A digastric sternalis muscle: a rare finding

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Abstract
Introduction
This paper reports a rare case of a digastric sternalis muscle.

Case report
During routine cadaveric dissection of the thorax, an unusually large double-bellied muscle with an intervening tendon was observed on the anterior thoracic wall. The muscle was similar in position to the sternalis muscle except that, in this case, the muscle crossed the midline. Its lower belly was attached below to the left 7th costochondral junction and continued above as an intermediate tendon. The tendon then crossed the midline and gave rise to another smaller upper belly, which was placed between the manubrial and sternal fibres of the right pectoralis major. The upper belly then became continuous with the right pectoralis major muscle. The muscle, as it crossed the midline, gave two tendinous slips to the left pectoralis major muscle.

Conclusion
The sternalis muscle and its variants are stated to have a variety of appearances that should be familiar to the radiologist to avoid confusion with a malignant lesion.

Introduction
The sternalis muscle when present is a superficial slip on the anterior thoracic wall. It may ascend from the lower costal cartilages and the rectus sheath to blend with the sternocleidomastoid or to attach to the upper sternum or costal cartilages¹. The discovery of sternalis dates back to as early as 1604 as stated by Turner in his extensive work on the sternalis muscle². The morphology, innervations, and attachments of the muscle are debated by anatomists who have encountered the muscle. Variants of sternalis such as biceps sternalis³ and sternomastalis⁴ have been reported and the classification of sternalis has been made²⁻⁵. We report here a case differing from the cases published on the variants of sternalis.

Case Report
We encountered this strange muscle during routine cadaveric dissection for undergraduate medical students. While dissecting the pectoral region, the muscle (inferior belly) was observed to lie superficial to the left pectoralis major. Its lower end was seen attached to the left 7th costochondral junction and also to the left rectus sheath. On probing upwards, the muscle ended in a tendon which arched to the right side and crossed the midline. The tendon on approaching the surface of the right pectoralis major gave rise to another smaller muscle (superior belly). The superior belly was then seen to become continuous with the right pectoralis major. Further, the upper part of the pectoralis major muscles crossed the midline and interlocked with each other (Figures 1 and 2).

The intermediate tendon also gave a tendinous slip (TS 1) to the left pectoralis major. Another tiny tendinous (TS 2) slip was observed to emerge from the lower end of the

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Figure 1: Dissection of the pectoral region showing the anomalous muscle. (SB, superior belly; IB, inferior belly; IT, intermediate tendon; RPM & LPM, right & left pectoralis major).

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**Case report**

Muscle when present is seen on the craniocaudal mammogram along the sternal edge of the film as seen by Bradley et al. 8.

**Conclusion**

The sternalis muscle and its variants are stated to have a variety of appearances that should be familiar to the radiologist to avoid confusion with a malignant lesion. The etiology can be confirmed and cancer excluded by CT or MR imaging.

**References**


**Discussion**

Anatomists over the years have attributed to the presence of sternalis without consequence. In this case report, the functional significance of this variant muscle cannot be asserted since it is a cadaveric dissection. The classification of sternalis muscles has been provided by Turner 2 and Raikos et al. 5. Raikos et al. describe the crossed variant of sternalis as a new sub-type where it is connected to the sternocleidomastoid. Instead, we observed two prominent bellies unlike any case reported so far as per our literature study. Boycho et al. reported a similar case of crossed sternalis 6. The occurrence of sternalis and its variant forms can be unilateral or bilateral and can be of varying thickness and shape. Khan 7 described the use of sternalis muscle in the procedure of augmentation mammoplasty. The superior belly, also given out to the left pectoralis major (Figure 2).

**Figure 2:** Closer view of the dissection of the pectoral region showing the anomalous muscle. (TS 1, tendinous slip from superior belly to the left pectoralis major; TS 2, Tendinous slip from intermediate tendon to the left pectoralis major).