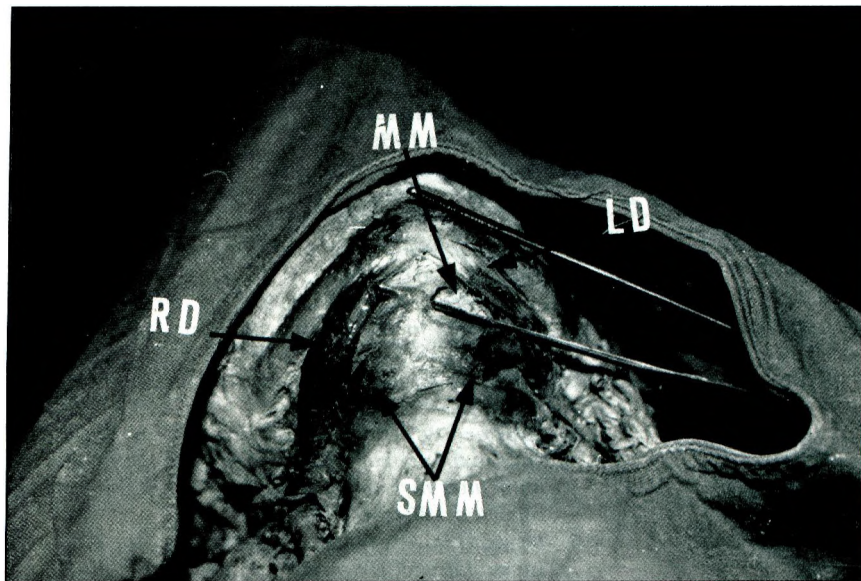
The present study gives a detailed description of these rare bilateral superficial mylohyoid muscles which have not been cited in literature. Additionally, the literature concerning the mylohyoid muscle and the possible function is discussed.

CASE REPORT

A 54-year-old formaldehyde fixed female cadaver was dissected for teaching purposes.

The skin and subcutaneous fat of the submandibular region was removed. The dissection was carefully performed in a manner to allow complete visualization of the fiber alignment of the muscles of the submental region.

Bilateral superficial mylohyoid muscles were revealed between the two anterior bellies of the digastric. The connective tissue between the superficial mylohyoid muscles and the adjacent mylohyoid muscles were carefully investigated. Each superficial mylohyoid muscle arose from the medial aspect of the lower portion of the anterior bellies of the corresponding digastric muscle. The muscular fibers crossed transversely and were attached to the lower portion of the mylohyoid raphe. The right superficial mylohyoid muscles were more expanded when compared to the

**Fig. 1:**

The gross appearance of the superficial mylohyoid muscles of a female cadaver.

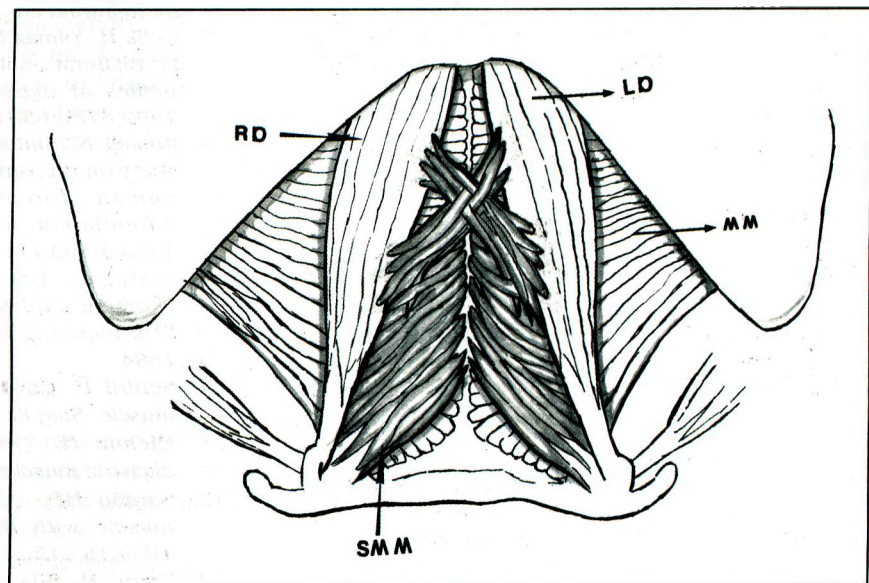
Both of the accessory digastric muscles extended from the medial aspect of the lower portion of the anterior belly of the digastric muscle to the lower aspect of the mylohyoid raphe.

RD= right digastric

LD= left digastric

SMM= Superficial Mylohyoid Muscles

MM= Mylohyoid Muscle

**Fig. 2:**

Schematic drawing of the superficial mylohyoid muscles.

RD= right digastric

LD= left digastric

SMM= Superficial Mylohyoid Muscles

MM= Mylohyoid Muscle

left (Figs. 1,2). Additionally, there were thin muscular bands which originated from the fascia on the posterior surface of the anterior belly of the digastric muscles and crossed over to the midline and fused with the superficial mylohyoid of the opposite side. The submental artery coursed on the posterior surface of the digastric muscle and gave minute branches to the posterior surface of the anterior belly of the digastric, mylohyoid and also to the superficial mylohyoid muscles. The nerve supply to the accessory muscles could not be traced.

DISCUSSION

Although, the mylohyoid muscle and the anterior bellies of the digastric muscles originate from the

same embryological source, the variations of the mylohyoid muscle are quite rare whereas the variations of the anterior bellies of the digastric muscle are common (7).

Kosugi studied the variations of the muscles and concluded that, an anomaly was the past (reversion) or the future form on the way to differentiation (8). He divided the muscles into two groups, the first group possesses many variations which are referred to as "muscles on the way to differentiation" and the second group having not so many variations is named "stable differentiated muscles". According to this definition the mylohyoid muscles are stable compared to the anterior bellies of the digastric muscles.

In rodents, the mylohyoid muscles consisted of superficial and deep portions. The superficial portion was smaller and extended between one half of the mandible and the hyoid bone. The deep portion was relatively thin and extended between the mandible and the hyoid bone. Similar organization of the mylohyoid muscle was observed in reptiles and Indian elephants (6,9). Şehirli (10) described a similar superficial mylohyoid muscle in a human cadaver. Embryologically, the anterior belly of the digastric and the mylohyoid muscle have the same origin, and the same innervation. Therefore, variations of these muscles are difficult to apposition to either muscle.

Almost all of the variations cited in literature concerning the anterior bellies of the digastric muscles showed a vertical muscular fiber alignment(11-13). The transverse course, the mylohyoid raphe attachment and the presence of superficial and deep forms of mylohyoid in different species persuaded us to consider this muscle as a superficial mylohyoid muscle instead of an accessory digastric muscle. The arterial supply was not helpful in evaluating the type of variation.

This rare muscle can be regarded as a remnant of an evolutionary form of the muscle which had existed in the past. The possible function of the bilateral transverse coursing superficial mylohyoid muscle can be supportive to the floor of the mouth. The contraction of the superficial mylohyoid muscle should pull the anterior bellies of the digastric muscle medially and has a supportive function to the mylohyoid muscle.

In recent years MRI and CT are being used to detect pathological lesions of the floor of the mouth, therefore variations of the region should be familiar to the radiologist for an accurate interpretation.

Additionally, knowledge of the variation of the submandibular region will help in the success of the surgical procedure of the region for different purposes.

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