

Variable position of some structures in the neck. A case report

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Variations ranging from subtle to remarkable affect every part of the human body. They may have important influences on predisposition to illness, symptomatology, clinical examination and investigation, and patient management including operative surgery. In our case we present several varieties of some neck structures: 1. Heterotopic submandibular gland; 2. Cleidohyoideus muscle (one belly omohyoid attached to the clavicle); 3. Superficial cervical veins varieties; 4. Positional varieties in hypoglossal nerve and lingual artery. Multiple varieties are not unusual and it's often that one abnormality is followed by another which could be explained by factors that affect one and the same period of development. Anatomic anomalies are supported by an underlying embryological basis and manifest their clinical impact. In conclusion, precise morphological evaluation is necessary for each findings considered pathological if only visual diagnosis is made. Sometimes normal structure with heterotopic position may mislead the clinician to consider it as pathological one.

Key words: human anatomy variations, trigonum Pirogovi, heterotopic submandibular gland, external jugular vein, cleidohyoideus muscle

Introduction

It is important to understand that no two living organisms are structurally or functionally identical – animals or plants (Bergman R.A., 2006)! In anatomy, normality embraces a range of morphologies and includes those that are most common and others called variations which are less frequent but not considered abnormal. Variations ranging from subtle to remarkable affect every part of the human body. They may have important influences on predisposition to illness, symptomatology, clinical examination and investigation, and patient management including operative surgery (Willan P.L., 1999, Novakov, S., 2003). Sometimes variety is so unnoticeable that we don't consider it as important for discussion during student dissection. But from a clinician point of view it could be surprising during routine interventions.

Description

In our case we present several varieties of some neck structures:

– Glandula submadibularis heterotopica – During 2nd year student dissection of an adult male cadaver after removing skin and superficial cervical fascia (subcutaneous fat) we noticed a swelling in the right carotid triangle, which doesn't correspond to the known normal structures in this region (Fig.1). The continuation of the dissection revealed that this was the submandibular gland in a heterotypical position – more than half of the gland was placed in the carotid triangle overlapping the deep structures of the region (Fig. 2). On the other side the position of the gland was similar but a little bit higher and closer to its usual one.



Fig. 1



Fig. 2

– Cleidohyoideus (one belly omohyoid attached to the clavicle) – Next variety could be classified as more sufficient one. It was a rare cleidohyoid muscle variety found on the right side of the neck (Fig. 3). First we saw the atypical attachment of the muscle to the middle third of the clavicle and later, when the whole muscle was dissected it became clear that it was a one belly omohyoid starting from its usual origin – hyoid bone (Fig. 4).

– Superficial cervical veins – the veins are the most variable anatomical structures. In this case the two anterior jugular veins were missing and there was a variety in external jugular, which was providing a larger medial tributary with a course along the lower third of anterior border of sternocleidomastoid muscle and ending in suprasternal space. The facial vein drains into the external jugular (Fig. 1).



Fig. 3

– N. hypoglossus – with its almost entire cervical course in digastric triangle. After releasing the submandibular gland on the left side and removing the investing layer of cervical fascia we found out that the loop of hypoglossal was lying above the digastric muscle (Fig. 5).

– A. lingalis – superficial to hyoglossal muscle – Usually the Pirogovi triangle possesses its main artery deep to the hyoglossus muscle. In the described case it's obvious that the lingual artery was lying superficial to the muscle and pierced the origin of the hyoglossus instead of passing beneath the posterior border of the muscle.



Fig. 4

Discussion

Multiple varieties are not unusual and it's often that one abnormality is followed by another which could be explained by factors that affect one and the same period of development. Anatomic anomalies are supported by an underlying embryological basis and manifest their clinical impact. The external jugular vein is used as venous manometer, while both the external and internal jugular veins are used for intravenous (IV) catheterization to conduct diagnostic procedures or IV therapies. The variations are important for interventional radiologists who perform transjugular procedures, such as port implantations and the transjugular intrahepatic portosystemic shunt or selective venous blood samplings in patients with hyperparathyroidism of unknown origin (Sanli

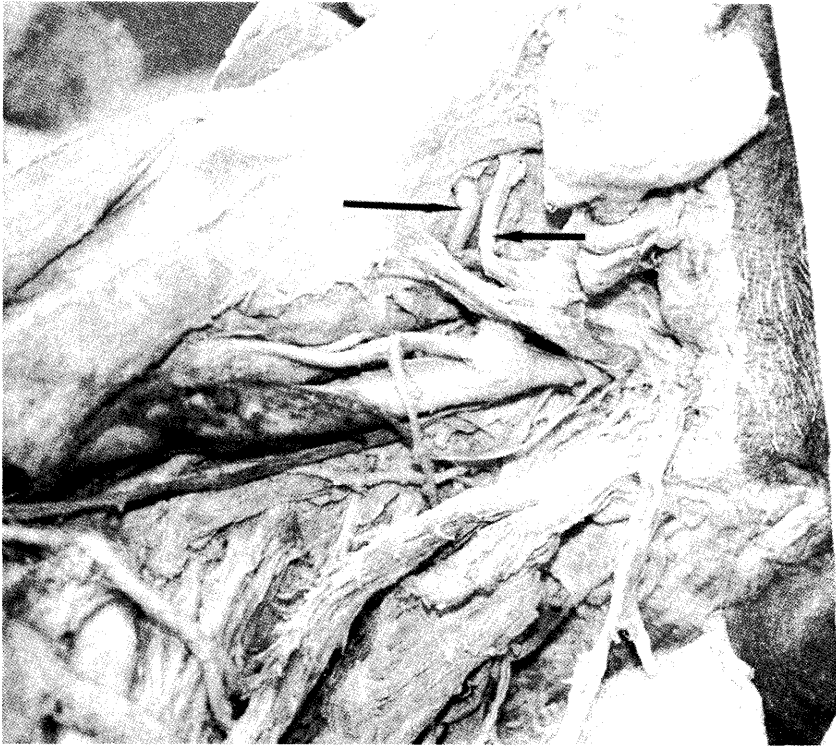


Fig.5

E.C., 2010, Daniel E., 2005). Tumor or cyst on the neck could be discussed in this case with submandibular gland displacement into carotid region (Trifonov M., 2005). There is no doubt that cleidohyoideus muscle is of clinical importance. The omohyoid muscle is an important landmark in the neck because it divides the anterior and posterior cervical triangles into smaller triangles (Moore K.L., 1992, Cummings, W.C, 1993). Because of its structure and relationship to the large cervical vessels, the omohyoid muscle deserves attention (Ziolkowski M., 1983). The omohyoid muscle is important for radical neck dissection as it is a landmark for this operation (Fukuda, H., 1998). The position of lingual artery in Pirogoff's triangle is important for the clinical practice and its ligation during mouth bleeding makes this region an important landmark for finding the artery (Homze EJ, 1997).

Conclusion

1. Precise morphological evaluation is necessary for each findings considered pathological if only visual diagnosis is made. Sometimes normal structure with heterotopic position may mislead the clinician to consider it as a pathological one.

2. The heterotopic position could also be of serious importance during surgical operations.

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