A NECK MASS THAT DISSAPEARS AT COMPRESSION: IS IT A REASON FOR CONCERN?

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ABSTRACT

Introduction*: Jugular vein aneurysms are very rare entities, mostly congenital. The cosmetic concern usually sends the patient to consultation.*

Case*: We report the case of a 45-year-old woman who presented for a painless mass in the left side of the neck. Duplex ultrasonography revealed an aneurysmatic formation of the left internal jugular vein, with high-velocity blood flow within the central part of the aneurysm and much slower near the aneurysmal wall.*

Discussion*: Internal jugular vein aneurysm is usually asymptomatic. Complications include thrombosis and traumatic rupture. Due to very low incidence of this disease, there are not guidelines regarding the optimal treatment.*

Conclusion: Jugular vein aneurysm is rare but must enter in the differential diagnosis of cervical masses.

Key words*: Jugular vein aneurysm, Doppler ultrasonography.*

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Introduction

Cervical swelling can be solid or cystic on clinical examination. The differential diagnosis of a cystic neck mass includes mediastinal tumors or cysts, external laryngeal diverticula, laryngocele, inflation of the cupola of the lung, and jugular vein aneurysms[(1)]. A true aneurysm is defined as a localised permanent dilatation of all layers in a vessel wall. The majority of aneurysms are that of arteries; venous aneurysms have also been described. Jugular vein aneurysm is a very rare morphologic disease that can involve the internal, external or anterior jugular vein and is considered to be congenital in origin[(2)]. In some cases, the aneurysm can appear spontaneously, without any objective etiology, or secondary to trauma of the neck, tumors or inflammatory processes[(3)].

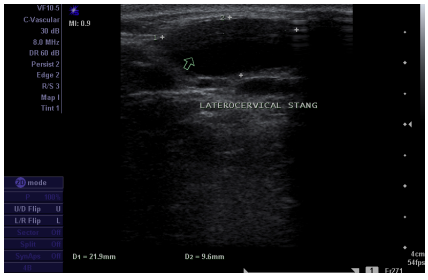
In children, jugular vein aneurysm are in most of the cases congenital. In adults, the jugular vein aneurysms are acquired and appear more frequently on the left side.

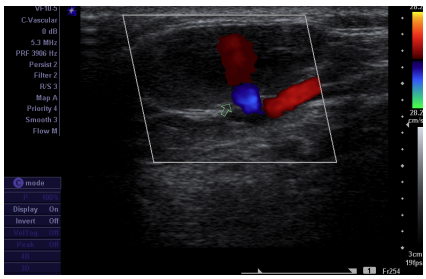
The first jugular vein aneurysm was described by Harris in 1928[(4)]. Calligaro et al found only three internal jugular vein aneurysms in 20 years[(5)]; Gillespie et al reported five cases in 22 years[(6)]. There are no studies in literature about the prevalence of jugular vein aneurysms, only isolated case reports. The presenting symptom in the vast majority of reported cases was neck swelling during Valsalva maneuver. Some venous aneurysms may be discovered when complications occur, such as thrombosis, traumatic rupture, pulmonary embolism, and sudden death. An analysis of 12 cases of saccular neck venous aneurysm reported that in seven cases the aneurysm was located on the

right side, in four cases on the left side and only one case in the middle line[7]. In all these patients, there were no histories of neck venous puncture, neck surgery, glandular inflamation, chronic infection, renal impairment, or right heart failure[7]. The routine test results of hematology and biochemistry were within normal limits in all 12 cases[7].
In this article we report the clinical manifestations and characteristics of duplex ultrasonography in a woman with a left internal vein aneurysm and review the current data from the literature.

Case presentation

We present the case of a 45-year-old woman, nonsmoker, without alcohol consumption, without family or personal past medical history, who presented for a painless mass in the base of the left side of the neck. She observed it a year before, since it gradually enlarged, with straining and bending forward. The patient denied trauma of the neck or a family history. Also, she had no symptoms or history of heart disease. The physical exam was normal, excepting a 2.0 x 2.0 cm soft, rounded, fluctuating mass observed in the left sternoclavicular fold, that promptly disappeared on compression and enlarged considerably on Valsalva maneuver. On auscultation, no bruits were audible. Thoracic X-Ray was normal. All the laboratory tests were in normal range. Duplex ultrasonography was performed, revealing an aneurysmatic formation of the left internal jugular vein, with high-velocity blood flow within the central part of the aneurysm and much slower near the aneurysmal wall (Figure 1 a,b,c).





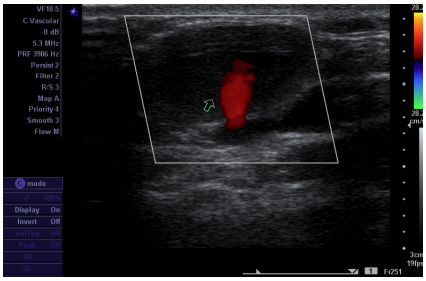


Fig. 1: **a**. 2-D neck ultrasonography. Aneurysmatic formation of the left internal jugular vein. **b**. Color Doppler neck ultrasonography. Saccular aneurysm of left internal jugular vein, with high-velocity blood flow within the central part of the aneurysm and much slower near the aneurysmal wall. **c**. Color Doppler neck ultrasonography. Saccular aneurysm of the left internal jugular vein – the channel of communication between the jugular vein and aneurysm.

The computed tomography angiography of the neck confirmed the left jugular vein aneurysm (Figure 2). Abdominal and cardiac ultrasound were normal. The patient was treated conservatively, given that the jugular vein aneurysms remain asymptomatic in the majority of cases and mural thrombosis is infrequently encountered.

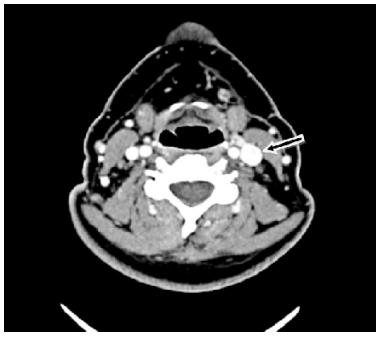


Fig. : Computed tomography angiography of the neck.

Discussion

Internal jugular vein aneurysm is rare and usually asymptomatic. Due to low incidence, there are only a few reported cases in the literature. Venous aneurysms are relatively benign, with few clinical symptoms and complications. The jugular vein aneurysms may be saccular or fusiform. Saccular aneurysm of the jugular vein presents as a painless swelling on the side of the neck. The clinical characteristics of the jugular vein aneurysms are: unilateral, soft, non-pulsatile swelling; in rare cases of big aneurysms patients may have other symptoms secondary to compression on surrounding structures. The neck swelling appears when coughing,

straining, bending, crying, sneezing, or breath holding. Thrombosis within the aneurysm may induce pain, increase of aneurysm dimensions and symptoms of compression of the surrounding structures. Extremely rare, the venous aneurysm may complicate with thrombosis, which may lead to pulmonary embolism. In children, jugular vein aneurysm is commonly encountered on the right side; in adults, they are more common on the left side and are mostly acquired.

Differential diagnosis is made with arteriovenous malformation, thyroglossal cysts, retention cysts, cystic hygroma, pharyngocele, laryngocele, different tumors and cupula inflation. Soft swelling in the neck that occurs during cough, straining, bending over or Valsalva maneuver should imply jugular vein enlargement or aneurysm.

Grayscale ultrasonography alone may not be able to completely demonstrate the aneurysm. The diagnosis is solved using duplex ultrasonography, which demonstrates typical venous flow patterns and is most of the times sufficient for surgical treatment. The color Doppler ultrasonography is needed in order to identify the communication between the venous aneurysm and the vein. The spectral Doppler may differentiate the venous flow from an arterial flow by the pattern of spectral waveform. Other diagnostic modalities are venography, three- and four-dimensional ultrasonography, computed tomography angiography and magnetic resonance angiography. However, duplex ultrasonography is less invasive and costly than other imaging techniques and in the majority of the cases is sufficient for reliable diagnosis[8].

Doppler ultrasonography allows the differentiation between cystic and solid lesions of the neck, can differentiate the vascular from the non-vascular lesions, and can establish the relationship of the lesion with the surrounding structures[8]. In our case, we encountered a pseudothrombosis effect on duplex ultrasonography, with different blood flow velocities near the aneurysm wall and in the central parts of the aneurysm. This effect is seen in larger aneurysms. The etiopathology of the aneurysm in our patient remained unclarified, but probably acquired.

Due to very low incidence of jugular vein aneurysms, there are not guidelines regarding the optimal treatment. The treatment is usually conservative in asymptomatic venous aneurysms, with regular follow-ups. The surgical treatment may become necessary for cosmetic reasons or when thrombosis or phlebitis of the jugular vein occur[9]. The surgical treatment is the only treatment that allows the histopathological diagnosis and eliminates the risk of aneurysmal rupture or pulmonary embolism. Saccular aneurysms are usually treated by excision and ligation of the vein; fusiform aneurysms are treated by exclusion and bypass.

Conclusions

When a neck mass is detected by ultrasonography, jugular vein aneurysm should be considered as part of the differential diagnosis.

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