

## Two interesting variations of the rhomboid muscles

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During routine student dissections two cases with unusual composition of the rhomboid muscles were observed. In the first case, the rhomboid major layers on both sides of a 65-y-old male cadaver were extremely well developed with an increased spinal attachment from T1-T7 spinous processes. In the second case, an additional to the rhomboids muscle was described bilaterally in a 72-year-old male cadaver. This aberrant muscle arose by a thin aponeurosis from the spinous processes of the mid-thoracic vertebrae and was attached laterally to the lowest part of the medial border of the scapula. The reported in the literature variations of the rhomboids are summarized and their possible clinical importance is discussed as well.

*Key words:* rhomboid muscles, variation, human

### Introduction

The rhomboids are flat muscles from the superficial muscle group of the back that connect the scapula with the spinal column [3]. They are located under the trapezius layer and usually can be divided into two portions – the rhomboid minor, arising from C6-C7 (C7-T1) spinous processes and the rhomboid major arising from T1-T4 (T2-T5) spinous processes [2]. Despite the rhomboids' morphology seems to be quite constant [7], some interesting variations of these muscles have been reported in the anatomical literature. With this report, we present two such cases.

### Case report

In the first case, after removal of the trapezius of a 65-y-old male cadaver, an extremely well developed rhomboid layer was observed on both sides (Fig.1). The following dissection revealed an increased spinal attachment of the rhomboid major, which in this case arose from the T1-T7 spinous processes.

In the second case, an interesting aberrant muscle (Fig. 2) was observed bilaterally during routine anatomical dissection of the superficial back structures of a 72-year-old male cadaver. The unusual muscle belonged to the layer of levator scapulae and rhom-

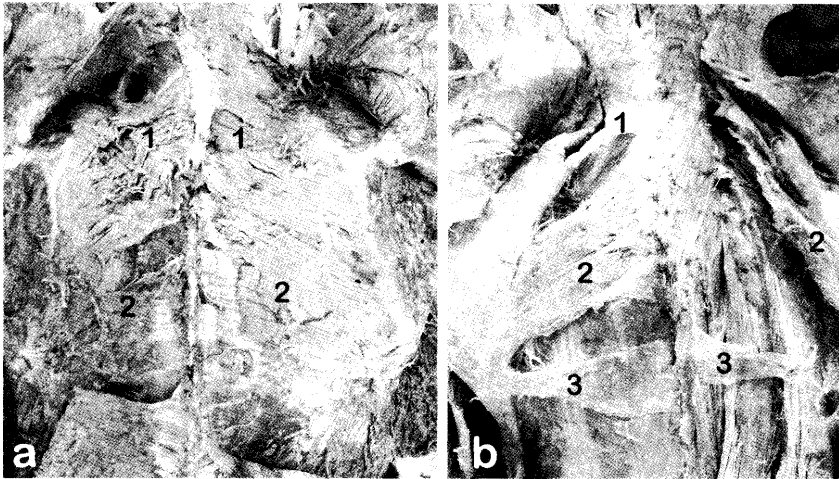


Fig. 1. Photographs of the findings described in Case 1(a) and Case 2(b). Muscles – 1, rhomboides minor; 2, rhomboides major; 3, rhomboides tertius.

boids and was located below the lower border of the rhomboides major. On the left side the aberrant muscle was slightly larger and started with a thin aponeurosis from the T6-T8 spinous processes, while on the right side it started from T6-T7 spinous processes. On both sides the muscle fibers directed nearly horizontally to insert into the lowest part of the medial border of the scapula. Careful dissection revealed an innervation by the dorsal scapular nerve.

## Discussion

Numerous variations concerning the rhomboids have been reported in the literature: 1) absence (more frequently the rhomboid minor); 2) complete fusion of the two muscles; 3) separation into several bundles; 4) splitting into a superficial and deep layers; 5) extension of the vertebral origins in both a cranial and caudal direction [2,3,5-7]. There are also reports on the presence of small muscular slips of rhomboids that fused with some of the neighboring muscles – teres major, latissimus dorsi, serratus anterior [2,5,6]. Some authors described interesting aberrant muscles in the posterior neck related to the rhomboids – “rhomboides occipitalis” [2,6] and “atlanto-rhomboides” [9]. Two other unusual muscles have been described below the lower border of the rhomboid major and termed “m. rhomboides minimus” [10] and “m. rhomboides minus” [7]. A similar location had the aberrant muscle reported here in the second case. Because of its size, however, being larger than the rhomboid minor, a more plausible term for such a muscle would be “m. rhomboides tertius”.

In the clinical practice the variations of the rhomboids, despite being rare occasions, might have importance during particular surgical interventions such as intrathoracic muscle flap transfer [4] or muscle transfer for paralysis of the trapezius [1,8].

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