

Blunt Cerebrovascular Injury (BCVI) Practice management Guideline

All patients presenting with signs / symptoms of BCVI should be evaluated with CTA.¹

Signs / symptoms of BCVI:

- Arterial hemorrhage between thoracic inlet and angle of the mandible
- Expanding cervical hematoma
- Focal neurologic deficit
- Neurologic examination incongruous with head CT findings
- Stroke on secondary CT scan

Screening for BCVI with CTA should be considered in asymptomatic patients with high-energy mechanisms and the following high-risk features.¹⁻³

Risk Factors for BCVI - High energy transfer mechanism with:

- GCS \leq 8 (not explained by head CT findings)
- Severe facial trauma including LeFort fracture types II or III
- Mandible fractures
- Basilar skull or occipital condyle fractures
- Cervical spine fracture, subluxation or ligamentous injury at ANY level (excluding TP or SP fractures)
- Diffuse axonal injury
- Near hanging with concern for hypoxic-ischemic brain injury
- Neck soft tissue injury (seatbelt sign, hanging, or hematoma)

Injury Grading Scale

Grade	Scale
I	Luminal irregularity, intimal dissection or intramural hematoma with <25% luminal stenosis
II	Intraluminal thrombus, intimal dissection or intramural hematoma >25% luminal stenosis
III	Pseudoaneurysm
IV	Vessel Occlusion
V	Vessel Transection

Management of BCVI

ALL SYMPTOMATIC BCVI (any vessel, any grade), as evidenced by stroke on imaging and/or neurologic deficits, mandates a consult to Cerebrovascular service.

Asymptomatic BCVI

Vertebral Artery

- Asymptomatic Vertebral Artery BCVI of any grade does not require cerebrovascular consultation.
- Treatment for any grade vertebral BCVI will be ASPIRIN 81 – 325 mg daily^{4,7} as early as safely possible after injury identification, to be initiated by the trauma surgery team.
- Treatment duration = 3 months
- No follow up imaging is required.⁶

Carotid Artery

- Grade 1 carotid BCVI does not require cerebrovascular consultation
- Grade 2-5 carotid BCVI is a mandatory cerebrovascular consultation
- Treatment for all grades of carotid BCVI will be Antithrombotic therapy (ATT) with either Aspirin (Antiplatelet agent) OR therapeutic anticoagulation. ATT will be initiated as early as safely possible after injury identification.^{4,5,8}
- Follow up imaging⁸
 - Grade 1 carotid BCVI = Repeat CT Angio in 48-72 hours
 - Grade 2-5 carotid BCVI = imaging per cerebrovascular recommendations OR repeat CT Angio in 72 hours.

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