

Sternal Muscle: A Case Report

Pamela Kelly Farias de Aguiar¹ Anna Caroline Duarte Costa Silva² André de Sá Braga Oliveira¹
Luciano Edgley dos Santos² Felipe Barbosa Gomes¹ Thiago de Oliveira Assis^{1,2,3}

¹Department of Morphology, Universidade Federal da Paraíba, João Pessoa, PB, Brazil

²Department of Medicine and Nutrition, Unifacisa, Campina Grande, PB, Brazil

³Department of Biology, Universidade Federal da Paraíba, Campina Grande, PB, Brazil

Address for correspondence Thiago de Oliveira Assis, PhD, Departamento de Morfologia, Universidade Federal da Paraíba, Cidade Universitária, S/N, Castelo Branco III - João Pessoa, PB, Brazil, CEP: 58051-900. (e-mail: thiago.aa@hotmail.com).

J Morphol Sci 2019;36:141–144.

Abstract

Keywords

- ▶ sternal muscle
- ▶ anatomical variation
- ▶ clinical anatomy

Introduction The sternal muscle is an anatomical variation found in the anterior region of the thorax.

Objective To report the anatomical characteristics of a new type of sternal muscle.

Case Report This was a dissection study in which the sternal muscle found was unilateral and long.

Discussion Proximal fixation differs from the classification adopted for these cases. Documentation of sternal muscle variations can improve the theoretical database in anatomy as well as aid diagnoses, reducing the probability of the unexpected during clinical and/or surgical thorax-related investigations.

Introduction

The sternal muscle, which is not present in the American population and is more present in the northern China population, presents as an anatomical variation superficially situated at the pectoralis major muscle, usually unilateral, without epidemiological variation in relation to sexual dimorphism.¹ Its low occurrence, estimated to be ~ 8%, and the possibility of confounding it with tumors in the sternal region, justifies its descriptions upon identification. The objective of the present article is to report a case of sternal muscle in a human cadaver.

Case Report

This is an observational dissection study. In the dissection routine at the Anatomy Laboratory of the Morphology Department of the Universidade Federal da Paraíba (Campus I), João Pessoa, state of Paraíba, Brazil, the sternal muscle was found, dissected by routine technique and anatomically characterized.

The most commonly used classification for sternal muscle variations was proposed by Jeleu et al² and is indicated in ▶**Fig. 1**.

The unilateral and long type is the most frequent one, usually originating from the sternocleidomastoid (ECOM) muscle tendon and inserted into the costal cartilages. Silva³ reported a series of cases in cadavers presenting sternal muscle. In this study, these muscles had origins near the ECOM tendon or even at the manubrium.

In our study, the sternal muscle was dissected through the routine technique and is shown in ▶**Fig. 2**.

Our finding reveals a long, unilateral muscle with a length greater than the width and thickness, with proximal fixation in the sternal fascia of the pectoralis major muscle and the distal insertion in the abdominal portion of the pectoralis major muscle.

Discussion

The ontogenesis of the sternal muscle has revealed a muscle as being a reminiscent of four major structures: from the major spinal muscle; from the rectus abdominis muscle; from the musculoskeletal muscle, or from the fleshy panniculus related to the platysma muscle.⁴

Our finding reveals a long, unilateral muscle with a length greater than the width and thickness, with proximal fixation in the sternal fascia of the pectoralis major muscle and the

received
September 5, 2018
accepted
March 28, 2019

DOI <https://doi.org/10.1055/s-0039-1688910>
ISSN 2177-0298.

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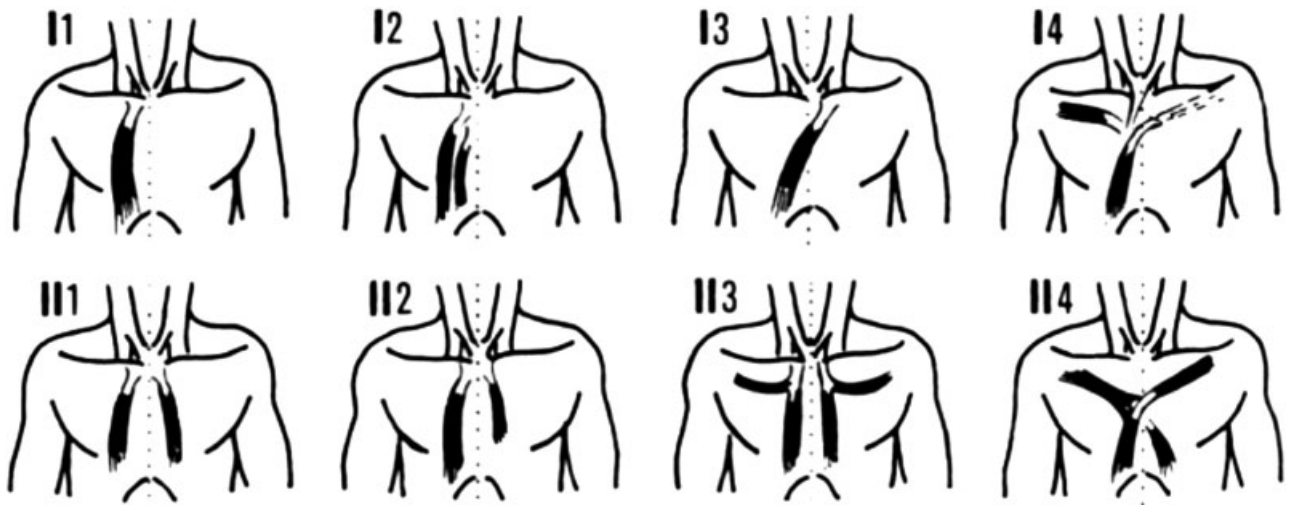


Fig. 1 Variant forms of the sternal muscle previously published by Jelev et al.²



Fig. 2 Sternal muscle dissection, anterior to the pectoralis major muscle (A and B). Long muscle with parallel fibers (*).

distal insertion in the abdominal portion of the pectoralis muscle. In the classification proposed by Jelev et al,² our finding closely resembles type I2, with proximal fixation in the middle axial line of the sternum, but differs in presenting only one venter. Recently, Dudgeon et al⁵ also proposed a new variant form to the sternal muscle. This finding was a

mixed type with three venters. Therefore, we believe that our finding can also be added to this classification. Interestingly, the phylogenetic theories state that the sternal muscle, when found near the sternum, is derived from primates.⁶

The visualization of the sternal muscle has caused surprise during surgeries.⁷ During radical mastectomies in the

treatment of breast carcinomas, the pectoral fascia is folded and the pectoralis major is exposed. In the presence of the sternal muscle, it is necessary to observe its muscular fixations to perform the best cutting plane.¹ In studies using mammography, the sternal muscle was identified, whereas at clinic evaluations it was confused with a mammary lesion.⁸

Therefore, documentation of sternal muscle variations can improve the anatomy theoretical database, as well as aid diagnoses, reducing the probability of the unexpected during clinical and/or surgical thorax-related investigations.

Conflicts of Interests

The authors have no conflicts of interests to declare.

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