



## *X-Plain* *Abdominal Aortic Aneurysm* **Reference Summary**

### **Introduction**

Ballooning of the aorta, also known as an "abdominal aortic aneurysm," can lead to life threatening bleeding. Doctors may recommend surgery for people suffering from an abdominal aortic aneurysm.

If your doctor recommends surgery for you, the decision whether or not to have surgery is also yours. This reference summary will help you understand better the benefits and risks of this surgery.

### **Anatomy**

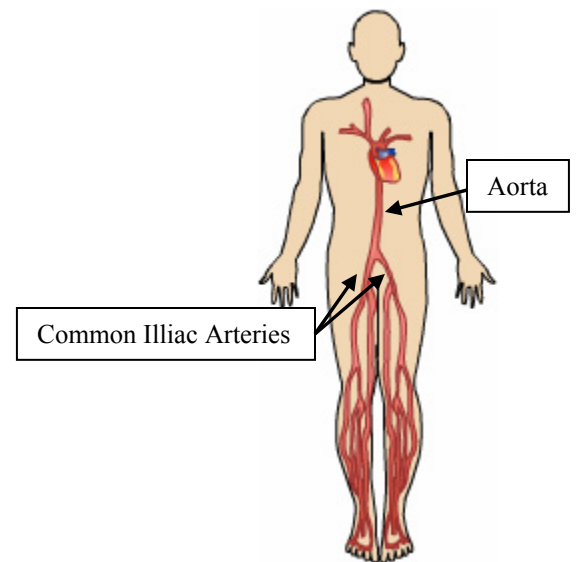
The heart pumps blood into a large artery known as the aorta. The aorta branches into 2 main arteries called common iliac arteries in the abdomen. Each common iliac artery then divides into a branch that goes into the pelvis and a branch that goes to the leg.

In the abdomen, the aorta branches out into important arteries that supply blood to the liver, the spleen, the stomach, the intestines, the kidneys, and the spinal cord.

### **Symptoms And Their Causes**

If the wall of an artery becomes weak, it can stretch and balloon out. This dangerous condition is known as an aneurysm. Since the aorta is an artery, if its walls become weak, the aorta dilates and an aneurysm begins to develop.

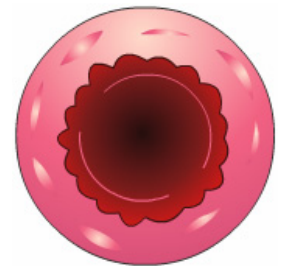
Cholesterol deposits in the wall of the aorta are one of the main reasons the wall may become weak.



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This is how a normal aorta looks if you look at a cross section view. Notice the smooth walls of the artery. Such arteries are common in children and young adults.



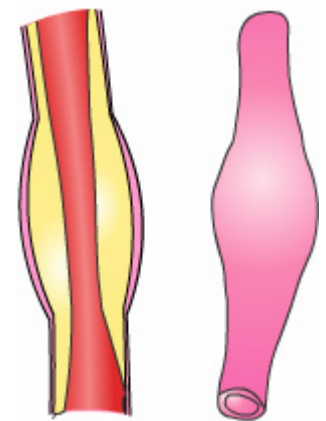
Normal Aorta

However, in this diagram you can see the ballooning of the aorta and the aneurysm formation.

When the aneurysm involves the part of the aorta that extends into the abdomen, it is called an abdominal aortic aneurysm.

Some people are more likely to develop aneurysms because of their genes. However, the exact cause of an abdominal aortic aneurysm is not known.

An abdominal aortic aneurysm may only involve the aorta and no other branches. It may also involve the arteries that branch off and go to the kidneys, or the iliac arteries that go to the legs. Most abdominal aortic aneurysms start below the level of the kidneys.



Ballooning of the aorta

Some aneurysms may start above the kidneys and may extend into and beyond the iliac arteries.

Most abdominal aortic aneurysms do not cause any symptoms. However, in some patients, small pieces of cholesterol debris from the inside of the aneurysm may break loose and cause a blockage in the blood supply to the legs. This can cause gangrene of the legs.

With time, an aneurysm may grow and could rupture, leading to serious bleeding. If left untreated, a ruptured aneurysm could be fatal. The success of patients treated before a rupture is much higher than from emergency treatment after a rupture. The larger the aneurysm the higher the risk that it will rupture.

Patients with lung disease, hypertension, and large aneurysms are also at a higher risk of rupture. If the aneurysm is small, surgical treatment may not be recommended. A follow-up exam in 6 to 12 months is necessary to see if the aneurysm is growing.

When the risk of rupture exceeds the risk of surgical treatment, surgery may be recommended.

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## **Alternative Treatment**

Doctors can now place a graft inside the aneurysm without a big operation.

The graft is made of a special synthetic material. It is placed through one of the arteries in the leg. After it is positioned in the abdominal aorta, the patient's blood flows through the stent-graft. The chance that the aneurysm will rupture is eliminated after this procedure.

Recent studies showed the stent-graft procedure to be safe for some patients. Other patients, however, still need the surgery, especially if the aneurysm has bled.

## **Preventive Measures**

A healthy, low fat diet may reduce plaque buildup and possibly slow the aneurysm growth. Refraining from smoking is essential.

## **Surgical Treatment**

This surgery includes grafting, or stitching, a synthetic tube into the aorta to replace and strengthen the section of the artery that has been weakened by the aneurysm.

First, an incision is made in the midline of the abdomen. The aorta is clamped above and below the aneurysm to keep it from bleeding. The aneurysm is opened and its contents removed.

A graft is sutured to the aorta above and below the aneurysm. If the aneurysm is restricted to the aorta, a tube graft will be used. If the aneurysm extends into the iliac arteries, a Y graft will be used.

The aneurysm wall is then sutured, covering the graft. The graft is made of synthetic material that has been shown to be very safe.

Your doctor will tell you how long you are likely to stay in the hospital. This depends on several factors, such as your age, medical condition, and whether the aneurysm has ruptured. Depending on how quickly you recover, you may go home within a week or so.

## **Risks And Complications**

This operation is safe. There are, however, several possible risks and complications, which are unlikely, but possible. You need to know about them just in case they happen.

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By being informed you may be able to help your doctor detect complications early. The risks and complications include those related to anesthesia and any type of surgery and those related to aneurysm surgery.

Risks of general anesthesia include nausea, vomiting, urinary retention, cut lips, chipped teeth, sore throat, and headache. More serious risks of general anesthesia include heart attacks, strokes, and pneumonia.

Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications.

Blood clots in the legs can occur due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt.



Blood clots can become dislodged from the leg and go to the lungs where they will cause shortness of breath, chest pain and possibly death. It is extremely important to let your doctors know if any of these symptoms occur.

Sometimes the shortness of breath can happen without warning. Getting out of bed shortly after surgery may help decrease the risks of blood clots in the legs.

Some of the risks are seen in any type of surgery. These include:

1. Infection, deep or at the skin level. If a deep infection occurs, the graft may need to be taken out and replaced.
2. Bleeding, either during or after the operation, which may require blood transfusions or another operation.
3. A skin scar that may be painful or ugly.

Other risks and complications are related specifically to this surgery. These again are very rare. However, it is important to know about them.

Complications include sexual dysfunction, kidney failure, death of the bowels (also known as gangrene), gangrene of the legs, and spinal cord stroke.

The nerves that control erection and ejaculation may be closely attached to the aneurysm and may be divided during the operation. This could result in problems with ejaculation and erection.

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The following organs in the abdomen and legs are close to the surgical area. They may be damaged directly or their blood supply could be affected.

- The abdominal organs such as the liver, stomach, and intestines (including the small intestine and colon) could be damaged.
- The kidneys, the bladder, and the tubes that connect them could be injured.
- The internal female organs such as uterus and ovaries could also be damaged.
- There is a rare chance of spinal cord stroke, resulting in paralysis of the legs.
- Nerves going to the legs could also be affected leading to paralysis and decreased sensation.

All of these complications are extremely rare. Treating these rare complications may necessitate other operations. However, the damage could be irreversible and death may result.

There is also the possibility of the graft clogging again in the future.

Hernias through the incision or incisions are possible. This happens when the internal wall of the abdomen is weak, and intestines push under the skin. This may require another operation.



Rarely, some plaque or debris from the aneurysms can go to the arteries in the legs and block them. If this happens, it may require additional surgery to reopen these arteries.

### **After The Surgery**

Your doctor may recommend a healthy, low fat, low salt diet. Exercising moderately and avoiding smoking are also helpful.

Your doctor will tell you how long it will take before your incision is completely healed and when you can go back to work. This depends on your age, type of work, and medical condition as well as other factors.

### **Summary**

Aneurysms are weak areas in the walls of the arteries. An aneurysm that ruptures and bleeds is serious and life threatening.

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An abdominal aortic aneurysm can occur in the aorta and continue to the iliac arteries or the arteries that go to the kidneys.

Taking the aneurysm out surgically and replacing it with a graft may be life saving.

This operation is relatively safe with good results, if done before the aneurysm bleeds. However, as you have learned, complications may happen. Knowing about them will help you detect them early if they happen.



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