The normal motor innervation to Trapezius muscle is usually by the spinal root of accessory nerve (XI) and proprioception by branches of the cervical plexus anterior rami C3 and C4 (3,4). Its arterial blood supply is commonly by the dorsal scapular artery which usually originates from the third part, or less commonly from the second part, of the subclavian artery. If the dorsal scapular artery is absent, the superficial cervical artery from the thyrocervical trunk of the first part of subclavian gives a deep branch that supplies the muscle. In this case the superficial cervical artery is called transverse cervical artery. In addition, the occipital artery off the external carotid artery and posterior intercostal arteries off descending thoracic aorta may contribute to the blood supply of Trapezius.

**CASE REPORT**

We are reporting a unique case of a complete unilateral absence of the left side of trapezius muscle in an 87-years-old-Caucasian male cadaver (Figures 1 and 2). The contralateral muscle was unremarkable in its attachments, nerve and arterial blood supply. The cause of death of this individual was cardiopulmonary arrest. There were no signs of trauma or past surgical procedures.

This unilateral absence of the trapezius muscle was accompanied by a loss of the trapezius part of the left spinal accessory nerve, loss of the related arterial blood supply and a double palmaris longus muscle in the left
forearm. Photos were taken with Nikon Coolpix 4500 camera.

DISCUSSION

Complete congenital absence of both left and right Trapezius had been reported by Gross-Kieselstein and Shalev in 1987 (5) and Horan and Bonafe in 1977 (6). Partial unilateral absence in the lower part of the left Trapezius was reported by Emsley and Davis in 2001 (7) and by Garbelotti et al. In the same year (8). The latter report also included aponeurotic tissues replacing the ascending fibers of Trapezius.

In our case, the entire left trapezius muscle was absent. This is the first report of complete unilateral absence of this muscle. In addition, its arterial blood supply, the trapezius part of the left spinal accessory nerve and the left dorsal scapular vessels or their equivalents were also absent.

A premortem history was unremarkable for any left shoulder abnormal movements. Presumably, synergistic muscles are compensating for the unilateral absence of trapezius. As a result, the posterior boundary of the left posterior cervical triangle was formed by both enlarged left rhomboids and left levator scapulae muscles. This triangle is normally bounded posteriorly by the anterior border of the left trapezius.

Acquired causes of the absence of the trapezius might include damage to the muscle's motor innervation and/or absence of arterial blood supply that would eventually lead to muscle atrophy. However, these causes are unlikely in our case since there was neither remaining muscle tissue nor any signs of trauma or surgical procedure. The congenital absence of the entire innervation of the left spinal accessory nerve should result in abnormal function of the left sternocleidomastoid, a muscle also supplied by this nerve. This cause was also excluded by the presence of the normal left sternocleidomastoid muscle.

Anomalies of the trapezius are also caused by known congenital aberrations including Poland's Syndrome and Prune Belly Syndrome or Eagle-Barrett Syndrome. However, Poland's Syndrome is associated with a unilateral absence of the sternal portion of pectoralis major muscle (9,10). Likewise, Prune Belly Syndrome or Eagle-Barrett Syndrome is concurrent with congenital absence of the anterior abdominal musculature (11). Palmaris longus is one of the most variable muscles in the body, and its incidental anomaly in this cadaver has no known relation to Trapezius absence. A congenital cause related to the absence of innervation or embryological anomalies of the origin of trapezius are more likely explanations (12,13).

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REFERENCES

1. Gray H. Gray's Anatomy, p 835-836. New York: Churchill Livingstone, 38th edition. 1995
2. Johnson J, Bogduk N, Nowitzke A and House D. Anatomy and actions of the trapezius muscle. Clin Biomech 9:44-50; 1994
3. Kierner A, Zelenka I and Burian M. How do the cervical plexus and the spinal accessory nerve contribute to the innervation of the trapezius muscle. Arch Otolaryngol Head Neck Surg 127:1230-1232; 2001
4. Bernman P, Smith G and Ilankovan V. Trapezius muscle innervation by a cervical nerve - a rare anatomical variant. British J Oral Maxillo Surg 40:263-264; 2002
5. Gross-Kieselstein E and Shalev R. Familial absence of the trapezius muscle with associated shoulder girdle abnormalities. Clin Genetics 32:145-147; 1987
6. Horan F and Bonafe R. Bilateral absence of the trapezius and sternal head of the pectoralis major muscles. J Bone Joint Surg Am 59:133; 1977
7. Emsley J and Davis M. Partial unilateral absence of the trapezius muscle in a human cadaver. Clin Anat 14:383-386; 2001
8. Garbelotti S, Fernando de Sousa Rodrigues C, Sgrott E and Prates J. Unilateral absence of the thoracic part of the trapezius muscle. Surg Radiol Anat 23:131-133; 2001
9. Debeer P, Brys P and DeSmet L. Unilateral absence of the trapezius and pectoralis major muscle: A variant of Poland Syndrome. Genet Counsel 13:449-453; 2002
10. Shamberger R. Congenital chest wall deformities. Curr Prob Surg 33:474-542; 1996
11. Das Narla L. Pediatric case of the day-Prune-belly syndrome (Eagle-barrett syndrome, triad syndrome). Radiographics 18:1318-1322; 1998
12. Cihak R. Musculus trapezius and the changes of its formation in human ontogenesis. Acta Univ Carol Med 20:45-66; 1974
13. Moore K and Persaud T. Before we are born-Essentials of embryology and birth defects, p 399-405. Philadelphia: W.B. Saunders Company, 5th edition. 1998

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