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CASE REPORT

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Unilateral Agenesis of the Superior Trapezius Muscle: A Case Report and Review of Literature

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Abstract

We report the clinical features and radiological findings of a patient, who presented with unilateral partial agenesis of upper right trapezius, without any limitation of normal daily life. Since the majority of other reported cases of isolated partial or total trapezius agenesis are cadaveric occasional findings, we can assume that management is not required.

Keywords: Trapezius Muscle; Agenesis; Aplasia; Clinical Observation

Introduction

Trapezius is the largest of the dorsal trunk muscles and arises from the medial third of the superior nuchal line, the external occipital protuberance, the nuchal ligament and C7-T12 spinous processes [5]. It can be divided into three parts giving to its insertions: the superior or descending part that inserts onto the lateral third of the clavicle; the middle or transverse part that inserts onto the acromion and the inferior or ascending part that inserts on the spine of the scapula [1].

These three parts have also different functions such as the elevation and rotation of the scapula (superior part), the retraction of the scapula (middle part) and the depression and rotation of the scapula (inferior part) [3].

This muscle is innervated by the accessory nerve and by the C2, C3 and C4 ventral roots nerve fibers of the cervical plexus. Vascular supply is usually by the dorsal scapular artery or less commonly from the second part of the subclavian artery [7]. Contributions come also from the posterior intercostal arteries, from the occipital artery and thyrocervical trunk [1].

Reports of muscle absences are extremely rare. The most frequently involved muscle is pectoralis major with or without associated defects of pectoralis minor [1]. Congenital absence of upper limb muscles are mostly reported in association with pectoralis major defects as a component of Poland's Syndrome [2].

Trapezius muscle agenesis in association with other upper limb malformations is a rare event, and the isolated aplasia of trapezius either partial or complete is even more uncommon [3].

In literature 10 cases of trapezius muscle aplasia have been reported and only 6 of these were isolated upper limb anomalies [1, 3-11]. Of this cases just 1 was a clinical report [11]. The others were occasional findings in cadaveric cases [1, 3, 5, 7, 10].

We report the clinical features and radiological findings of a patient who presented with unilateral partial agenesis of upper right trapezius.

Case Report

A 9-year-old boy consulted us, complaining shoulder asymmetry. He did not report other problems; he was active and conducted a normal life. No family history of significance and no history of shoulder traumas were reported.

Physical examination revealed absence of the right superior trapezius (Figure 1). The remaining shoulder-girdle muscles were normal. A full range of movement was present in the cervical spine and in both shoulders. Forward flexion of the right shoulder was full but weaker than the left shoulder. External and internal rotation were full and normal in power. The right scapula was less stable than the left one and the "scapularis' pendulum" (the movement of the scapula during elevation and lowering of the upper limb) was asymmetric. There was no other physical abnormality on clinical examination.

Radiographs and Computed tomography (CT) of the right shoulder showed normal findings (Figure 2).

MRI of the right shoulder confirmed agenesis of the superior trapezius (Figure 3).

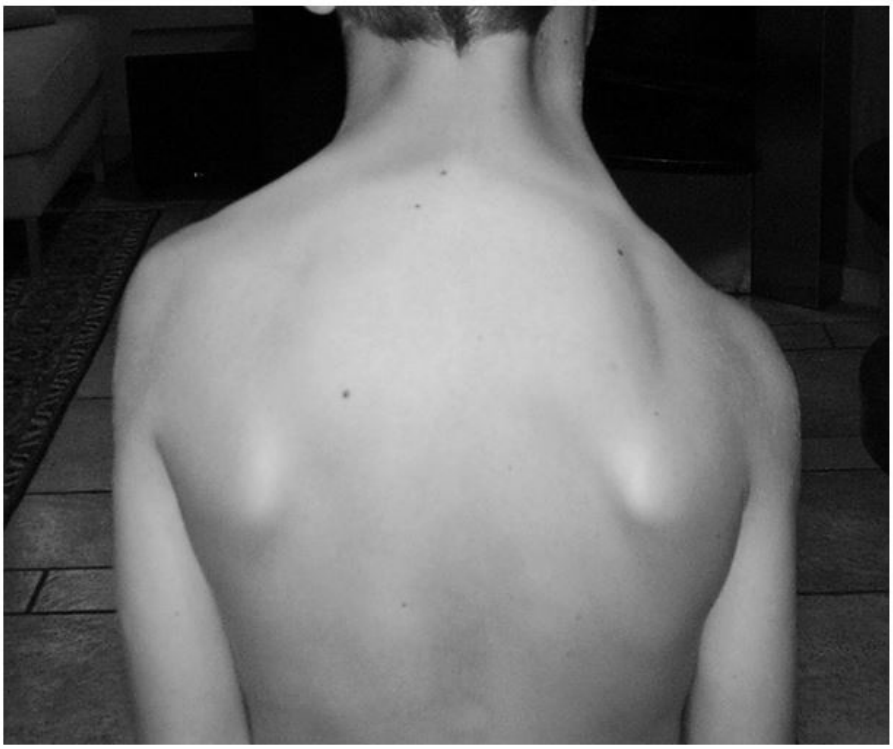

Figure 1: Clinical aspect

Physical examination revealed absence of the right superior trapezius

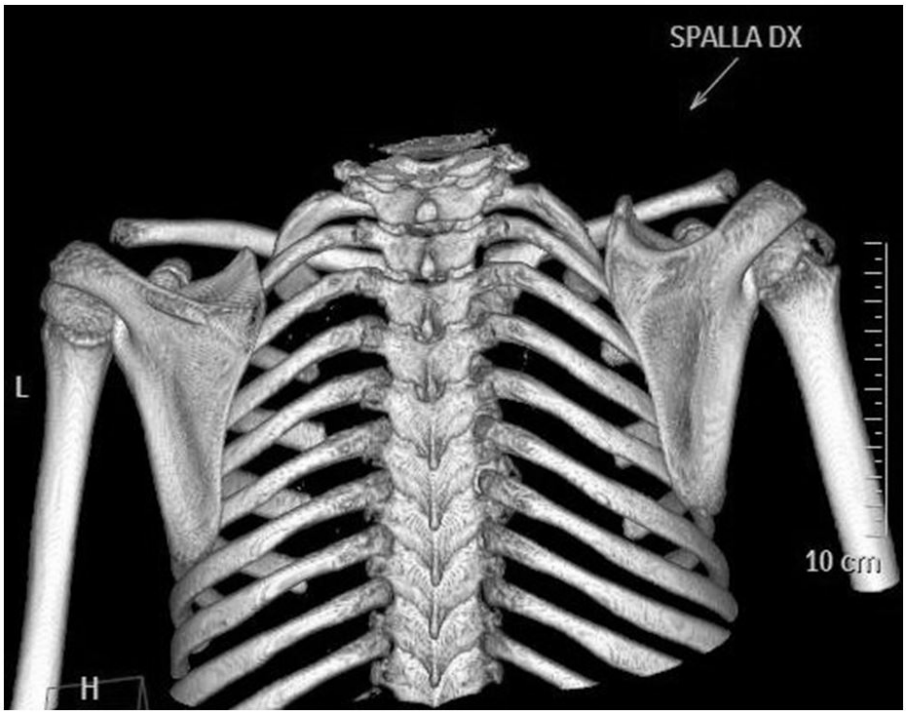

Figure 2: CT images

Radiographs and Computed tomography (CT) of the right shoulder showed normal findings

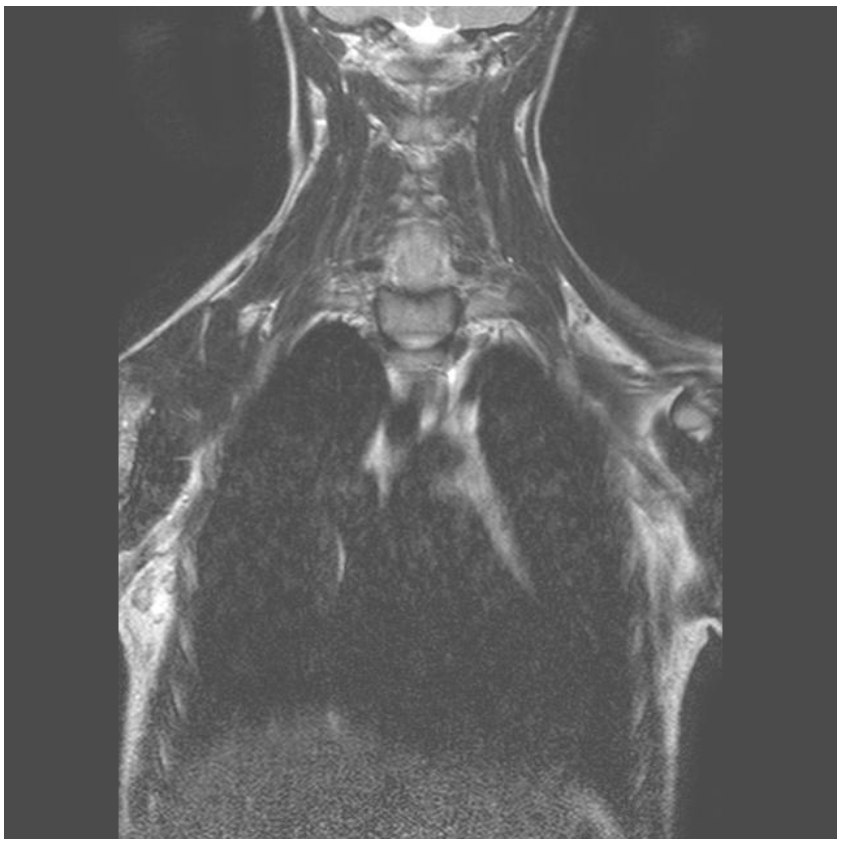

Figure 3: MR images

MRI of the right shoulder confirmed agenesis of the superior trapezius

Discussion

Muscle aplasia or hypoplasia are very rare conditions that usually affects pectoralis major and/or pectoralis minor in the Poland's Syndrome [12]. The etiology of this Syndrome is accredited to be a temporary blood supply interruption of the subclavian artery during the first gestational period [13]. In literature there are few reports of some variants of the Poland's Syndrome including also trapezius agenesis [6, 8, 9]. The theory at the base of this inclusion is that the trapezius muscle has its vascularisation from a branch of the subclavian artery [14].

Rarely [15] agenesis of trapezius could be associated to agenesis of sternocleidomastoid muscle.

Familial cases of agenesis of trapezius muscle are described [8, 16, 17] but our patient had not any relatives with similar problem.

Isolated absence of trapezius muscle is an extremely uncommon situation.

The biological basis for the agenesis of trapezius muscle is not well established; it remains a matter for speculation: genetic causes, congenital aberrations, embryological anomalies, anomalous blood supply, accessory nerve injury and atrophy of a muscular nervous centre can be all implicated in the aetiology of trapezius aplasia or hypoplasia [1, 3, 7].

Our case represents a rare manifestation of isolated, monolateral, partial trapezius aplasia. We are not aware of the causes underlying superior trapezius agenesis in our patient, even though it has been speculated that both local interruption in muscle blood supply and developmental anomalies can be the aetiology of isolated muscle aplasia [3].

The only concern of our patient is the shoulder asymmetry. As in our case, in fact, superior trapezius aplasia does not affect 10-year-old boy daily activities [11] and also sport activity in adult patients [17]. So we can speculate that, if isolated, this anatomical variation does not interfere with daily life and management is not required.

In conclusion, patients presenting with shoulder asymmetry, or shoulder impaired function should have trapezius agenesis added to the list of differential diagnoses.

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