PHLEBECTASIA OF THE INTERNAL JUGULAR VEIN – AN ACCIDENTAL FINDING DURING CONTRAST CT ANGIOGRAPHY

Lazar Jelev[1,2], Svetozar Marangozov[2], Minko Minkov[3], Dimka Hinova-Palova[1], Adrian Paloff[1]

[1]Department of Anatomy, Histology and Embryology, Medical University of Sofia,
[2]Clinic of Vascular Surgery and Angiology, Military Medical Academy,
[3]Department of Anatomy, Histology and Embryology, Medical University of Varna,

ABSTRACT

The internal jugular phlebectasia is a rare vascular disorder. It is well known in children but infrequently reported in adults. This condition is characterized by an abnormally dilated internal jugular vein that is usually asymptomatic or may cause moderate symptoms of compression.

Herewith, we report a case of an asymptomatic right-sided internal jugular phlebectasia in a 37-y-old male patient. During contrast CT angiography of the neck and upper thorax, we accidentally came across an enlarged fusiform segment (maximal diameter 22 mm) of the internal jugular vein.

The clinical presentation of this interesting condition and the possible treatment options are discussed.

Keywords: *internal jugular vein, phlebectagia, congenital, CT angiography*

INTRODUCTION

The internal jugular vein (IJV) is the largest neck vein that is a direct continuation of the sigmoid sinus and collects blood from the brain and the superficial parts of the face and neck (1,3). At its origin and also before its termination, the IJV has local dilations called the superior and inferior jugular bulbs. In some rare cases, however, a larger segment of the IJV may be abnormally dilated in a fusiform or saccular fashion – a condition described in children as well as in adults and known as phlebectasia of the IJV (4,6-8,10,11). Herewith we present such an interesting case found accidentally during CT examination.

Address for correspondence:
Lazar Jelev, MD, PhD
Department of Anatomy, Histology and Embryology
Medical University of Sofia
1 St. Georgi Sofiisky Blvd.
BG-1431 Sofia, Bulgaria
Tel.: +359-2-91-72-636
Fax: +359-2-851-87-83
e-mail: ljelev@abv.bg

Received: April 13, 2014
Accepted: June 4, 2014

CASE REPORT

A 37-y-old man was admitted to the hospital with a history of asymptomatic, not well outlined soft swelling on the right side of the neck located around the midpoint of the sternocleidomastoid muscle. During physical examination, an enlarged cervical lymph node was suspected and a contrast CT angiography was performed for further evaluation of the swelling and its relation to the main blood vessels of the neck. The following diagnosis was a benign formation – a small encapsulated lipoma. After the lipoma surgical excision, however, the neck asymmetry on the right side still persisted. By Doppler ultrasound examination, an increase in the diameter of the right IJV and the more superficially located external jugular vein was seen. The IJV showed smooth and compressible walls, "venous pulse" during normal breathing and Valsalva maneuver. During the examination for this unilateral vein enlargement, an external compression of the right brachiocephal-

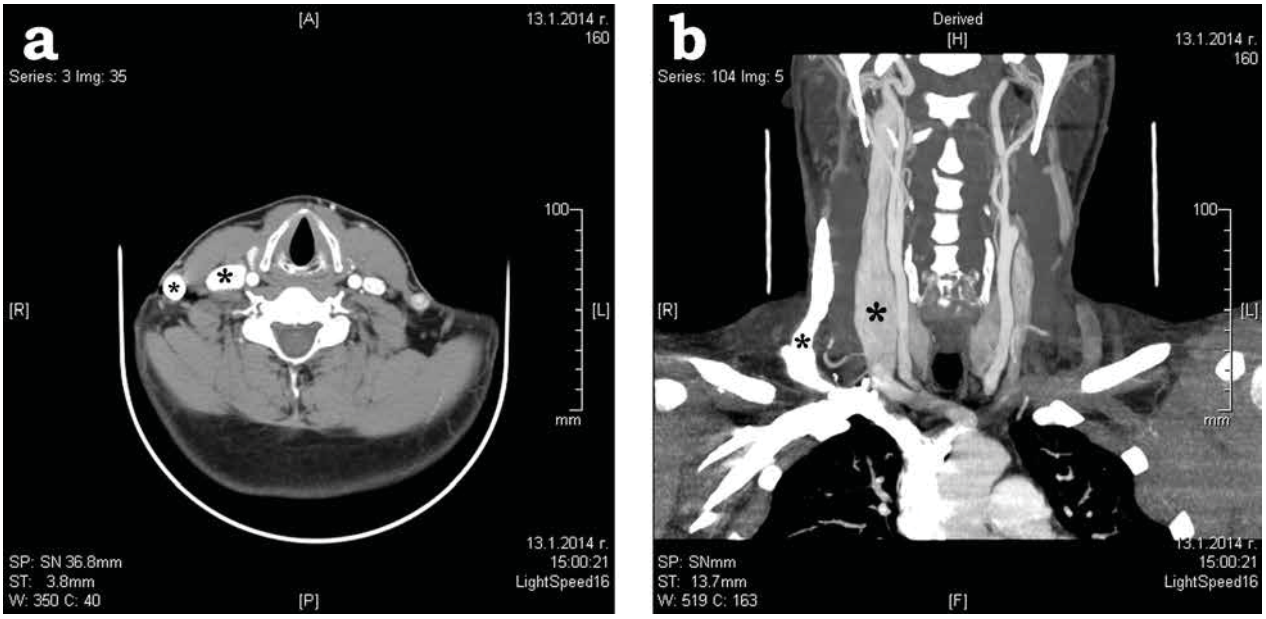

Fig. 1. Transverse (a) and frontal (b) sections of the patient's body seen on contrast CT angiography showing the dilated IJV (big asterisk) and external jugular vein (small asterisk).

ic vein was suspected, so we did another detailed examination of the CT angiography. While carefully observing the neck structures we found an enlarged fusiform portion of right IJV starting from the middle and affecting the lower half of the vein (Fig. 1a, b). Altogether, the whole right IJV was quite dilated compared to the left-sided vein. On both cross and sagittal sections of the neck, a significant difference between the left and right IJV size was well seen (Fig. 1a, b). Measuring the most enlarged vein portion of the right IJV, a cross-sectional diameter of nearly 22 mm was established. Superficially to the IJV, a dilation of the right external jugular vein was also observed. On the CT images we couldn't identify any abnormal structures causing external compression of the right brachiocephalic vein. There was no history of trauma or inflammation to the neck and thorax, so finally a congenital condition was suggested. Moreover, the patient reported that his mother also has enlarged neck veins. No further treatment but a 6-months follow-up was considered for the patient.

DISCUSSION

The classical anatomical books (1,3) state that the right IJV is usually larger than the left vein. This anatomical fact and the direct pathway to the superior vena cava and lack of thoracic duct injury contribute to the more frequent clinical use of the right IJV as a route for central venous catheterization (15). For this reason, in the literature there are several studies on the normal diameter of the IJV in adults - cadavers or livings. During routine forensic autopsy of male and female human bodies, Furukawa et al. (5) established a diameter of 1.0 - 2.0 cm for the right IJV and 0.4 – 1.8 cm for the left IJV. By means of thoracic contrast-enhanced helical CT scan, Tartière et al. (15) showed that in a general population of adult patients the diameter of the right IJV is significantly greater than that of the left IJV and measured 13 – 20 mm vs. 10-16 mm, respectively. In both studies, the maximal normal IJV diameter was considered to be 20 mm. So, it can be concluded that any diameter above the maximal size of 20 mm is significant for internal jugular phlebectasia, as seen in the case reported by us.

The internal jugular phlebectasia is a rare vascular disorder (2,4,8). Although uncommon, this condition of probably congenital nature is well known in children and has an importance in the differential diagnosis of the neck masses (10). The jugular phlebectasia usually appears as a soft, compressible mass in the neck without pain, bruit or pulsation. The swelling is not usually observed at rest but it can be seen on straining like coughing, crying, and sneezing or may be provoked by Valsalva maneu-

ver (2,4,8). The internal jugular phlebectasia is usually asymptomatic, but some patients complained of slight discomfort or pain during deglutition or even voice hoarseness (2,8). The histopathological findings of excised specimens from dilated vein segments showed normal wall morphology in most cases (16) or variable findings of disordered arrangement in smooth muscle cells, elastic and connective tissue fibers (2,8,17). As an interesting fact, the internal jugular phlebectasia in adults is described in few studies (7,11). Probably, with the growing of the individuals, the enlargement of the neck structures around the IJV, including the muscles and fasciae, somehow concealed an existing congenital phlebectasia. In adults, the acquired jugular phlebectesias are found much more frequently and may be caused by trauma, tumors, inflammatory status and as a part of superior vena cava syndrome (12,13). Rarely described in adults, the congenital IJV phlebectasia may also be associated with the chronique cerebrospinal venous insufficiency (14).

CONCLUSION

The internal jugular phlebectasia in children may cause some symptoms of compression but most cases in adults are usually asymptomatic (2,4,8). In spite of this, the physician must be aware about some common complications of vein aneurysms such as thromboembolism, phlebitis or rupture (7). Surgical treatment has been done in symptomatic patients, but the asymptomatic jugular phlebectasia requires a rather thorough observation of the patient and conservative treatment.

REFERENCES

1. Bannister LH, Berry M, Collins P, Dyson M, Ferguson MWJ (eds.) Gray's Anatomy. 38th Ed. Edinburgh, Churchill Livingstone, 1995, 1579.
2. Chakraborty S, Dey PK, Roy A, Bagchi NR, Sarkar D, Pal S. Internal jugular vein phlebectasia presenting with hoarseness of voice. Case Rep Vasc Med., 2013:1-3.
3. Clemente CD (ed.). Anatomy of the Human Body. 30th Ed. Philadelphia, Lea and Febiger, 1985:818.
4. El Fakiri MM, Hassani R, Aderdour L, Nouri H, Rochdi Y, Raji A. Congenital internal jugular phlebectasia. Eur Ann Otorhinolaryngol Head Neck Dis., 2011;128(6):324-326.
5. Furukawa S, Nakagawa T, Sakaguchi I, Nishi K. The diameter of the internal jugular vein studied by autopsy. Rom J Leg Med., 2010;18(2):125-128.
6. Gerwig WH Jr. Internal jugular phlebectasia. Ann Surg., 1952;135(1):130-133.
7. Gillespie DL, Villavicencio JL, Gallagher C, Chang A, Hamelink JK, Fiala LA et al. Presentation and management of venous aneurysms. J Vasc Surg., 1997;26(5):845-852.
8. Hu X, Li J, Hu T, Jiang X. Congenital jugular vein phlebectasia. Am J Otolaryngol., 2005; 26(3):172-174.
9. Mickelson SA, Spickler E, Roberts K. Management of internal jugular vein phlebectasia. - Otolaryngol Head Neck Surg., 1995;112(3):473-475.
10. Nagata H, Uike K, Nakashima Y, Hirata Y, Yamamura K, Hara T. Diagnostic imaging of a child with congenital internal jugular vein phlebectasia. J Pediatr., 2013;163(4):1229-1229.
11. Perrin M. Venous aneurysms. Phlebolymphology., 2006;13(3):172-176.
12. Rice TW, Rodriguez RM, Light RW. The superior vena cava syndrome: clinical characteristics and evolving etiology. Medicine (Baltimore)., 2006;85(1):37-42.
13. Siani A, Flaishman I, Schioppa A, Zaccaria A, Baldassarre E. Jugular venous phlebectasia: uncommon in children, anecdotal in adults. Am J Surg., 2008;195(3):419-420.
14. Simka M. Chronic cerebrospinal venous insufficiency: state of the art and research challenges. Phlebolymphology., 2012:19(3):121-131.
15. Tartière D, Seguin P, Juhel C, Laviolle B, Mallédant Y. Estimation of the diameter and cross-sectional area of the internal jugular veins in adult patients. Crit Care., 2009;13(6):R197.
16. Walsh RM, Lannigan FJ, McGlashan JA, Bowdler DA. Jugular bulb phlebectasia. Int J Pediatr Otorhinolaryngol., 1993:25(1-3):249-254.
17. Yokomori K, Kubo K, Kanamori Y, Takemura T, Yamamoto T. Internal jugular phlebectasia in two siblings: manometric and histopathologic studies of the pathogenesis. J Pediatr Surg., 1990:25(7):2-5.

Acknowledgements:

The authors would like to thank Mr. Alexander K. Angelov for English proofreading of the text.