A finding of an aneurysmal varix in the neck with ultrasound

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Learning objectives

- To review this infrequent pathology that can affect any vessel in the vascular system, most commonly arterial, although it can also involve the venous system.

- Phlebectasia occurs in the neck in the following sequence: internal jugular (70%), external jugular (30%), anterior jugular and the superficial communicants.

- Venous aneurysms are rare but important to take into consideration in differential diagnosis for a cystic neck mass.

- The etiology of venous ectasia is unknown and may be due to congenital weakness of the venous wall and incompetence of the jugular venous valve placed at its entrance into the subclavian vein.

- There are different etiologic theories, although it is generally thought to be idiopathic.

Background

INTRODUCTION

- Venous aneurysms, like arterial aneurysms, are classified by their shape as either saccular or fusiform.

- Gruber first reported a phlebectasia of the internal jugular vein in 1875 and in 1928 Harris described the importance of jugular venous aneurysm. In the medical literature it has been reported as congenital venous cyst, veinectasia, phlebectasia, aneurismal varix, venous ectasia and essential venous dilatation.

- Although venous ectasia is generally thought to be idiopathic, a variety of etiologic theories have been proposed:

  • Congenital theory: Since most of the lesions have been reported in children, it seems likely that the cause is congenital. Histological examinations of the vessel wall have
revealed a loss or reduction in elastic fibers and smooth muscle in the tunica media and intimal layer degeneration with collagen deposition.

- Endophlebohypertrophy and endophlebosclerosis: Endophlebohypertrophy and endophlebosclerosis are important factors in venous aneurysm formation, in a manner similar to the role of artherosclerosis in arterial aneurysm formation. Vein arterialization and increase in venous flow lead to vessel wall hypertrophy with subsequent vein dilatation and sclerosis. The process occurs from birth at points of stress adjacent to arteries and entry points of tributary veins. It is suggested that an increase in intraluminal pressure can lead to degenerative changes.

- Inflammatory theory in which trauma has been proposed as an etiologic factor.

CLINICAL HISTORY

- An asymptomatic 65-year-old male (Fig.1, 2, 3 and 4) and 43-year-old male (Fig. 5, 6, 7 and 8) with history of thyroid nodules were submitted to US examination.

- Internal jugular vein ectasia is presented as a soft lateral neck mass, anterior to the sternocleidomastoid muscle, swelling in the neck during any kind of straining that increases intrathoracic pressure, such as crying, coughing or during the Valsalva manoeuvres, easily compressible with pressure and completely regressing at rest.

- Jugular phlebectasia is usually presented in children and boys are said to be affected more than twice as often as girls. Incidence is higher on the right side. On physical examination there are no bruits or thrills and diagnosis is mainly clinical.

DIFFERENTIAL DIAGNOSIS

Cystic hygroma, laryngocele, haemangioma, lymphocele, branchial cyst, pharyngocele, dermoid cyst and superior mediastinal tumours or cysts.

DIAGNOSIS

- Invasive and non-invasive techniques for diagnosis include Doppler ultrasound, phlebography, ultrasonography, CT and MRI.
- Diagnosis is often best made using ultrasound examination as it is a non-invasive technique with high reliability. Historically, phlebography was used to make the diagnosis of vein thrombosis.

- Chest X-ray, ECG and echocardiogram are useful to detect associated vascular and cardiac malformations.

**CLINICAL MANAGEMENT AND TREATMENT**

- Conservative management is recommended and surgery is reserved for some specific cases such as vein thrombosis. Some authors also recommend surgery in saccular aneurysms and for cosmetic reasons as it causes neck deformity.

- Most authors consider that invasive techniques and surgery are unnecessary, however, others consider that saccular jugular aneurysmal varix is an indication for prophylactic surgery to avoid intravascular thrombosis.

- In cases of venous thrombosis, surgical treatment should not be delayed because of pulmonary thromboembolism risk. Other authors consider fusiform aneurysmal varix should also be excised for cosmetic reasons.

- The most common surgical procedure consists of aneurysm resection and ligation of the vein. Complications are rare and include traumatic vein thrombosis or haemorrhage and congestive heart failure.

**Imaging findings OR Procedure details**

- We present two cases of asymptomatic adult male patients with fusiform aneurysmal varices incidentally detected at US examination performed for the evaluation of thyroid nodules.

- High-resolution B-mode ultrasonography and colour Doppler were performed using a 7-MHz linear probe.
- US examination revealed two bilateral internal jugular fusiform aneurismal varices, with no intraluminal thrombus and slow turbulent flow.

Images for this section:

![Image](image_url)

**Fig. 1**: Colour Doppler study shows internal jugular vein (IJV) phlebectasia and turbulent flow.
Fig. 2: The same as Fig. 1
Fig. 4: US gray-scale image demonstrates ectasia of IJV with heterogeneous internal echos due to slow turbulent flow.
Fig. 3: The same patient as Fig.1 and Fig.2
**Fig. 5:** US gray-scale image shows phlebectasia and turbulent flow.
Fig. 6: Longitudinal gray-scale image demonstrates the same pathological features.
Fig. 7: Transverse gray-scale image shows slow turbulent flow.
Fig. 8: Colour Doppler study shows low velocity turbulent venous flow.
Conclusion

- This disease is rarely diagnosed because there is little knowledge about it among physicians. It is extremely rare, especially in adults, with few references in medical literature.

- In addition to previously exposed etiologic theories, others based on histopathological findings have been proposed. There is a theory in which vocal abuse is considered a trigger factor in predisposed patients.

- They can occur anywhere in the lymphatic and venous system.

- Complications include thrombosis and traumatic rupture.

- Our goal is to draw attention to this pathology which should be suspected in children with vocal abuse and asymmetric cervical swelling that increases during straining.

- This pathology is also known as "Tischoff’s venoma" and it is usually presented in children without antecedents of traumatic events which can weaken vessel wall or extrinsic compression.

- The etiology of venous ectasia is unknown and a combination of several causes may be involved:

  • Congenital dilatation of the venous wall and incompetence of the jugular venous valve placed at its entrance into the subclavian vein.
  • Increase in size during crying, coughing or lower extremity compression.
  • Vocal abuse can be considered a potential triggering factor.

- Complications include extrinsic compression and venous thrombosis.

- Venous ectasia is more common in children but can occur at any age.

RESULTS
- US and Colour Doppler examination revealed bilateral internal jugular venous ectasia or varix with low turbulent flow and no intraluminal thrombus.

- Painless, non-pulsatile mass with no bruits or thrills.

- Imaging findings were diagnostic of bilateral internal jugular aneurysmal varices in both patients and were an incidental finding in a 2-week period which is unusual, especially in adults. Our results support published medical literature.

References


Personal Information