Blunt Carotid Artery Injury After Accidental Neck Compression: Report of a Case

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Abstract: Almost all cases of carotid artery injury are precipitated by a high-energy impact such as motor vehicle accidents or gunshot wounds, and are usually diagnosed using angiography. We report herein a case of carotid artery injury induced by a low-energy insult with rare clinical signs which was diagnosed using ultrasonography as well as angiography. A 37-year-old man sustained an accidental compression of the neck and was transferred to our emergency room. Horner’s syndrome and phrenic nerve palsy were detected on the left side. Ultrasonography demonstrated two sites of injury with an intimal flap of the distal left common carotid artery as well as angiography. The patient was placed on anticoagulants and was discharged on the 10th hospital day with both Horner’s syndrome and phrenic nerve palsy. This case suggests that surgeons should investigate any possible carotid artery injury, even after low-velocity injuries such as compression of the neck, and therefore an ultrasonic examination should be performed at the initial evaluation and at follow-up studies. In addition, further investigations are also called for to investigate the utility of anticoagulation in the treatment of carotid artery injury.

Key Words: carotid artery injury, ultrasonography, blunt trauma

Introduction

Carotid artery trauma is a rare, but potentially lethal injury. If knowledge regarding the diagnosis, associated injuries, and the management of this condition is lacking, then the victims will not normally have a good prognosis, especially regarding the neurologic outcome. Most reported cases of carotid artery injury are caused by a high-energy crash mechanism and tend to be diagnosed using angiography. We present herein a case of blunt carotid artery injury caused by a low-energy compression of the neck due to an accident, in which rare clinical signs and ultrasonic examinations were useful for both the initial diagnosis and follow-up study.

Case Report

A 37-year-old man suffered an accidental compression of the neck caused by rolling of the drum of a food desiccator for approximately 7 min. He was rescued by his coworkers and transferred to our emergency room. His vital signs on arrival were a systolic blood pressure of 178 mmHg, a pulse rate of 113/min, and a respiration rate of 30/min with panting. His Glasgow Coma Scale score was 6 (E1V1M2). The physical findings on the left side of his neck included an impression made by the drum with a neck bruit, and Horner’s syndrome was detected on the left side. Ultrasonography demonstrated two sites of injury with an intimal flap of the distal left common carotid artery as well as angiography. The patient was placed on anticoagulants and was discharged on the 10th hospital day with both Horner’s syndrome and phrenic nerve palsy. This case suggests that surgeons should investigate any possible carotid artery injury, even after low-velocity injuries such as compression of the neck, and therefore an ultrasonic examination should be performed at the initial evaluation and at follow-up studies. In addition, further investigations are also called for to investigate the utility of anticoagulation in the treatment of carotid artery injury.
day. The symptoms of both Horner’s syndrome and phrenic nerve palsy improved due to a reduction in the hematoma.

A follow-up examination using ultrasonography was carried out twice over the next 6 months (Fig. 3). Both these studies and angiography, performed simultaneously, showed abnormal findings. However, no neurological deficits were observed, and there was no progression of the abnormal findings. The patient has continued to receive anticoagulant therapy by oral warfarin without any surgical treatment according to his wishes, and has remained healthy with no complications.

**Discussion**

A blunt carotid dissection is a rare event occurring in less than 1 out of 1000 victims of blunt injury, according to Davis and colleagues. Almost all reported cases of carotid artery injury are caused by either motor vehicle accidents or gunshot wounds which have a high-energy impact. The mechanism of injury in our case was interesting, because it suggests that surgeons should be aware of potential carotid artery injury, even after low-