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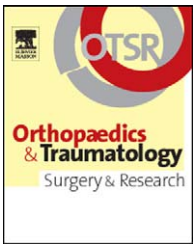

CLINICAL REPORT

Posterior reversible encephalopathy syndrome in a context of isolated cervical spine fracture: CT angiogram as an early detector of blunt carotid artery trauma

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Summary Blunt carotid injury associated with cervical spine fractures is a rare entity but potentially lethal. An initial, clinically silent period can be misleading. Prompt diagnosis and treatment are mandatory to avoid neurological damages and death. We present the case of a 36-year-old man diagnosed with an isolated cervical spine fracture, where an associated carotid artery lesion was initially overlooked and diagnosis was made after development of a neurological deterioration secondary to a posterior reversible encephalopathy syndrome (PRES). We discuss a simple algorithm that can be used to make the diagnosis, even during the clinically asymptomatic period of this injury.

Introduction

Cervical spine fractures commonly occur during high velocity traumas. The screening for associated cervical spine injury and blunt cerebrovascular injury (BCVI) constitutes a part of the investigation workout when multiple injuries are present in polytrauma patient. However, in the case of isolated cervical spine fracture, diagnosis of BCVI can be easily missed. The association between cervical spine fractures and cervical vascular injury has been well-documented especially vertebral artery lesion for which specific fracture patterns have been described [1—6]. However, the association of cervical spine trauma and blunt carotid artery injury is uncommon. We report the case of a 36-year-old man who had a car accident and was diagnosed with an isolated cervical spine fracture, where an associated blunt carotid injury was initially missed and complicated by a posterior reversible encephalopathy syndrome (PRES). We insist on the importance of early diagnosis and treatment and we suggest a protocol to avoid missing this potentially lethal lesion.

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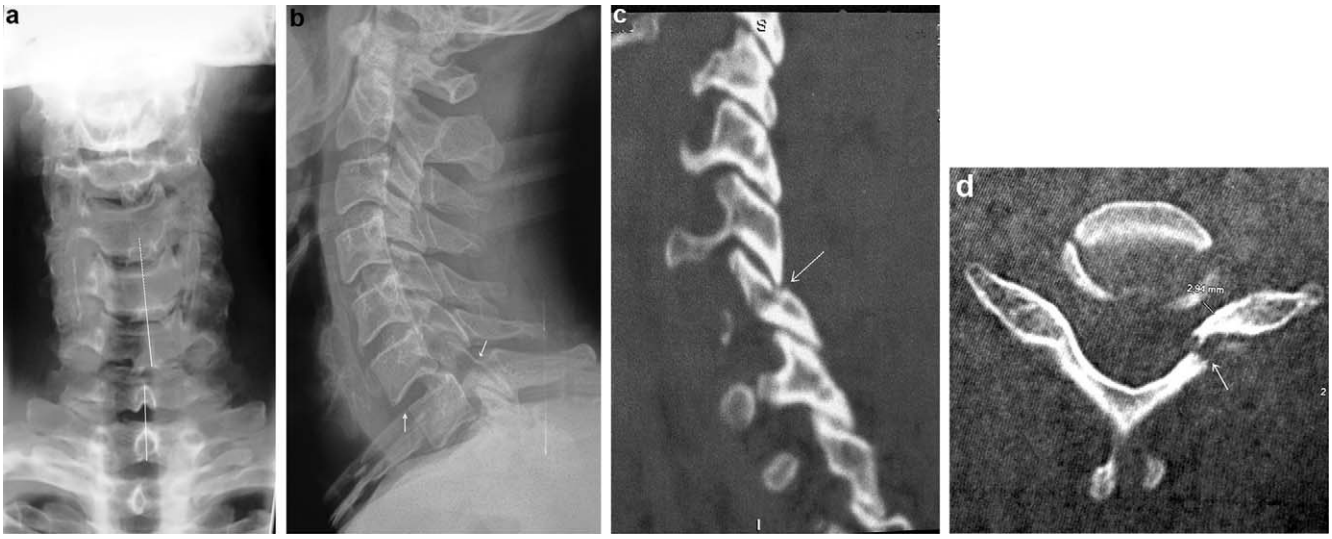

Figure 1 Radiography and CT scanner of the cervical lesion: a: anteroposterior X-ray showing misalignement of C6-C7 spinous processes; b: lateral X-ray with left superior articular facet fracture of C7 with antelisthesis of C6 over C7; c: C7 articular fracture on sagittal CT scan slice; d: axial CT scan slice showing articular fracture with foramen narrowing.

Case report

A 36-year-old man was the belted driver of a car, which collided with another car at a speed of 80 km/h. He sustained a head and neck trauma without loss of consciousness. Transported with a neck collar to the nearest hospital by an emergency medical assistance service, he was conscious with a Glascow Coma Scale (GCS) of 15/15 and was complaining of neck pain. The complete neurological assessment was normal. Investigations revealed an isolated left superior articular facet fracture of C7 with minimal antelisthesis of C6 over C7 (Fig. 1). He was referred to our regional trauma and spine center for cervical spine lesion treatment. Magnetic resonance imaging (MRI) showed a discoligamentous injury at C6-C7 level. We planned an anterior approach for arthrodesis of this level. At 48 hours of injury (a few hours before surgery), the patient complained of severe headache, vomiting and drowsiness. Physical signs included agitation, hypertension, bradycardia and bilateral Babinski sign. A seizure attack was noted in the intensive care unit, treated promptly with 1 mg of clonazepam. The patient was intubated because of agitation and for investigations. The brain CT scan showed no abnormalities and the diffusion-weighted MRI revealed bilateral multifocal brain hyperintensities (Fig. 2), compatible with a posterior reversible encephalopathy syndrome (PRES). Magnetic resonance angiography of neck vessels showed right internal carotid dissection of more than 50% over 4 cm (Fig. 3). He was treated with anticoagulants with favorable outcome. Surgery was delayed for 2 months after stabilization of the carotid lesion. At 3 months after spine surgery, the patient still had no neurologic sequelae and was taking an antiplatelet agent for 3 additional months. Magnetic resonance angiography at 8 months showed complete regression of carotid artery lesion and anticoagulation was stopped.

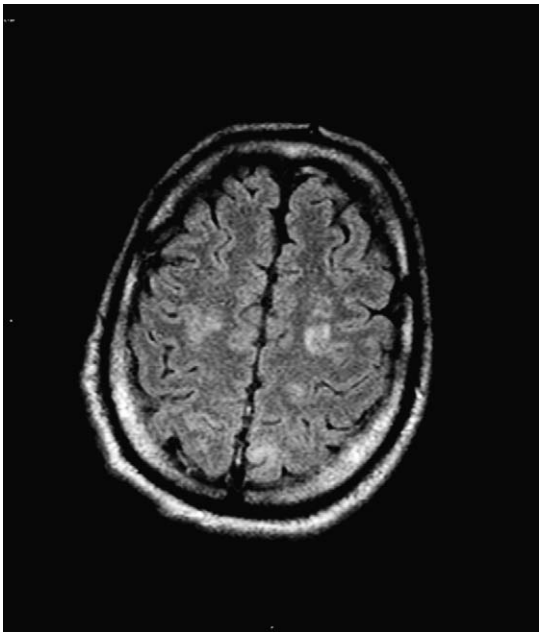

Figure 2 T2 diffusion-weighted MRI showing multiple hyperintensities compatible with PRES.

Discussion

Blunt carotid injury (BCI) is an uncommon injury with a potentially devastating outcome [7]. This entity is rarely isolated and associated injuries of head, face, skull base and cervical spine are frequent [8—11]. While vertebral arteries are directly injured in the foramen transverse at the fracture level, the mechanism of carotid injury is essentially indirect, with hyperextension and rotation playing a major role in most motor vehicle accidents [7]. The fixed position of the