Dense Lymphatic Tissue Causing Compression of the Internal Carotid Artery

Ronald C. Pearlman1*, and Bryan Steinberg2

1Department of Communication Sciences and Disorders, Howard University, USA
2Department of Cardiac Surgery, Capital Cardiovascular and Thoracic Surgery Associates, USA

Abstract

A 59-year-old HIV positive female presented with cardiac symptomatology. Cardiology workup included a cardiac catheterization during which a carotid angiogram was performed demonstrating a 90% stenosis of the right carotid artery. The stenosis was the result of lymphoid hyperplasia with pseudo-obstruction of the right carotid artery. Patients who have acquired human immunodeficiency virus (HIV) may have enlarged neck lymph tissue impinging on other anatomical structures causing displacement or stenosis, including the carotid artery.

INTRODUCTION

Stenosis of the carotid artery can be caused by several situations. By far the most common cause of occlusion disease is arterial ulcerative or atherosclerotic plaque. However, other neck structures have also been implicated in impinging on the carotid wall causing a narrowing of the blood vessel.

Mandelbaumomit et al., [1] found blunt neck injury resulted in blood-engorged lymph nodes against the internal carotid artery causing constriction of the lumen. Pearlmanomit et al., [2] found the hyoid bone pressing against the internal carotid artery causing significant stenosis. Boldrey et al., [3] reported on the impingement of the carotid by the lateral process of the atlas. Except for cases of blunt neck injury causing enlargement of lymph nodes due to blood-engorgement, a lymph mass hyperplasia causing carotid stenosis has not been reported in the literature.

CASE REPORT

The patient is a 59-year-old female with a history of smoking, asthma, breathing difficulty, cardiomyopathy, congestive heart failure, chronic obstructive pulmonary disease, dilated cardiomyopathy, hypertension, gingivitis, and human immunodeficiency virus (HIV). The patient initially presented with a complaint of headache, dizziness and possible syncope. Cardiology workup included a cardiac catheterization during which a carotid angiogram was performed demonstrating a 90% stenosis of the right carotid artery. A right carotid endarterectomy was scheduled to increase the size of the blood vessel lumen.

A large mass of lymphatic node tissue measuring approximately 5X4 cm was found during neck dissection (Figure 1) extrinsically compressing the carotid artery. The vessel appeared completely normal and without evidence of plaques by palpation or visual inspection. Duplex sonography was performed intraportally, which confirmed the resolution of the previously seen stenosis and complete patency of the right internal carotid artery (Figure 2). Surgery was terminated without an endarterectomy.

Electroencephalography was used during the procedure for selective shunting as well as brain monitoring during the procedure. Neuromonitoring was unchanged during the procedure when taking anesthesia dosage and blood pressure changes into account. The patient was taken to post anesthesia care awake and in stable condition. The patient was able to

Figure 1 Tissue impinging on the internal carotid artery latter identified by a pathologist as lymphatic tissue.
respond to commands and move all limbs in the recovery room. Postoperatively the patient had a formal arterial duplex scan of the right carotid artery that demonstrated resolution of the previously observed stenosis.

The pathologist’s final diagnosis was “Cervical lymph node. Flow cytometric immunophenotyping: Heterogeneous B, T and NK cells without aberrant antigen expression or monoclonal B-cell. In summary, there is no definitive immunophenotypic evidence of lymphoma/leukemia”.

**DISCUSSION**

Barzan et al., [4] found enlargement of neck lymph nodes in HIV patients and recommended a head and neck evaluation in every HIV infected patient. The patient in this report was infected with the human immunodeficiency virus. The resulting lymphadenopathy compressed the adjacent carotid artery and caused a significant stenosis, > 90%. This finding is unusual in that it is not secondary to blunt trauma to the neck as in the case report by Mandelbaum and Kalsbeck [1]. While kinking of the carotid artery is fairly common [5] it is rarely due to impinging tissue or structures, except in the case of the hyoid bone as reported by Pearlman and Naficy [2].

**CONCLUSION**

HIV positive patients are at risk for having false positive findings on medical imaging studies. Patients who have the human immunodeficiency virus may have enlarged neck lymph tissue impinging on other anatomical structures causing displacement or stenosis, including the carotid artery. This case demonstrates the importance of soft tissue evaluation of cervical lymphadenopathy by either computerized tomography or magnetic resonance imaging in order to verify that implied intrinsic vascular stenosis is in fact due to native vessel diseases and not a false positive finding secondary to extrinsic compression. HIV patients who are asymptomatic for carotid stenosis, but in whom imaging shows lymphatic tissues impinging on the carotid artery should be followed for the advent of symptomatology and considered for surgery if symptoms do arise.

**REFERENCES**