

Minör Travma ve Minör Semptomlarla Karotis Diseksiyonu *Carotid Artery Dissection With Minor Trauma and Minor Symptoms*

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ABSTRACT

Introduction: Traumatic carotid artery dissection is a rare but significant cause of ischemic stroke in young population. The delay in the diagnosis may lead to life long morbidity or even death. Symptoms may be delayed to several weeks. We are presenting a case with right internal carotid artery dissection after a low velocity motor vehicle accident with minor nonspecific symptoms.

Case: 31 year old woman came to the emergency room on foot, two hours after having a low velocity motor vehicle accident. She did not have any specific complaint. She described hyperextension-flexion injury and there was no direct trauma to head and neck. She had mild tenderness over right cervical paravertebral muscles. Systemic and neurological examination was normal. Cranial and Cervical CT scans were normal. CT angiography revealed dissection of the right internal carotid artery. No complication was observed after anticoagulation.

Discussion/Conclusion: Carotid artery dissection may not always fulfill the screening criteria for blunt cerebrovascular injury. Emergency physicians should be suspicious about the vascular pathologies for all head and neck injuries. The most important clue is the injury mechanism. Detailed history must be obtained and patients should be asked in terms of transient symptoms.

Keywords: Neck trauma, carotid artery dissection, emergency room, CT angiography, trauma

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ÖZET

Giriş: Travmatik karotis diseksiyonu genç hastalarda görülen nadir ancak önemli bir inme sebebidir. Tanı koymada yaşanacak gecikmeler uzun süreli morbiditeye ve hatta ölüme sebep olabilir. Semptomların ortaya çıkışı bazen haftalar sürebilir. Burada hafif şiddette bir travma sonrası meydana gelen ve semptomların silik olduğu bir vakayı tartışmaktayız.

Olgu: 31 yaşında kadın hasta kendi kullandığı araç ile şiddeti az olan bir kazadan 2 saat sonra yürüyerek acil servise başvurdu. Herhangi bir şikayeti olmadığı sadece kontrol amaçlı geldiğini belirten hastanın fizik muayenesinde servikal paravertebral kaslar üzerinde hassasiyet haricinde özellik yoktu. Sistemik ve nörolojik muayenesi normaldi. Öyküde hiperekstansiyon-fleksiyon tarzında yaralanma tarif eden hastanın geçici görme bulanıklığı yaşadığı öğrenildi. Bunun üzerine çekilen BT anjiyografide sağ internal karotis arterde diseksiyon tespit edildi. Antikoagülasyon tedavisi sonrası komplikasyon gelişmeden hasta taburcu edildi.

Tartışma/Sonuç: Karotis diseksiyonu künt serebrovasküler yaralanmalarda vasküler görüntüleme yapılması kriterlerine uymayan vakalarda da görülebilir. Erken tanı iyi nörolojik durum açısından önemlidir. Acil servis hekimleri hafif şiddette baş boyun travmalarında hastanın semptom ve bulguları silik de olsa yaralanma mekanizmasını göz önünde bulundurmalı ve vasküler yaralanmalar için şüpheli olmalıdırlar.

Anahtar Kelimeler: Boyun travması, karotis diseksiyonu, acil servis, BT anjiyografi, travma

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INTRODUCTION

Traumatic carotid artery dissection is a rare but significant cause of ischemic stroke in young population. The delay in the diagnosis may lead to life long morbidity or even death. In the etiology there is usually severe trauma to head and neck region but minor blunt traumas and iatrogenic injuries were also reported. Carotid artery injury may not be associated with external injury.¹ Common presenting symptoms are related with the cerebral ischemia. Varying degrees of neurological deficits can be observed. Symptoms may be delayed to several weeks. Because of this, initially it may be undetected or misinterpreted in the settings of associated head and neck trauma.² Here we are presenting a case with right internal carotid artery dissection after a low velocity motor vehicle accident with minor nonspecific symptoms.

CASE REPORT

31 year old woman came to the emergency room on foot, two hours after having a low velocity motor vehicle accident. She was the driver and her safety belt was attached. She did not have any specific complaint. She described hyperextension-flexion injury of the cervical spine and there was no direct trauma to head and neck region. She had 4-5 seconds of transient blurred vision just after the accident. She had right sided neck pain radiating to her face. She described the pain score of 4 out of 10. Past medical and family history was unremarkable. On physical examination her vital signs were normal and there was no evidence of external trauma. She had mild tenderness over right cervical paravertebral muscles. Systemic and neurological examination was otherwise normal. The pain resolved after IV paracetamol infusion. Cranial and Cervical CT scans were normal. Because of the symptoms of transient blurred vision and atypical facial pain, we decided to get the additional vascular series of CT scan in order to rule out extra or intracranial vascular pathologies. CT angiography revealed dissection of the right internal carotid artery starting just after the bifurcation and extending through the skull base (Figure 1,2). The patient admitted and anticoagulation therapy was initiated. Cranial and Diffusion MRI was performed. There were no pathological findings. After one week she was discharged with optimum INR levels. No complication was observed.

DISCUSSION

Arterial dissections of the brain-supplying extracranial arteries begin with a tear in the media that occasionally results from a stretching movement of the neck. This causes bleeding within the arterial wall. Intramural blood then dissects longitudinally, spreading along the vessel proximally and distally. Intramural hematoma creates a false lumen that narrows the original lumen. Ischemic stroke results from either by thromboemboli forming at the site of the injury or as a result of hemodynamic insufficiency due to stenosis.³

Presenting symptoms include mostly contralateral limb numbness or weakness, visual disturbances, transient ischemic attack, tinnitus, Horner syndrome, head and neck pain, hoarseness, and dysphagia. Local signs may include neck hematomas, and bruits and pulse deficits over the artery. Symptoms may be transient, recurrent and may be delayed up to several weeks.²



Figure 1: CT angiography revealing the right internal carotid artery dissection (Right angle view)



Figure 2: CT angiography revealing the right internal carotid artery dissection (Antero-posterior view)

Only 10% of the patients display immediate symptoms, 55% develop symptoms in the first 24 hours after dissection, and 35% have no symptoms until 24 hours or more after injury.⁴ Due to the variety of the symptoms, the mechanism of the injury is the most important clue for the diagnosis. In addition to detailed history and physical examination several diagnostic modalities are advised including the duplex ultrasonography, CT/CT angiography, MRI, magnetic resonance angiography (MRA) and conventional angiography.⁵ Although the conventional angiography remains the gold standard its invasiveness makes it unsuitable as a screening method. MRI/ MR angiography is also not suitable for trauma patients because of its longer scanning times. Carotid duplex sonography and CT/CT angiography are commonly used techniques. But there are both advantages and disadvantages relative to each other. Duplex ultrasonography is noninvasive but study quality is highly operator dependent. Also subcutaneous air or hematoma may obscure arterial visualization. Helical CT can be used in trauma patients safely. The overall sensitivity, specificity, PPV, NPV, and accuracy of 16-slice CT angiography for the diagnosis of blunt cervical vascular injuries was 97,7%, 100%, 100%, and 99,3%, when compared with catheter angiography.²

There is no optimal algorithm for screening vascular injury with blunt neck trauma. But Denver criteria are widely used for this purpose.⁶ Denver Screening criteria include signs and symptoms of blunt cerebrovascular injury (BCVI) and risk factors for BCVI (Table 1). Our patient did not meet any one of these criteria.

Table 1: Denver Screening Criteria for Blunt Cerebrovascular Injury Signs/Symptoms of BCVI

Arterial hemorrhage
Cervical bruit in patient < 50 years of age
Expanding cervical hematoma
Focal neurological deficit
Neurological exam incongruous with head CT scan findings
Stroke on secondary CT scan

Risk Factors for BCVI

High-energy transfer mechanism with:
Le-Forte II or III fracture
Cervical-spine fracture patterns: subluxation, fractures extending into the Transverse foramen, fractures of C1-C3
Basilar skull fracture with carotid canal involvement
Diffuse axonal injury with a Glasgow Coma Scale (GCS) score < 6
Near hanging with anoxic brain injury

Treatment goals include prevention of embolism, thrombus formation, and maintenance of adequate blood flow to brain. Although there is no evidence-based guideline for the treatment of carotid dissection there are conservative and invasive approaches. Current treatment modalities include anticoagulation and an-

tiplatelet therapies as conservative approach. Invasive methods are endovascular angioplasty and stenting, and bypass surgery.⁵

CONCLUSION

Emergent diagnosis of carotid artery dissection is essential because management may improve neurological outcome. The patients with carotid artery dissection may not always fulfill the screening criteria for BCVI at the emergency settings as in our case. Signs and symptoms may be occult initially. Emergency physicians should be suspicious about the vascular pathologies for all head and neck injuries. The most important clue is the injury mechanism. Detailed history must be obtained about the trauma. And patients should be asked in terms of transient symptoms also.

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