

## A Heart Disease that can be a problem:

**Bicuspid Aortic Valve disease is a common but often undiagnosed heart disease that can cause major problems. What is it? What or who causes it? And how is it treated?**

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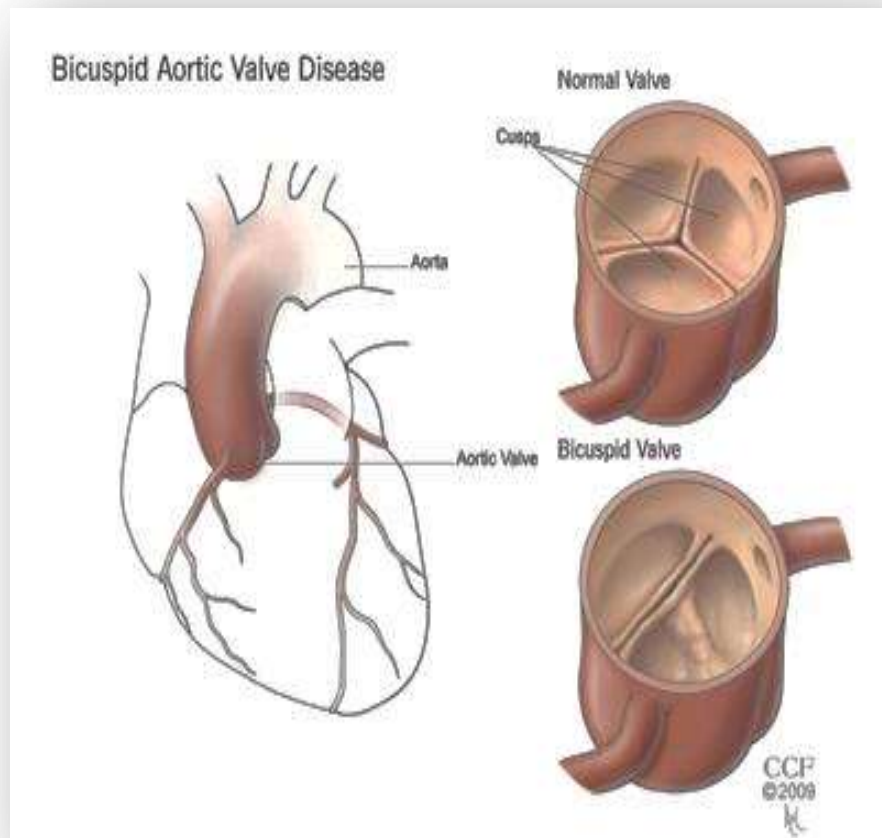
**What exactly is**

**Bicuspid Aortic**

**Valve Disease?**

The diagram to the right shows a picture of a normal Aortic Valve and what is known as a Bicuspid Valve.

There is a major difference between the two valves that allows blood to



[my.clevelandclinic.org/heart/disorders/bicuspid/aorticvalvedisease](http://my.clevelandclinic.org/heart/disorders/bicuspid/aorticvalvedisease)

flow to the heart. According to Lars Svensson, MD, PhD, in his article posted Cleveland Clinic website, he says “The aortic valve is a one-way valve between the heart and the aorta, the main artery from the heart that distributes oxygen-rich blood to the body (www.my.clevelandclinic.org).” Dr. Svensson would go on to explain that, normally, the aortic valve has three small flaps or leaflets that open very wide and close very secure to regulate the

blood flow, allowing the blood to flow from the heart to the aorta and preventing blood from flowing backwards into the heart.

In bicuspid aortic valve disease (BAVD), however, the valve has only two leaflets. With this deformity, the valve doesn't function perfectly, but it may function adequately for years without causing symptoms or obvious signs of a problem. The Northwestern Hospital tells us that the "Bicuspid aortic valve (BAV) affects approximately one to two percent of people. It is the most common congenital heart disorder, impacting both the aortic valve (which controls the flow of blood into the aorta) and the thoracic aorta (the major vessel that sends blood throughout the body). About nine percent of people with BAV have relatives with the disease, so family screening is important ([www.nmh.org](http://www.nmh.org))."

### **Cause and symptoms of Bicuspid Aortic Valve Disease.**

Bicuspid aortic valve is present at birth and is often found genetically through the mothers' side or fathers' side of the family. Cedars-Sinai tells us that BAVD runs in families, although it may skip generations. A lot of research is being conducted to discover any genetic aspects about this condition. Research has shown that families with this condition, some members may develop an aneurysm or enlargement of the valve, even when their aortic valve

#### **Bicuspid aortic disease refers to any combination of the following:**

- An aortic valve that has only two, instead of the normal three, flaps to open and shut the valve
- An aortic dilation, aneurysm or dissection (a tear in the wall of the aorta)
- Deterioration of the valve or the aorta
- Rapid changes in blood pressure with activity or stress (labile hypertension)
- Bicuspid aortic valve stenosis

*<http://www.cedars-sinai.edu/Patients/Health-Conditions/Bicuspid-Aortic-Disease.aspx>*

appears normal. Predicting who may or may not be affected is not possible, monitoring the family is important including internal family members such as; parents, children, brothers and sisters, and including extended family members.

The exact nature of the defect within the valve is different from one person to another. Often the condition is silent. In some cases it's possible to live a normal life span without the condition causing a problem. The disease is often not found or heard of by an individual until they reach adult age. It is often not found until a person reaches the age of adulthood because the bad valve can often function for many years without ever causing a problem. It is extremely rare that a child or baby at birth ever have complications of this disease or have congestive heart failure resulting in death. While doctors and researchers know much about the aortic valve itself, how it affects the overall health of the aorta and the heart is still being studied. The aorta becomes enlarged more often in persons with a bicuspid aortic valve than in those with normal aortic valves.

Often, the condition of the disease does not bring any harm upon a person and can go silent within the person's body. In some cases it is possible to live a normal life without the disease ever causing any problems. The defect or resulting complications are frequently found during a physical exam or tests to diagnose another condition.

### **Diagnosing BAVD**

Diagnosing this disease is not as simple as going to the doctor for a routine checkup. Instead it requires a lot of information based upon your medical history and your family's medical history. It also involves information related to your symptoms and several tests that could take more than one day to insure that a patient can receive the correct answer.

A defective aortic valve can lead to the possibility of a life-threatening condition, including the formation of bulging weak spots or tears in the wall of the aorta. Depending on how bad the defect is or how much damage has been done, blood flowing through the valve may make an abnormal sound, called a murmur, which can be heard through a stethoscope. While some bicuspid aortic valves are silent, a murmur may be the first sign of an abnormal aortic

**Test Required:**

- An echocardiogram
- A computed tomography scan
- A magnetic resonance imaging scan
- Nuclear medicine tests (e.g., adenosine and thallium) may be used to determine whether there is blockage of the coronary artery
- Ultrasound examination of the carotid arteries
- Chest X-rays

<http://www.cedars-sinai.edu/Patients/Health-Conditions/Bicuspid-Aortic-Disease.aspx>

valve. A person with bicuspid aortic disease may also experience major changes in his or her blood pressure during activity or stress. This change can happen very fast depending on how much activity or stress a person is under. Even if the valve does not bother you, it should be monitored. Dr. Svensson says “The actual cause of bicuspid aortic valve disease is not completely clear. We do know that the two-leaflet valve develops in the early stages of pregnancy, and the defect is present at birth. About 2% of the population has BAVD, and it is twice as common in males as in females ([www.myclevelandclinic.org](http://www.myclevelandclinic.org)).”

## **Treatment**

Treatments of BAVD vary from prescription drugs to surgery. Drugs are often used to control blood pressure. Choosing drugs to control blood pressure can control the enlargement, reduce tearing, and control the amount of blood flow back into the heart. Although a prescription for blood pressure medication can help it is not the idea treatment for those facing long term health problems due to this disease. This disease is not to be confused with someone having high

blood pressure. Although they may take the same medications the BAVD is being treated in a different way. Changing one's life style is another way to treat this disease. Changing your lifestyle through a healthy low fat diet that is high in protein and fiber is one of the better ways to treat this disease and keep you off blood pressure medication. A high protein diet is not to be confused with a traditional "southern" meal that includes fried meats and vegetables. Remember a change in one's diet adds emphasis to the low fat aspect and high protein to help burn more fat. Adding a regular exercise routine to stay at a healthy manageable weight along with not smoking and staying away from second hand smoke can continue your healthy change of life. The best treatment is surgery, although having surgery may not be idea it is the best treatment and prevention to BAVD. Having surgery will provide a more stable longer lasting solution to this disease. Within surgery they will replace the disease aorta and this is done to prevent ever lasting damage to the heart.

*Ryan Collier is a student at ETSU. He is majoring in English with an undecided minor. This paper was written for research due to a person being close to him passed away unknowingly from this disease. This is minor research and researchers are still continuing daily to find more answers related to the disease BAVD.*

## Works Cited

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