Case Report

Clinical Implications of Accessory Anterior Belly of Digastric Muscle: A Case Study

Sonali Khake, Dhanaji Jadhav, Swati Belsare

Department of Anatomy, Maharashtra Institute of Medical Education and Research, Talegaon, Pune, Maharashtra, India

ABSTRACT

The digastric is one of the suprahyoid muscle has an anterior belly, intermediate tendon, and posterior belly. Variation in the digastric muscle is not seen very often. We report a case of unilateral accessory anterior belly of digastric on the right side, which was detected during routine dissection of 65-year-old male cadaver. The accessory belly was medial to the anterior belly of the right digastric, had tendinous attachment on the mandible and fleshy attachment on greater cornua of hyoid bone. It is important to be aware of possible occurrences of such anomalies during surgical and radiological procedures of the neck region.

Key words: Accessory anterior belly, diagastric muscle, suprahyoid muscle

INTRODUCTION

The digastric is a muscle of the suprahyoid region and normally has two bellies; anterior and posterior and an intermediate tendon.

The origin of anterior belly is from the digastric fossa of mandible and of the posterior belly from the mastoid notch of the temporal bone. Both the heads meet at intermediate tendon perforates the stylohyoid muscle and is held by fibrous pulley to hyoid bone.[1]

The anterior belly of the digastric, geniohyoid and mylohyoid muscles form the floor of the mouth. The action of paired digastric muscles together is to depress the mandible when mouth is open and by elevating the hyoid bone help in deglutition.[2,3]

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The neural crest cells migrate to developing head and neck regions and pharyngeal arches starts to develop in early 4th week of embryonic development.[4] The anterior belly of digastric develops from the first arch (mandibular arch) and first pharyngeal arch plays a major role in facial development. Thus, most variations and congenital anomalies of head and neck region originate during development of pharyngeal apparatus into adult structures and be significant clinically.[5]

CASE REPORT

During the routine dissection of 65-year-old male cadaver, an accessory anterior belly of digastric was observed on the right side. In the present case, the anterior belly on the right side was arising from the digastric fossa on the base of the mandible and the posterior bellies were arising from the mastoid notch of the temporal bone with a usual insertion into the intermediate tendon that is connected to the body and greater horn of the hyoid bone. Addition to this usual anatomy an accessory belly of anterior digastric was found on the right side (Figure 1).

The origin of this single accessory belly is tendinous arising from digastric fossa of mandible and had a fleshy

Address for correspondence:
Dr. Sonali Khake, Department of Anatomy, Maharashtra Institute of Medical Education and Research, Talegaon, Pune - 410 507, Maharashtra, India. E-mail: drsonali11@gmail.com

Figure 1: (1) Angle of mandible, (2) base of mandible, (3) anterior belly of digastric muscle, (4) accessory belly of digastric muscle, (5) mylohyoid muscle, (6) hyoid bone, (7) tendinous ring, (8) intermediate tendon of digastric, and (9) thyroid cartilage

attachment to the body of hyoid bone. No variation was found on the left side.

DISCUSSION AND CONCLUSION

The possible cause of such variation could be explained by the abnormal and aberrant migration of the neural crest cells in the first pharyngeal arch, leading to development of an accessory anterior belly.[6]

Sargon and Celik (1984)[7] and Peker *et al.*[8] have stated the unilateral variation of the anterior digastric belly is more common.

Since the digastric muscle play role as accessory muscle of mastication this kind of variation may alter the symmetry of movement of the mandible, more so when the variation is unilateral. Thus, unilateral variations may be responsible for asymmetry in the anterior region of neck or even in movement of the floor of mouth or temporomandibular joint and in the movement in larynx as it has an attachment on hyoid. These types of asymmetry may lead to slight functional abnormalities or may even be confounded in clinical examinations and in imaging examinations such as ultrasound, tomography and magnetic resonance with lymph nodes, and benign cervical masses such as thyroglossal cysts or neoplasia.[9]

In case of lesions or damage to the facial nerve during resection of tumor the depressor function of lower lip can be affected. The digastric anterior belly transfer technique is used by the plastic surgeons to restore the depressor function of lower lip.[10]

Computed tomography and magnetic resonance are valuable investigations in the evaluation of pathologic lesions of neck region. Due to its location and tissue density, an accessory digastric muscle could easily be misinterpreted as a normal or metastatic submental lymph node, lipoma, hematoma, or accessory lobe of submandibular gland. It is important to be aware of possible occurrences of such anomalies during surgical procedures of the submental region.

Anomalies of anterior bellies of digastric muscle are not common. It is important to consider accessory belly of digastric as one of the differential diagnosis, as they can be mistaken for an accessory lobe of submandibular gland, lymph node, lipoma, hematoma, or a mass during radiological examinations. Establishment of correct diagnosis can avoid unnecessary biopsy and surgery.[11]

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