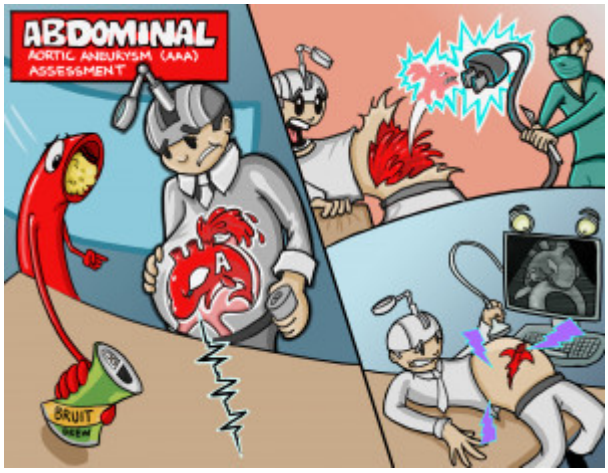
# Abdominal Aortic Aneurysm (AAA) Assessment

An abdominal aortic aneurysm (AAA) is a permanent outpouching of an artery's wall. Often asymptomatic, AAAs are usually found during routine physical exams or accidentally while evaluating other health concerns. Assessment of an AAA includes bruits, abdominal or lower back pain, and a pulsating sensation in the abdomen. An ultrasound is required for diagnosis and surgery is necessary to prevent rupture resulting in shock. Early detection and intervention are critical for preventing aneurysm rupture leading to death.

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## Mechanism

### Atherosclerosis

Clogged Artery-guy

Atherosclerosis is characterized by the hardening of arteries caused by fat build up along the blood vessel walls. The build-up of fat compromises integrity of the vessel walls and increases the risk of developing an aneurysm. The inflammatory process of tertiary syphilis may affect the heart's elastic support and develop into aortic aneurysms.

## Assessment

### Bruit

Bruit-Brew

Since an abdominal aortic aneurysm partially obstructs the blood vessel wall, a bruit may be auscultated when placing a stethoscope on the middle of the abdomen. The whooshing sound is caused by turbulence as blood flows past the aneurysm.

### Pulsation in Abdomen

Pulsating Abdomen

The patient with an abdominal aortic aneurysm may feel a pulsating sensation in abdomen. The pulsating mass can be felt slightly left to the midline of the abdomen.

### Abdominal or Lower Back Pain

Abdominal and Lower Back Pain-bolts

Abdominal aortic aneurysms may compress nearby nerves and cause abdominal or lower back pain. The patient may feel epigastric discomfort or have alterations in bowel movements. Rupture of AAA will also cause pain in the abdomen or back.

### Tearing Pain

Tearing Pain-bolt

During an AAA rupture, tearing pain is felt in the lower abdomen and back. If the AAA is leaking, the patient will feel a severe and unrelenting pain felt mainly in the lower back.

## Diagnosis

### Ultrasound

Ultrasound-machine

Ultrasound is used for screening and diagnosis of AAA. Male patients who have ever smoked should undergo a one time screening ultrasound after age 65 until 75. If a more sensitive test is needed a CT scan or MRI should be used. Rarely, large aneurysms may be identified on X-rays, but this is not common.

## Considerations

**Rupture**

Rupture

Small aneurysms measuring less than 5 cm in diameter rarely rupture. However, abdominal aortic aneurysms that do rupture cause hypovolemic shock. During ruptures in the retroperitoneal space, surrounding organs help compress the aneurysms and control the level of bleeding to prevent death. However, the majority of AAA ruptures in the thoracic cavity will experience massive hemorrhage leading to death.

**Shock**

Shock

Ruptures in the thoracic cavity lead to hypovolemic shock characterized by tachycardia, hypotension, decreased level of consciousness, and abdominal tenderness. Immediate surgical repair is critical to prevent hemorrhagic death.

**Surgical Repair**

Surgeon

Surgical repair is performed in patients with aneurysms greater than 5.5 cm. Other surgical indications include rapid aneurysm expansion or a high risk of rupture. During open aneurysm repair (OAR), the surgeon cuts into the aortic segment to remove thrombus or plaque followed by suturing the aortic wall over a synthetic graft. Since patients with OAR of AAAs above the renal arteries have increased risk of acute kidney injury, monitoring BUN and creatinine levels after surgery is critical to determine renal function. During an endovascular graft procedure (EVAR), a sutureless aortic graft is inserted inside the aneurysm through the femoral artery. After inserting a second graft into the opposite femoral artery, a balloon is inflated to shift the flow of blood into the graft instead of the artery. This prevents further expansion of the aneurysm as the wall shrinks over time. After surgery, circulation is assessed by checking all peripheral pulses.