

DISEASES OF THE AORTA: ANEURYSMS

Abdominal Aortic Aneurysms

An abdominal aortic aneurysm (AAA) (Figure 13.6) is considered present when the anteroposterior diameter of the aorta reaches 3 cm. Gender is taken into account because women have slightly smaller normal aortic diameters. The most common abdominal aortic aneurysms extend below the renal arteries and involve the entire infrarenal aorta; they often extend to involve the common iliac arteries.

Risk Factors for AAA

- ◆ Male Gender
- ◆ Family History
 - ❖ Familial aneurysms may develop at an earlier age.
- ◆ Advanced Age
 - ❖ Degenerative changes occur in the aorta as part of the normal aging process.
 - ❖ Can accelerate in patients with bicuspid aortic valves and during pregnancy.
- ◆ Cigarette Smoking
 - ❖ Tobacco smoke causes degradation of elastin.
 - ❖ Medication use (inhalers and steroids) used to treat COPD may also influence the development and expansion of AAAs.
- ◆ Polycystic kidney disease and other renal disease
- ◆ Cardiovascular, cerebral vascular or lower extremity peripheral arterial disease
- ◆ Known popliteal aneurysms
- ◆ Marfan Syndrome
 - ❖ Frequently associated with cystic medial necrosis of the aorta.
 - ❖ 11% of patients with Marfan's syndrome will have an aortic dissection (Hirsch et al., 2005).

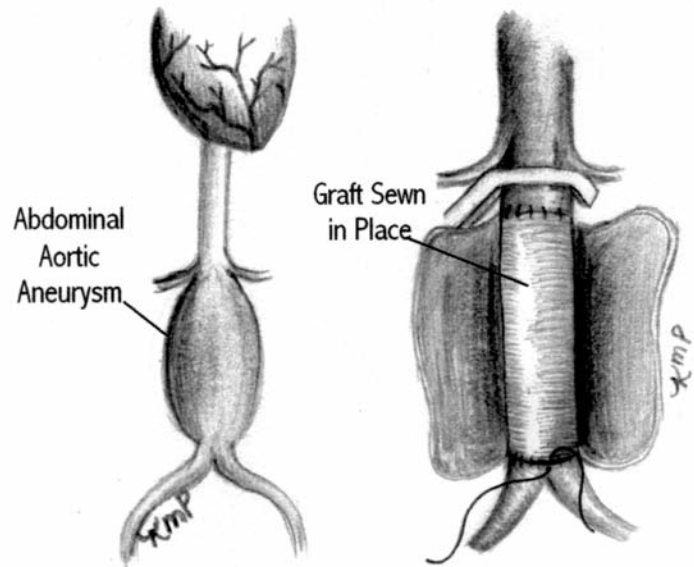


Figure 13.6: Abdominal aortic aneurysm and graft repair.

Screening (physical exam and ultrasound screening) for AAA

- ◆ Men ≥ 60 years of age with family history (sibling/parent).
- ◆ Men 65 to 75 years of age who have smoked.

Pathophysiology

Most aortic and peripheral aneurysms represent degeneration of the medial layer of the aorta. There is also a destruction of the structural matrix proteins, such as elastin and collagen. The inflammatory process may also contribute to the pathophysiology of AAAs. Localized aneurysms differ from systemic arteriomegaly in which there is a generalized dilatation and elongation of arteries.

Inflammatory aneurysms, a special subset of aneurysms, are seen most commonly in smokers. These aneurysms have a distinct appearance of a very thickened aneurysmal wall, with white shiny fibrotic material around the aneurysm. The aneurysm adheres to adjacent abdominal structures. Patients with inflammatory aneurysms are more likely to have symptoms and a higher operative mortality (Hirsch et al., 2005).