CLINICAL CASE

External jugular vein aneurysm: A rare cause of neck swelling. A report of three patients

Anévrisme de la veine jugulaire externe : une cause rare de gonflement du cou. À propos de trois observations

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Received 6 December 2010; accepted 23 June 2011
Available online 31 August 2011

KEYWORDS

Venous aneurysm; External jugular vein

Summary Venous aneurysms are a relatively rare pathology, far less common than arterial aneurysms. Unrelated to either age or gender, they can affect any vein, including cervical, thoracic, visceral, and lower limb veins. Aneurysmal dilatations in cervical veins are rare due to low pressure in the vena cava system; they can involve any vein but most frequently are observed on the internal and external jugular veins. This report of three patients highlights some of the specific diagnostic and therapeutic features of this pathology.

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MOTS CLÉS

Anévrismes veineux ; Veine jugulaire externe

Résumé Contrairement aux anévrismes artériels, les anévrismes veineux sont des lésions rares. Ils peuvent survenir à tout âge sans différence de sexe. Toutes les veines peuvent être touchées : cervicales, thoraciques et des membres inférieurs. En raison des basses pressions du système cave supérieur, la localisation cervicale est relativement rare pouvant affecter toutes les veines cervicales mais surtout la veine jugulaire interne, rarement la veine jugulaire externe. À travers ce rapport de trois cas d’anévrismes jugulaires externes, on va soulever les particularités diagnostiques et thérapeutiques de cette entité pathologique rare.

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Introduction

Primary venous aneurysms are rare. They are defined as an isolated venous dilatation, which communicates with a normal size venous segment and is not related to trauma. This definition excludes varicose veins [1]. The rarity of this entity is due to the low pressure in these vessels, which
characterizes the superior vena cava system. The diagnosis is suggested by clinical features and can be confirmed by noninvasive radiology. In this study three patients admitted for cervical venous aneurysms are presented.

Case 1

A 41-year-old woman was admitted to the vascular surgery clinic with a painful mass at the base of the right side of the neck. The mass was noticed by the patient a year previously; she found that the mass enlarged slowly on straining and on bending forward. No history of trauma or heart disease was noted. On physical examination, a $3 \times 3$ cm soft, rounded, fluctuating mass was found in the right sternoclavicular area, which promptly disappeared on compression and expanded considerably during a Valsalva maneuver (Fig. 1). Both C-reactive protein and white blood cell count were normal.

An ultrasound examination of the neck showed that the neck swelling was a localized aneurysm of the external jugular vein. Colour Duplex scan (CDS) found a partially thrombosed venous aneurysm (heterogeneous echotexture was noted in the aneurysmal sac) and colour flow imaging identified a communication between the cystic lesion and the external jugular vein (Fig. 2).

Contrast enhanced biphasic helical-CT scan revealed a large fusiform swelling to the right of the midline of the neck measuring $3 \times 2.5$ cm, extending from the suprasternal region to the suprahyoid area, which enhanced during the venous phase. The lesion appeared to arise from the right external jugular vein (Fig. 1). Surgical treatment was recommended but the patient refused it.

Case 2

A 32-year-old woman consulted with a mass on the left side of the neck. Physical examination revealed a soft, intermittent, non-tender, non-pulsatile swelling in the suprACLavicular region. The mass became more prominent during the Valsalva maneuver. She had no history of trauma or puncture at that site. Physical examination revealed a round, non-pulsating mass measuring approximately $3 \times 3$ cm in diameter.

An ultrasound examination revealed a smooth, rounded cystic swelling (diameter $3.5 \times 3$ cm). CDS showed there was a colour flow in the communication between the cystic lesion and the external jugular vein. A cervical CT-scan confirmed the presence of an external jugular vein aneurysm without thrombus. Surveillance was recommended with colour duplex scan once a year (Fig. 3).

Case 3

A 9-year-old boy presented with a 2-year history of swelling which appeared intermittently on the right side of the neck. The swelling was well demonstrated by the Valsalva maneuver.

Physical examination revealed a soft, round, mobile, non-pulsating mass approximately $2 \times 2$ cm in diameter. There was no history of trauma. The examination of the other systems was normal.

The colour Doppler revealed the presence of blood flow within the lesion, which confirmed the diagnosis of an external jugular vein aneurysm. Surveillance was recommended.

Discussion

In contrast to arterial aneurysms, true venous aneurysms are rarely encountered. A venous aneurysm is best described as a solitary area of venous dilatation, which communicates with a main venous structure by a single channel but is not associated with an arteriovenous communication or a pseudoaneurysm. Moreover, it should not involve a segment of a varicose vein [2].
Venous aneurysms develop mostly from superficial veins of the head, neck, or extremities [3]. They can be classified as primary (congenital) or acquired lesions; the former seem to be true aneurysms because they have an intact venous wall [4].

Venous ectasias or aneurysms in the neck are rare entities; they are mostly congenital [5]. They are not related to either age or gender. They can affect any cervical vein. They involve most frequently the internal and external jugular veins. A jugular venous aneurysm may be easily confused with a lymphocele, a hygroma, a haemangioma, a laryngocele or some other tumours [6].

Although a cervical venous aneurysm is usually symptom-free, thrombosis presents its main complication, which may lead to pulmonary embolism. A large neck venous aneurysm may cause the patient discomfort and cosmetic concerns [7]. In all the cases presented in this report, the motive for consultation was a cosmetic concern.

Colour Duplex sonography is a noninvasive, accurate, and low-cost method for evaluation of venous aneurysms and is considered as the first-line study in the diagnosis of cervical venous aneurysms [8]. CT-scan and magnetic resonance imaging (MRI) are also helpful in diagnosing intracavitary venous aneurysms [9].

Venous aneurysms can produce complications such as thrombus formation, pulmonary embolism, spontaneous rupture, and thrombosis [10]. Venous aneurysms affecting the neck tend to be asymptomatic and potential complications such as rupture have not been reported. Surgical excision may be indicated in the presence of thromboembolic complications, for cosmetic reasons or when there is a doubt about the diagnosis. Treatment is in the form of surgical excision [9].

In the first patient, surgical treatment was recommended because of the painful character of the mass and its potentially embolic contents found on ultrasound colour Doppler (USCD) examination. In the other patients, the absence of evidence of complications indicated surveillance.

**Conclusion**

Jugular venous aneurysm is a rare entity, often asymptomatic. Thrombotic complications are the most frequent. Diagnosis is confirmed by USCD examination and the treatment, when indicated, is surgical repair.

**Disclosure of interest**

The authors declare that they have no conflicts of interest concerning this article.
References