Case Report

Variation of the latissimus dorsi muscle: a case report

Shabnam Mohammadi¹, Sohyela Jafarpour², Ali Akbar Rajab Zadeh³, Fatemeh Alipour³, Akram Sadeghi³

1. PhD Student of Anatomy, Department of Anatomy, School of Medicine, Mashhad University of Medical Sciences (MUMS), Mashhad, Iran
2. M.D., Department of Anatomy, School of Medicine, MUMS, Mashhad, Iran
3. M.Sc. student of Anatomy, Department of Anatomy, School of Medicine, MUMS, Mashhad, Iran

ABSTRACT

The latissimus dorsi muscle is used as a muscular flap in head and neck reconstructive surgery. During a routine dissection in our department, we encountered an additional muscular band in the latissimus dorsi on the left side of a male cadaver. This rare muscular variation originated from the latissimus dorsi and inserted into the coracoids process. With regard to important knowledge of such a variation for safe and successful clinical practice, we present a variation of the latissimus dorsi muscle.

Bibliographic Information of this article:

Keywords: Latissimus dorsi muscle; Variation; Cadaver; Human anatomy

© 2009-2012 Electronic Physician

1. Introduction

The latissimus dorsi muscle is widely used as a muscular flap in reconstructive and plastic surgery, such as cardiomyopathy and mastectomy (1). A variation of the latissimus dorsi muscle is known as Langer's axillary arch, or muscular axillary arch. It is a thin muscular band that extends from the upper edge of the latissimus dorsi to the pectoral muscles, biceps brachi muscle, or coracobrachialis muscle (2, 3). Knowledge of this variation is important for operators and other clinicians performing clinical procedures, especially lymphadenectomy (4).

Embryologic origin of the Langer's axillary arch is not obvious. Apoptosis may be responsible remaining some part of the muscle fibers between the latissimus dorsi muscle and the coracoids process (5, 6). However, the axillary arch was observed in a case with trisomy 13 that suggests a possible genetic cause for this variation (7). In the present study, we have reported this anomalous muscle for surgical considerations.

2. Case Presentation

During axillary dissection on a formol-carbol fixed male cadaver, an unusual muscular variation was found. There was no scar indicative of a previous surgery. This fusiform muscular band was traveled near the subscapular artery and brachial plexus and arose from the upper border of the latissimus dorsi to coracoids process (Figure 1). It had a length of 7 cm and a weight of 0.8 cm. This elevator muscle was innervated through a branch of the thoracodorsal nerve.

3. Discussions

Ramsay named this rare variation Axillary Arch. It is also known as Langer, Langer'ser Achselbogen, and the axillopectoral muscle (2,3). Testut classified these thin muscular bands as complete and incomplete. In complete form, the axillary arch proceeds from the latissimus dorsi to the pectoralis major muscle and in the complete form anomalous band stretched from the latissimus dorsi to biceps brachi muscle, coracoids process or the pectoralis minor muscle (8). The frequency of axillary arch has been reported 7-8 percent. Of course, based on the race, its incidence varies from 1.7 percent in the Turkish population to 43.8 percent in Chinese individuals (9). The location of the axillopectoral muscle has been reported to be either on the left or the right side. In our study, the Axillary arch was situated on the left side (10, 11).
Omar reported the length of axillopectoral 7 cm and its width 2 cm. In a Bulgarian study (2007), the length and the width of axillary arch were 7 cm and 0.6 cm, respectively. Turgut and colleagues measured the muscular slip 9.6 in length and 1.4 in width (6). However, in a study by Merida-velasco the length of the axillary arch was 12 cm and the width was 4 cm (10). In our study, the axillary arch had a length of 7 cm and a width of 0.8 cm, which was consistent with all above reports except the report of Merida-velasco. The shape of the axillary arch has been found as triangle by Del and coworkers (1) while Meri’d-vaelasco has described it as fusiform (10). In our cadaver, the shape of the muscular band was also found to be fusiform.

Figure 1. Anterior view of the left axillary fossa. ld, latissimus dorsi; pm, pectoralis major; bb, biceps brachi; cb, coracobrachial; aa, axillary artery; s, subscapular artery; tn, thoracodorsal nerve; mn, median nerve; rn, radial nerve; *, axillary arch.

Different nerves have been reported for supplying the axillary arch. Some studies have reported cases in which the muscular band was innervated from the lateral pectoral nerve. It has also been shown that branches from pectoralis minor can contribute to the innervation of the axillary arch (6, 10, 11, 13). The axillopectoral is sometimes supplied by the intercostobrachial nerve. Several studies have found that thoracodorsal nerve usually provides innervation of the axillary arch (6, 10, and 14). Similarly, in our study the axillary arch was innervated by the thoracodorsal nerve. In conclusion, information about this variation might be considered by operator at use of the latissimus dorsi muscle in many plastic and reconstructive surgeries.

4. Conclusion

In the present study, we tried to present a muscular variation in the axilla. Information about this variation might be considered by operator at use of the latissimus dorsi muscle in many plastic and reconstructive surgeries.

Acknowledgements:
We would like to thank Dr. Mokhtar JafarPour, associate professor in the Department of Anatomy and Cell Biology of the University of Mashhad, for his comments about the text and figures of this paper.

Corresponding Author:
Sohyela Jafarpour,
Department of Anatomy and Cell Biology,
School of Medicine, Azadí Square, Mashhad, Iran
Fax: +98.5118828560
E-mail: jafapourCHs831@mums.ac.ir
References