Primary Venous Aneurysm of the External Jugular Vein

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Venous aneurysm was first mentioned in the literature by Harris (1), in 1928. He described an infant with congenital venous cyst of the mediastinum. Hilscher (2) suggested the term of venous aneurysm, similar to arterial aneurysms.

In contrast to arterial aneurysms, venous aneurysms are rare and those involving the jugular veins are even rarer. The low- pressure system of the superior vena cava reservoir could be an explanation for the rarity of the jugular venous aneurysms (3).

In this report, we describe a 21-year-old male patient with aneurysm of the external jugular vein.

Case report

A twenty one-year old male was admitted to Vascular Surgery Department of the Yüzüncü Yıl University Hospital, Van, Turkey. He had a progressive swelling in the left side of the neck. The mass had increased in size during the last eight month with accompanying pain. He denied any preceeding trauma. Physical examination revealed a soft, round, mobile, non- pulsating and fluctuating mass approximately 2 cm in diameter over the anterior border of the sternocleidomastoid muscle. On auscultation, no bruit could be heard in this region. Results of physical examination were otherwise normal.

Laboratory tests, electrocardiogram, chest and neck radiograms, and examination of the fundus oculi all yielded normal findings. Venous ultrasonographic examination of this region revealed an external jugular vein aneurysm (Figure 1).

Operation was performed under local anesthesia. Adhesion of the mass to the surrounding tissue was slight and was easily peeled off. After removal of this fusiform aneurysm, proximal and distal ends of the vein were ligated. Venous continuity with reversal saphenous vein bypass was considered unnecessary. His postoperative progress was favorable without any complications.

Histological examination showed a localized structural alteration with marked reduction of smooth muscle cells in the media with presenting thinning of the elastic fiber. Wall of the aneurysm was thinner than the vein wall of the normal segment. But its basic structure was preserved. So the lesion was evaluated as a true venous aneurysm (Figure 2).

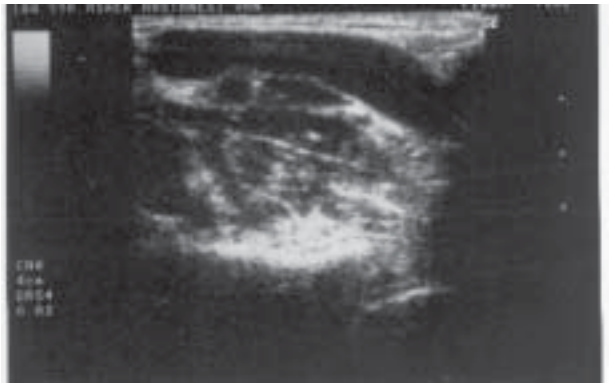

Figure 1. Venous ultrasonography reveals aneurismal dilatation of the external jugular vein.

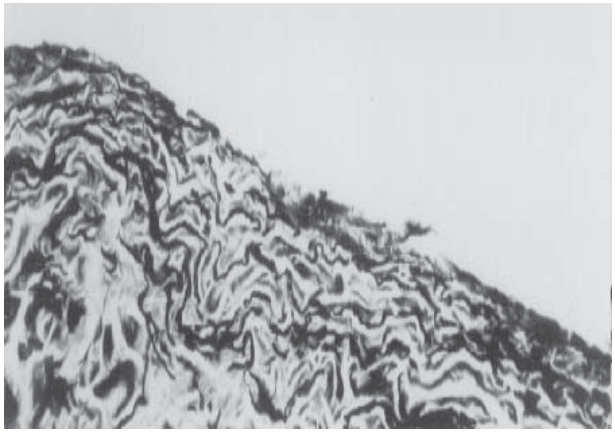

Figure 2. (Elastica- Van Giesanx5). Section of the aneurismal wall reveals localized structural alteration with marked reduction of smooth muscle cells and thinning of the elastic fiber.

He was discharged on the sixth postoperative day. He remained asymptomatic for eight months following the surgery.

Discussion

In contrast to arterial aneurysms venous aneurysms at any site are extremely uncommon. Etiologically venous aneurysms are divided into congenital or acquired aneurysms. Some reports suggest that venous aneurysms are developmental, perhaps secondary to a weakness of elastic fibers in the vessel wall (4, 5). Anatomically venous aneurysms have been described in four regions: a. Intracranial, b. the neck and thorax, c. visceral veins and d. the lower and upper extremities. Venous aneurysms of the neck and chest are mostly congenital (3).

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The cause of venous aneurysms remain unknown, although several theories have been proposed. Schatz and Fine (5) concluded that endophlebosclerosis and endophlebohypertrophy are important factors in the development of the venous aneurysms, in a manner similar to role of atherosclerosis in arterial aneurysm formation.

Inflammation has also been cited as a possible cause of venous aneurysms. Although this may be a dramatic finding in some cases, it probably results from the mass effect of the aneurysm itself (6).

Matsura et al. (7) noted a reduction of elastic fiber in the aneurysmatic wall and they suggested that major cause might be congenital fragility of venous wall due to decreasing of elastic fiber. Schatz and Fine (5) noted intimal hyalinization in the aneurismal wall. They stated that its major cause might be regressive degeneration. In contrast, Gilbert et al. (8) found a histologically normal venous structure and a normal component of elastic tissue.

Connective tissue metabolism may play a leading role in the development of arterial aneurysm, and it would be interesting to know whether this may also contribute to venous aneurysms (9). Measurement of the elastic fiber levels in vein walls might answer this question (6).

Venous aneurysms can produce complications like thrombus formation, pulmonary embolism, spontaneous rupture, and thrombophlebitis. Popliteal venous aneurysms may cause pulmonary embolism. These aneurysms should be sought in patients who have pulmonary emboli and no evidence of lower extremity deep venous thrombosis (6).

Although venous aneurysms rarely cause serious complications, the stagnant venous flow may lead to thrombus formation (10).

While rupture of arterial aneurysms is an expected complication if timely operation is not performed, rupture is virtually unheard of with venous aneurysms (6). We have found no report of ruptured venous aneurysms except one belonging to the left superior vena cava (11).

Few cases of venous aneurysms involving the external jugular vein have been described in the literature (12). When heart disorders, history of trauma, or arteriovenous malformations can be excluded, such lesions are mostly congenital.

Jugular venous aneurysms may be easily confused with lymphocele, hygroma, hemangioma, or some other tumors. Venous ultrasonography and venography will assist in making correct diagnosis (6).

As in our case, the diagnosis can be accurately carried out with venous ultrasonography without venography. When partial or complete thrombosis exists, the venography could not suggest the existence of venous aneurysm. Color doppler scanning can be performed quickly and easily and it also measures its true size, and permits knowledge of the presence and extent of thrombus within the lumen with a complete functional assessment of venous system (13).

Histological findings help to distinguish a venous aneurysm from a varicose vein. Histological findings of venous aneurysm may be loss of elastic layers and hypertrophy of the connective tissue, absence of the media and adventitia, absence of muscle cells, endophlebosclerosis, endophlebohypertrophy, and the thinning of the vein wall without congenital anomaly (12). In contrast to venous aneurysm, varicose vein's fibrous tissue is increased. Particularly, muscle layers and the vessel wall are thickened (14).

Ectasia is accompanied by prolongation in a varicose vein, whereas venous aneurysm is not accompanied by prolongation (7).

Conclusion

Because of the risk of thrombosis of stagnant blood, subsequent pulmonary embolism, and perhaps theoretical complication of rupture, we suggest that jugular venous aneurysms should be surgically treated.

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