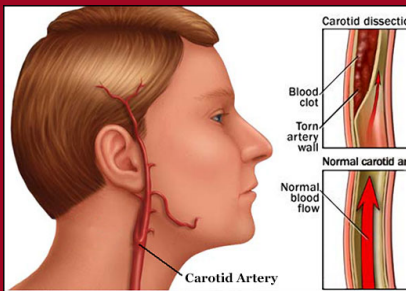


EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER DEPARTMENT OF EMERGENCY MEDICINE

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Carotid Artery Dissection



<http://www.pyroenergy.com/articles/13/images/carotid-artery-dissection.jpg>

An arterial dissection is a separation of the layers of the wall of the artery. Tears in the intimal layer allow blood to collect between layers, causing a stenosis or occlusion of the artery.

A 42 year old male presented to the ED with a one week history of left-sided neck pain, diplopia, dizziness, and tongue deviation after lifting a heavy object. His vital signs are T 97.8, HR 57, RR 18, BP 143/93, O2 sat 94%. Physical exam was remarkable for leftward tongue deviation. A chest x-ray is ordered and is found to be normal. Next, a CT angiogram of the head and neck is ordered, and he is found to have dissection of the left internal carotid artery (ICA). Anticoagulation therapy is started. Which of the following is not a potential manifestation of carotid artery dissection?

EM CASE OF THE WEEK

EM Case of the Month is a weekly "pop quiz" for ED staff. The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

- A. Carotid bruit**
- B. Horner's syndrome**
- C. Epidural hematoma**
- D. Cranial nerve palsy**
- E. Tinnitus**



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<http://fuldamedia.com/shmabstracts/wp-content/uploads/2012/04/jhm0192703430001.jpg>

Tongue Deviation

Take Home Points

- Carotid artery dissection affects all age groups, and is one of the most common causes of stroke in children and young adults.
- Patients can present with transient ischemic attack or stroke symptoms, with the addition of localized symptoms as well.
- Diagnosis is made with neuroimaging studies.
- Antithrombotic therapy is the mainstay of treatment.

Carotid artery dissection

The correct answer is C. Carotid artery dissection can present with Horner's syndrome, **subarachnoid hemorrhage**, tinnitus, cranial neuropathies, scalp tenderness, or carotid bruit. Horner's syndrome in ICA dissection tends to be partial, and does not involve anhidrosis. Subarachnoid hemorrhage resulting from ICA dissection may present with a thunderclap headache.

Discussion:

A carotid artery dissection occurs when tearing of the intimal layer allows blood flow between the intima and the outer arterial layers. This can lead to ischemic symptoms from thromboembolism or occlusion. The narrowed lumen may produce a bruit as blood passes through it. The expansion into the dissection can also lead to localized pain and neurological deficit, either from directly compressing nerves or their vascular supplies. Similarly, Horner's syndrome can result from stretching the sympathetic fibers which travel along the internal carotid artery. Finally, recall that the intracranial internal carotid arteries lack an external elastic lamina. Dissection into these arteries can lead to vessel rupture, causing subarachnoid hemorrhage.

Causes and Risk Factors: Carotid artery dissection is associated with a number of connective tissue and vascular diseases. Some of the stronger associations include Fibromuscular Dysplasia and Ehlers-Danlos syndrome type IV. Other causes for dissection include iatrogenic effect and localized cervical trauma.

For a list of educational lectures, grand rounds, workshops, and didactics please visit

<http://www.BrowardER.com>

and click on the "Conference" link. All are welcome to attend!

Diagnosis: When clinical features suggest a carotid artery dissection, conclusive diagnosis can be ascertained with neuroimaging, typically MR angiogram or CT angiogram.



http://images.radiopaedia.org/images/18030/2ff4ac81fdcaf162fea6fc359097cf_big_gallery.jpg

The thin region of contrast associated with a stenosis is known as string sign on CT Angiogram

If patient presents with a headache, a spinal tap and cerebrospinal fluid analysis can be done to rule out subarachnoid hemorrhage.

Differential diagnosis for ICA dissection is broad, as patients may present with only local or only neurological symptoms.

Treatment: Treatment for carotid artery dissection is dependent upon the specific symptoms experienced by the patient. Ischemic neurological symptoms, localized symptoms, and subarachnoid hemorrhage must all be considered while managing the care of a patient with dissection.

Ischemic symptoms: Ischemic symptoms are treated similarly to other causes of stroke-antithrombotic therapy should be initiated and continued for 3-6 months. As of yet, there has been no proven benefit to anticoagulation vs antiplatelet therapy in the long term. Use of thrombolysis is controversial; however, evidence suggests its safety and effectiveness is comparable in carotid artery dissection to other causes of stroke.

Localized symptoms: Neck pain and/or headaches caused by the dissection can be treated with analgesics such as ibuprofen or acetaminophen. Other localized symptoms such as cranial nerve palsies have no specific treatment, but may improve with time.

Surgery: Endovascular procedures such as angioplasty, stent placement, or surgical reconstruction are generally reserved for those that fail anticoagulation therapy or if anticoagulation therapy is contraindicated.

Prognosis: 70-85% of extracranial dissection patients make an excellent to complete recovery. Major deficits affect 10-25% of patients, and death results in 5-10%.

1. **Liebeskind, DS** Spontaneous cerebral and cervical artery dissection: Treatment and prognosis. In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. (Accessed on December 17th, 2015)
2. **Liebeskind, DS** Spontaneous cerebral and cervical artery dissection: Clinical features and Diagnosis. In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. (Accessed on December 17th, 2015)



ABOUT THE AUTHOR:

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