

# Vertebrobasilar Insufficiency

Nathaniel Yomogida, SPT

Chloë Kerstein, SPT

## Table of contents

<b>1 Overview</b>	<b>1</b>
<b>2 Clinical Manifestations</b>	<b>1</b>
2.1 Head & Neck Pain . . . . .	2
2.2 Vertigo & Dizziness . . . . .	2
2.3 Headache . . . . .	2
2.4 Other Symptoms . . . . .	2
<b>3 Tests</b>	<b>3</b>
3.1 Physical tests . . . . .	3
<b>4 DDX</b>	<b>3</b>

## 1 Overview

Vertebrobasilar insufficiency occurs when both [basilar arteries](#) are occluded.

## 2 Clinical Manifestations

The clinical manifestations of VBI are difficult to distinguish from other causes of brainstem ischemia (see later) and can include any or all of the following:

- Dizziness<sup>1</sup>
- Visual disturbance<sup>1</sup>
- Drop attacks (a sudden loss of postural tone without loss of consciousness)<sup>1</sup>
- Ataxia<sup>1</sup>
- Dysarthria<sup>1</sup>

- Dysphagia<sup>1</sup>
- Hemiplegia<sup>1</sup>
- Hemianesthesia<sup>1</sup>
- Nausea<sup>1</sup>
- Ringing in the ears<sup>1</sup>

#### Note

Terret et al. (2001) suggested the mnemonic “**5D’s And 3N’s**” for remembering the common signs and symptoms of VBI<sup>1</sup>.

- 5D’s: Dizziness, Drop attack, Diplopia, Dysarthria, Dysphagia<sup>1</sup>
- 1xA: Ataxia of gait<sup>1</sup>
- 3N’s: Nausea, Numbness, Nystagmus<sup>1</sup>

There is no single consistent pattern for VBI<sup>1</sup>. The most common presenting symptoms are vertigo, nausea, and headache that can be subtle, intermittent, and even chronic in nature<sup>1</sup>.

## 2.1 Head & Neck Pain

## 2.2 Vertigo & Dizziness

Dizziness is the **most common** symptom of VBI, but is rarely found in isolation<sup>1</sup>. The dutton textbook mentions vertigo but does not provide any sources or explanation as to why this was mentioned<sup>1</sup>.

## 2.3 Headache

A headache due to VBI commonly manifests with a gradual onset<sup>2</sup>. The headache generally has a unilateral occipital or frontotemporal pattern<sup>1,2</sup>.

The headache is typically described as gradual onset that is mostly unilateral and involves the frontotemporal region

## 2.4 Other Symptoms

These signs and symptoms have been linked directly or indirectly to VBI:

- Wallenberg, horner, and similar syndromes<sup>1</sup>
- Bilateral or Quadrilateral parasthesia<sup>1</sup>
- Hemiparasthesia<sup>1</sup>
- Scotoma (a permanent or temporary area of depressed or absent vision)<sup>1</sup>

- Periodic loss of consciousness (LOC)<sup>1</sup>
- Lip/perioral anesthesia<sup>1</sup>
- Hemifacial paralysis/anesthesia<sup>1</sup>
- Hyperreflexia<sup>1</sup>
- (+) Babinski, Hoffman, or Oppenheim signs<sup>1</sup>
- Clonus<sup>1</sup>
- Gait ataxia<sup>1</sup>
- Dysphasia<sup>1</sup>

### 3 Tests

The gold standard test for VBI is conventional angiography<sup>1</sup>

#### 3.1 Physical tests

Vertebrobasilar Insufficiency Test

### 4 DDX

Spontaneous intracranial hypotension is a common DDX for VBI, but differs since it generally presents with a gradual onset orthostatic headache near the occipital regions<sup>2</sup> These headaches are orthostatic since the low volume of CSF d/t leakage allows the brain to displace downwards when standing<sup>2</sup>. This displacement causes the headache symptoms to worsen when standing and to relieve when laying down<sup>2</sup>.

1. Dutton M. *Dutton's Orthopaedic Examination, Evaluation, and Intervention*. Fifth edition. McGraw Hill Education; 2020.
2. Chen YC, Ou YH, Chang MC, Chen WL, Lin CM. Vertebral artery dissection stroke in evolution presented with postural headache as initial manifestation. *Neurology International*. 2018;10(2). doi:[10.4081/ni.2018.7694](https://doi.org/10.4081/ni.2018.7694)