Cerebrovascular Trauma

Sara R. Nace, MD, Lindell R. Gentry, MD*

KEYWORDS

• Cerebrovascular • Trauma • Dissection • Diagnosis • Therapy

KEY POINTS

- Significant recent progress has been made in the recognition, screening, diagnosis, and treatment of blunt cerebrovascular injury (BCVI).
- Although controversy still exists as to optimal screening algorithms and best diagnostic modality, the vital and growing role of noninvasive imaging in identifying patients at high risk for BCVI and in characterizing the injury itself has been clearly established.
- There has been promising early work in stratifying BCVI patients into risk categories by initially evaluating them with high-resolution head, maxillofacial, and cervical computed tomographic (CT) examinations with the ultimate goal of maximizing diagnostic yield and enabling prompt initiation of therapy.
- Further work is needed to delineate the mechanistic relationship between craniofacial fractures and BCVI.
- Recent studies indicate the incidence of BCVI may be much higher (1%–3%) than initially reported (0.1%), due to the wider utilization of aggressive screening algorithms and noninvasive imaging.
- A high index of suspicion is necessary to identify BCVI, since many patients exhibit a latent, asymptomatic period.
- Untreated BCVI is associated with high morbidity and mortality. Identification and treatment of patients while they are asymptomatic has been shown to improve outcomes.
- CT angiography is the study of choice for initial imaging of traumatic CVI, although magnetic resonance imaging/magnetic resonance angiography demonstrates considerable value in characterizing vessel injury as well as associated ischemic complications.
- Current screening algorithms reinforce the importance of high-resolution head, maxillofacial, and cervical spine CT in identifying patients at high risk for BCVI.

INTRODUCTION

Historical Perspective and Significance of Traumatic Blunt Cerebrovascular Injury

The recognition of blunt cerebrovascular injury (BCVI) as an important diagnostic entity has occurred only in the past 2 decades, with continued current debate as to best practices in regards to screening, diagnosis, treatment, and follow-up.

The true incidence of BCVI in the setting of trauma is still not known but has been greatly underestimated in the past, largely because of a lack of routine imaging of asymptomatic patients. Before 1990, less than 200 total blunt carotid artery injury (BCAI) cases had been described in the literature.[1] Regionalization of trauma care caused these "uncommon" injuries to be funneled into fewer referral centers, generating greater interest in improving diagnosis. Many studies before the mid 1990s reported a 0.1% overall incidence of blunt injury to the carotid artery in trauma victims.[2–5] With subsequent utilization of aggressive screening criteria,

The authors have no disclosures.
Department of Radiology, University of Wisconsin, 600 Highland Avenue, Madison, WI 53792, USA
* Corresponding author.
E-mail address: lgentry@uwhealth.org

Neuroimag Clin N Am 24 (2014) 487–511
http://dx.doi.org/10.1016/j.nic.2014.03.006
1052-5149/14/$ – see front matter © 2014 Elsevier Inc. All rights reserved.

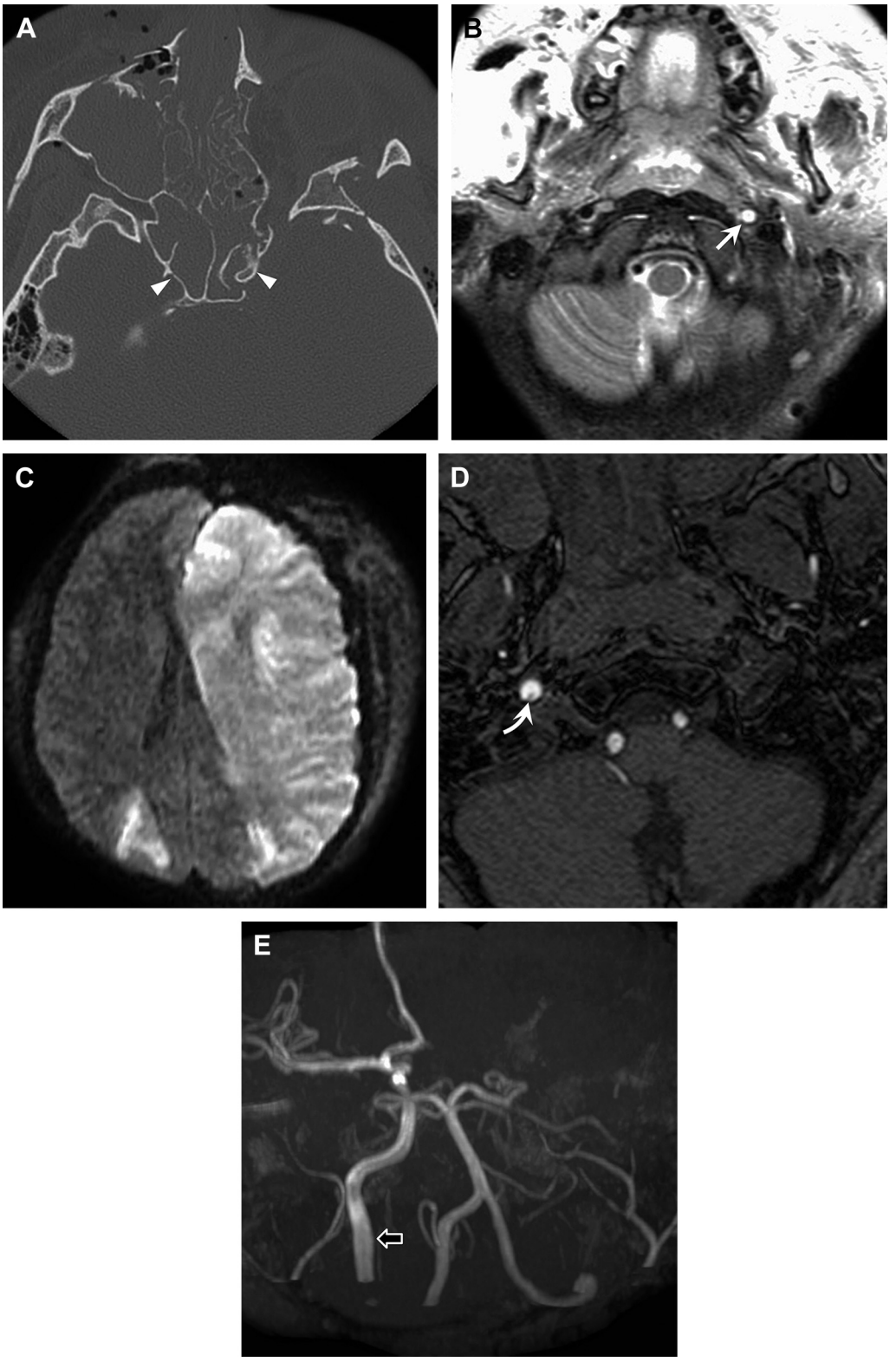

Fig. 1. Traumatic right internal carotid dissection and left internal carotid occlusion. (*A*) Axial CT shows bilateral fractures of the carotid canals (*arrowheads*) with more severe displacement on the left. (*B*) Axial T2-weighted and (*C*) diffusion-weighted MR images reveal a left carotid occlusion (*arrow*) and bilateral hemispheric infarcts, greater on the left. (*D*) 3D-TOF source and (*E*) maximum intensity projection (MIP) MRA images reveal a lack of flow in the left ICA and a dissection flap of the right ICA (*curved arrow*). The MIP image reveals slight overall enlargement of the distal right ICA (*open arrow*) but does not clearly reveal the dissection itself.

Download English Version:

https://daneshyari.com/en/article/3814501

Download Persian Version:

https://daneshyari.com/article/3814501

Daneshyari.com