

Vertebrobasilar Disease

The Vascular Surgery team at the University of Michigan is dedicated to providing exceptional treatments for Vertebrobasilar Disease in the U-M Cardiovascular Center (CVC), our new state-of-the-art clinical facility.

Treatment for vertebrobasilar disease and vertebrobasilar circulatory disorders is an expanded area of expertise at the University of Michigan. Dr. Ramon Berguer, who pioneered the surgical procedures to reconstruct the vertebral artery in patients with symptoms of vertebral artery disease, is a member of our Vascular Surgery team. He has developed new techniques for the surgical reconstruction of the vertebral artery and for surgical reconstruction related to complex carotid disease and of the branches of the aortic arch.

What is Vertebrobasilar Disease?

Vertebrobasilar disease is a broad classification describing the condition where there is an insufficient delivery of blood flow via the vertebral and/or basilar arteries to the brain.

Blood is delivered to the brain via the carotid and vertebral arteries. The vertebral arteries are located at the back of the neck and merge at the base of the brain to form the basilar artery. The vertebral and basilar arteries supply blood to several structures in the brain including: the occipital cortex, the brainstem consisting of the midbrain, pons and medulla, the cerebellum and the thalamus.

Brain Structure	Function
Occipital Cortex	Vision
Cerebellum	Movement, posture, and balance

Thalamus	Relays visual, auditory and sensory signals to the cerebral cortex
Brainstem:	
Midbrain	Vision, hearing, eye movement, body movement
Pons	Sleep, level of consciousness, movement, posture
Medulla	Breathing, heart rate

What are the causes of Vertebrobasilar Disease?

Atherosclerosis or "hardening of the arteries" is the primary cause of vertebrobasilar disease. The narrowing of the vertebral or basilar arteries caused by atherosclerosis creates vertebrobasilar insufficiency (VBI), or an insufficient delivery of blood flow to the posterior structures of the brain. This places the individual at increased risk for temporary ischemic attack (TIA) and stroke.

Risk factors for atherosclerosis include:

- Diabetes
- Hypertension
- Obesity
- High-cholesterol
- Smoking
- Advanced age
- Inactive lifestyle

What are some of the Symptoms of Vertebrobasilar Disease?

As a result of decreased blood flow, the symptoms of Vertebrobasilar Disease are varied and are often referred to as a whole as vertebrobasilar insufficiency (VBI) or vertebral basilar ischemia. The symptoms relate to the portion or

portions of the brain impacted by the obstruction of blood flow, so many separate structures of the brain can be involved. Common symptoms include:

- Vertigo (dizziness)
- Visual disturbances (blurring, graying, double vision)
- Drop attack (sudden falls)
- Numbness or tingling
- Slurred or lost speech
- Confusion
- Issues with swallowing

Since the portions of the brain most typically impacted are responsible for movement and balance, symptoms of VBI can often result in falls. More significantly, patients with vertebrobasilar disease are at increased risk for transient ischemic attack (TIA) and stroke. Transient ischemic attack or "mini strokes" create stroke-like symptoms that resolve themselves in less than 24 hours. Strokes, however, that occur in this portion of the brain are particularly devastating and often result in death.

Who is at risk of Vertebrobasilar Disease?

Vertebrobasilar disease is twice as common in men as women and typically occurs in the elderly, although patients with risk factors relating to atherosclerotic disease (diabetes, hypertension, obesity, high-cholesterol, smokers, etc.) are at increased risk for earlier onset.

Conditions	Treatments
Vertebrobasilar Disease (also known as: Vertebrobasilar Circulatory Disorder, Global Cerebral Ischemia, Vertebrobasilar Insufficiency, VBI, Vertebral Basilar Ischemia, vertebrobasilar atherothrombotic disease, VBATD, basilar artery occlusion)	<ul style="list-style-type: none">• Endarterectomy• Bypass grafting• Vertebral Artery Reconstruction• Angioplasty and stenting

How is Vertebrobasilar Disease Diagnosed?

It is important to discuss any symptoms that you are experiencing with your physician. This is necessary in helping to rule out other conditions that might create similar patterns of symptoms.

Diagnostic tests that your physician might use to confirm vertebrobasilar disease include magnetic resonance angiography or standard angiography. These tests use an injected dye to track the flow of blood and are useful in identifying areas of stenosis or narrowing within a blood vessel.

How is Vertebrobasilar Disease Treated?

Medical Management & Lifestyle Changes

The very first step in the treatment of vertebrobasilar disease is lifestyle modification. Patients should carefully follow their physician's instructions to:

- Stop smoking
- Exercise
- Eat a diet low in cholesterol
- Control their diabetes

Your physician may additionally prescribe medications to help control your cholesterol and platelet function. Common medications include:

- Hypercholesterolemia Medications (Lipitor™, Zocor™, etc.)
- Aspirin, Clopidogrel (Plavix™)

Surgical Options

- Endarterectomy
- Bypass grafting
- Vertebral artery reconstruction

Endovascular Options

- Angioplasty and Stenting

What can I do to prevent Vertebrobasilar Disease?

The most common cause of vertebrobasilar disease is atherosclerosis. You can help prevent atherosclerosis by following these guidelines:

- Don't smoke
- Eat foods low in fat and cholesterol
- Lose weight if you are overweight
- Exercise regularly according to your physician's recommendations
- Lower your blood pressure if it is high
- Lower your blood sugar if it is high
- If you have diabetes, see your health care provider regularly and follow all diet and medication instructions

Disclaimer: This document is for informational purposes only and is not intended to take the place of the care and attention of your personal physician or other professional medical services. Talk with your doctor if you have Questions about individual health concerns or specific treatment options.

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