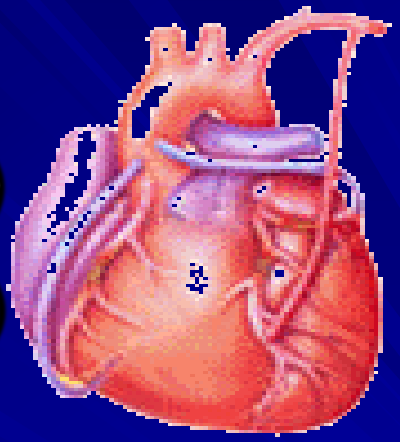

In the name of GOD

Treatment of End Stage Heart Failure

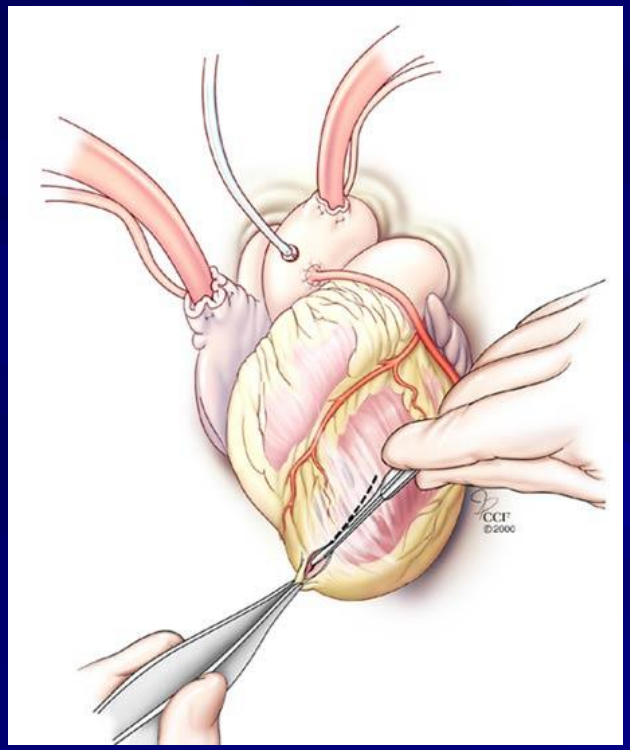
- Surgical Treatments
- Intra Aortic Balloon Pump(IABP)
- Ventricular Assisst Device(VAD)
- Cardiac Resynchronization Treatment(CRT) & ICD

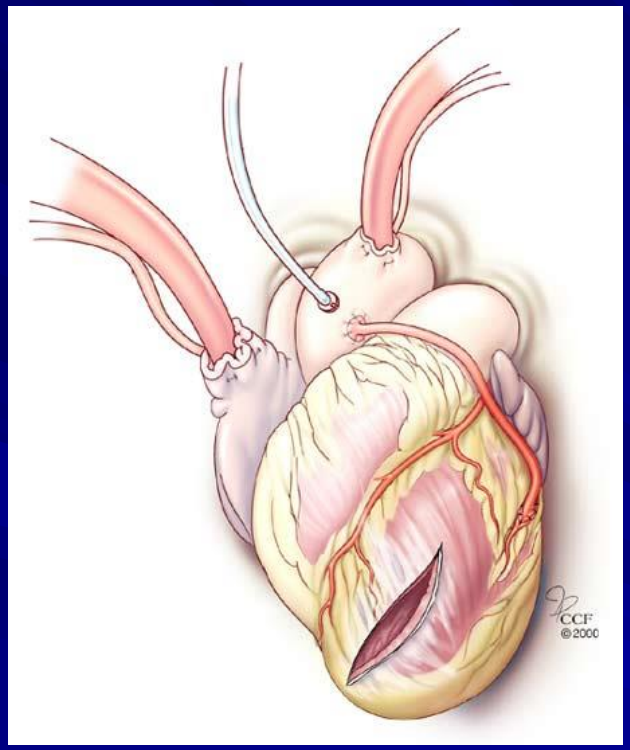


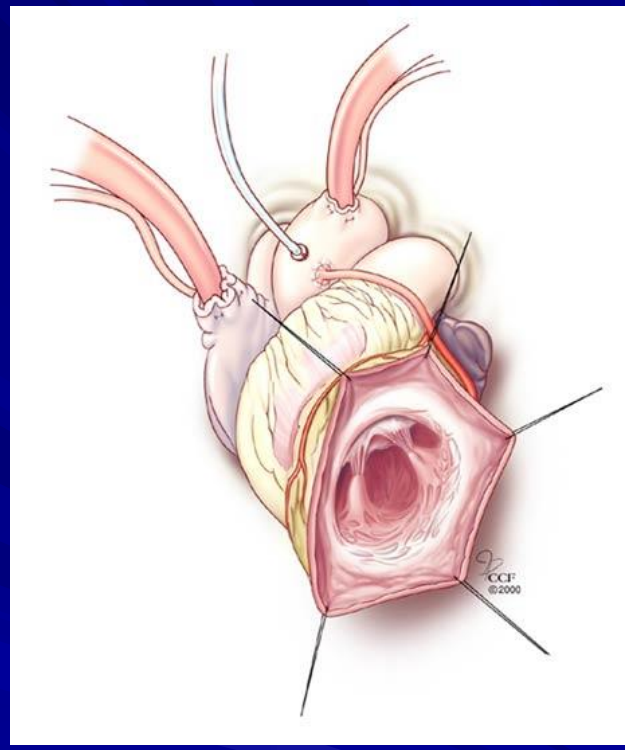
Surgical Treatment of Heart Failure

- CABGs in ischemic cardiomyopathy
- Mitral valve repair in patients with dilated cardiomyopathy
- Surgical Ventricular reconstruction(Dor procedure)
- Heart Transplantation

Dor procedure for Ischemic Cardiomyopathy







Purse string stitch around a nonviable scarred aneurysm to minimize the excluded area. The residual defect is sometimes covered by a patch made from Dacron, pericardium, or an autologous tissue flap

Considered Criteria for Surgical Repair

- Anteroseptal MI, with dilated left ventricle (end-diastolic volume index >100 mL/m2)
- Depressed LVEF
- Left ventricular regional dyskinesis or akinesis >30 percent of the ventricular perimeter, and
- Recurrent symptoms of angina, heart failure, or arrhythmias

The following are considered to be relative contraindications

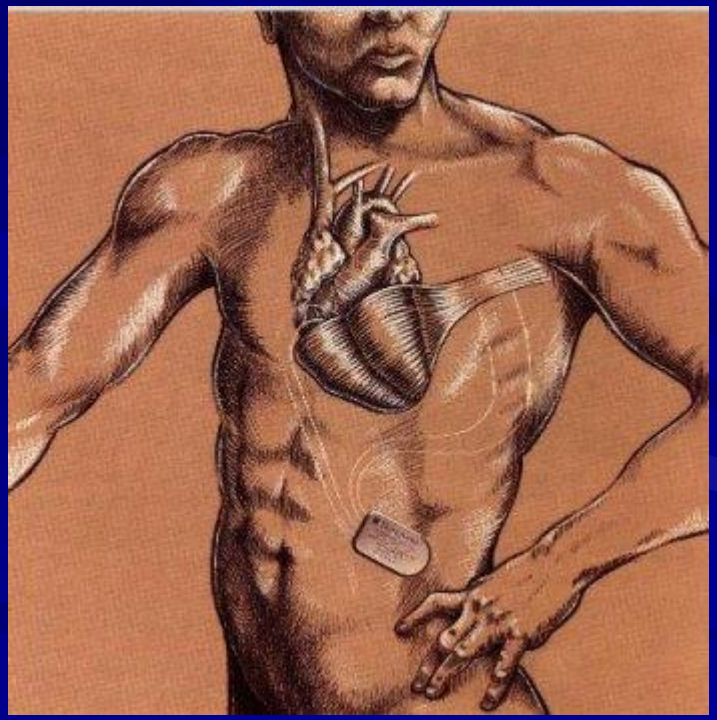
- Systolic pulmonary artery pressure >60 mmHg
- Severe right ventricular dysfunction
- Regional dyskinesis or akinesis without dilation of the ventricle

LV Reconstruction for Non-ischemic Cardiomyopathy

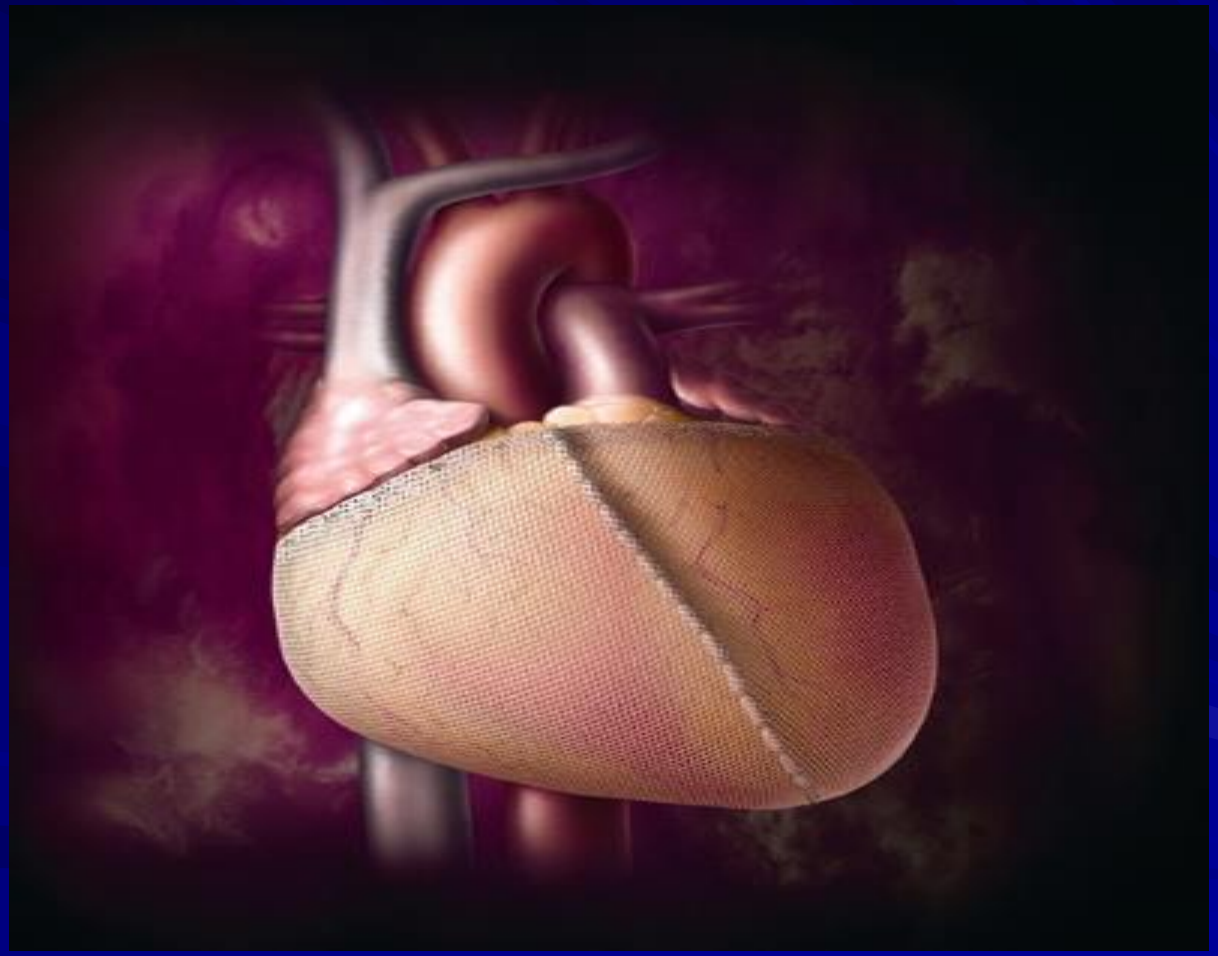
- Cardiomyoplasty experience has led to other novel approaches to heart failure.
- Observations suggested that some patients benefited from the diastolic "girdling" effect of the muscle wrap
- This observation led to the development of the Acorn device and Myosplint

Cardiomyoplasty

- Carpentier peformed the first successful surgery on a humen in 1985



LV Reconstruction for Non-ischemic Cardiomyopathy



Indication of Heart Transplantation

- Resistance Cardiogenic Shock
- Stage D Heart Failure
- Recurrent Resistance Ventricular Arrhythmia
- Resistance Angina

Who Should Not Be Offered a Heart Transplant?

- Irreversible PHTN or severe pulmonary parenchymal disease
- Irreversible renal or hepatic dysfunction
- Severe peripheral or cerebrovascular disease
- IDDM with end-organ damage
- Cancer
- Non-compliance, addiction,HCV,HIV
- Elderly patients (aprox > 70y)

Heart Transplantation

- Heart transplantation remains the ultimate treatment for heart failure

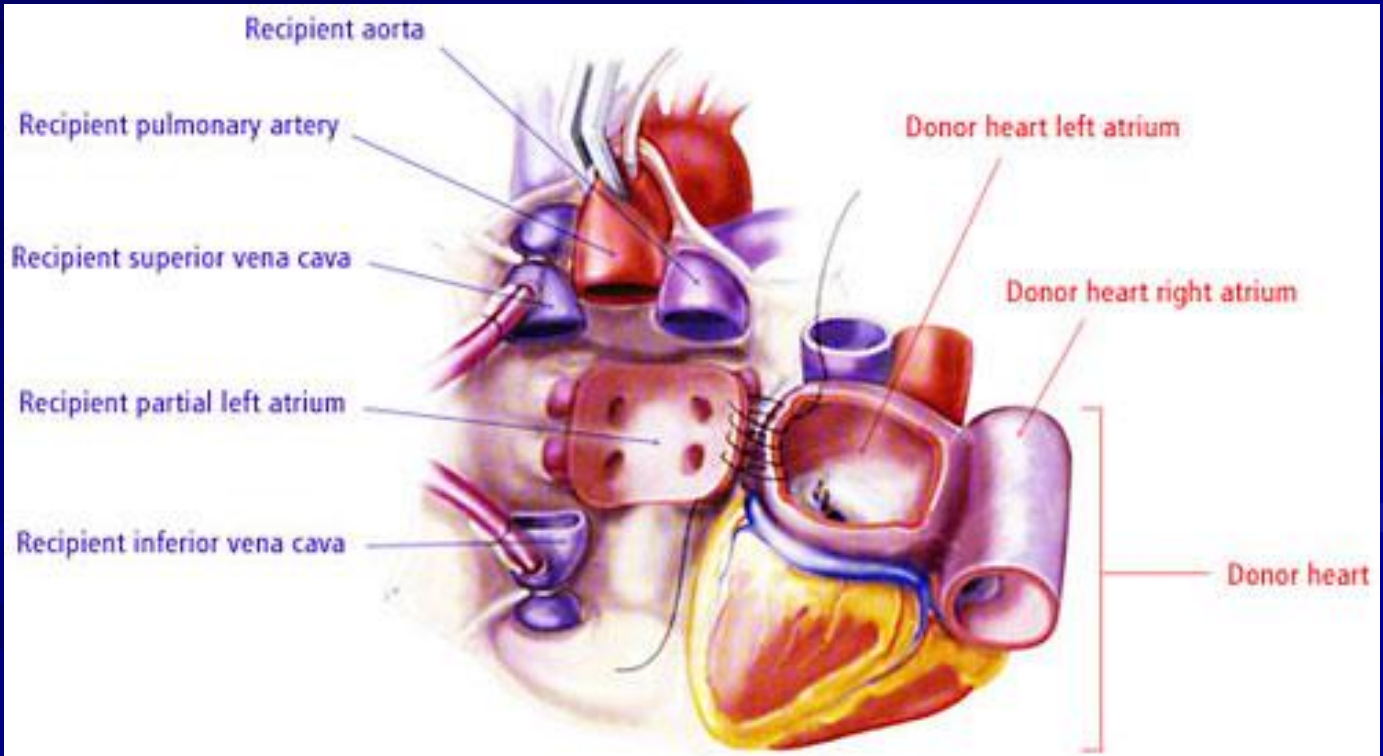
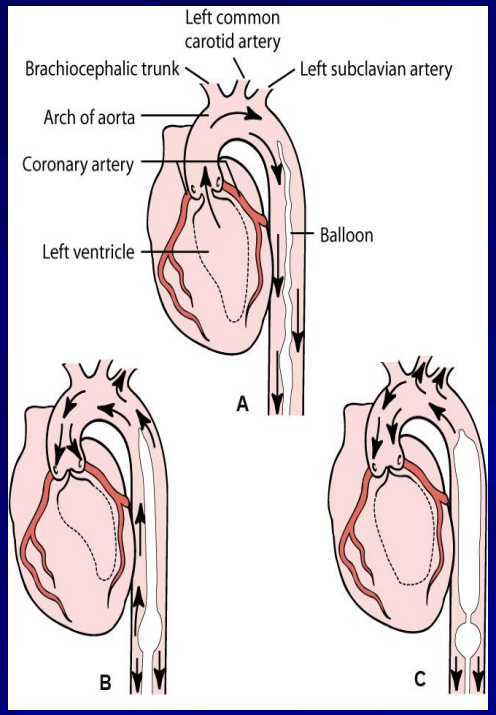
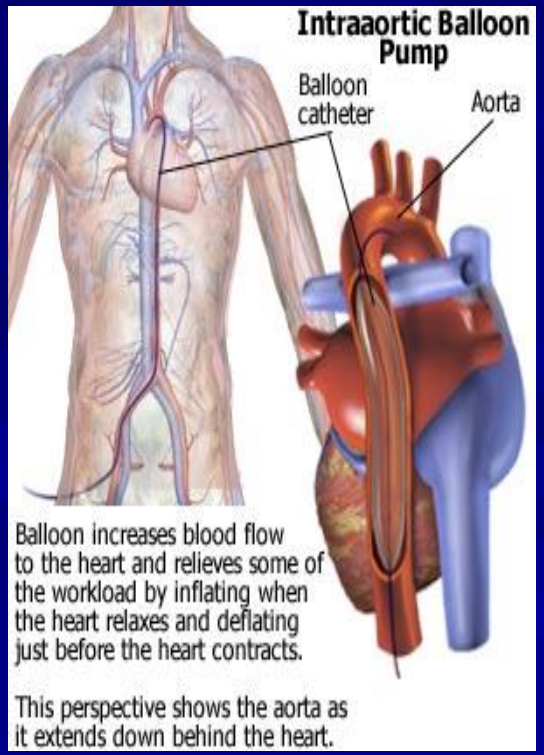


Figure 1: The donor heart's left atrium is sewn onto the recipient's left atrium.

Intra Aortic Balloon Pump (IABP)



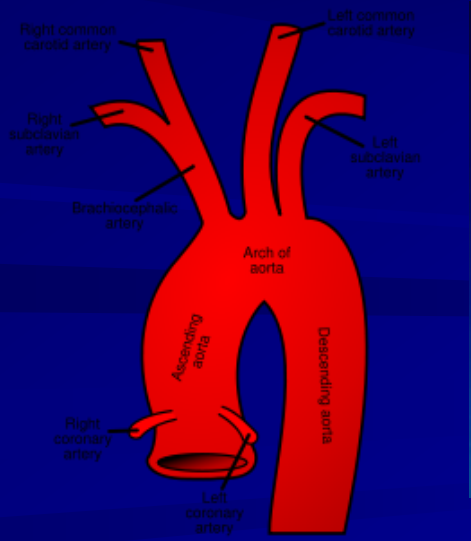


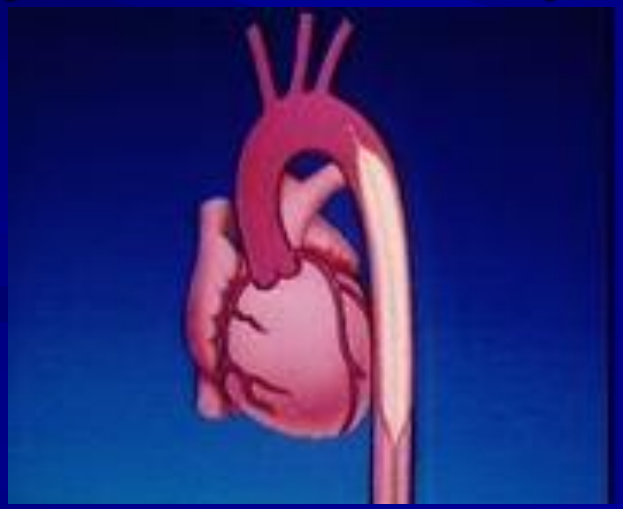
What is an IABP?

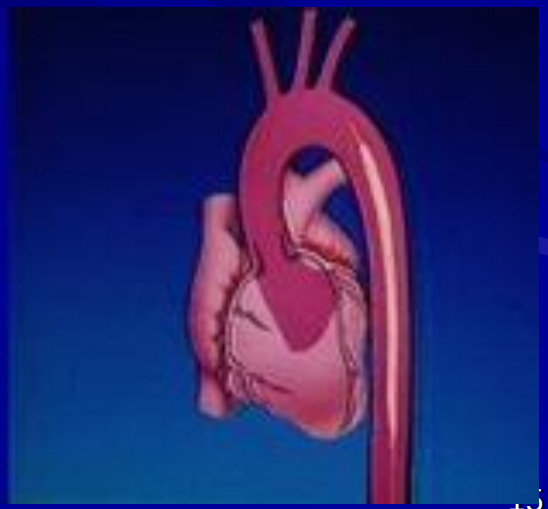
- The Intra-Aortic Balloon Counterpulsation system is a volume displacement device.
- It should be positioned so that the tip is approximately 1 to 2 cm below the origin of the left subclavian artery and above the renal arteries.
- On chest x-ray the tip should be visible in the 2nd or 3rd intercostal space.

Positioning

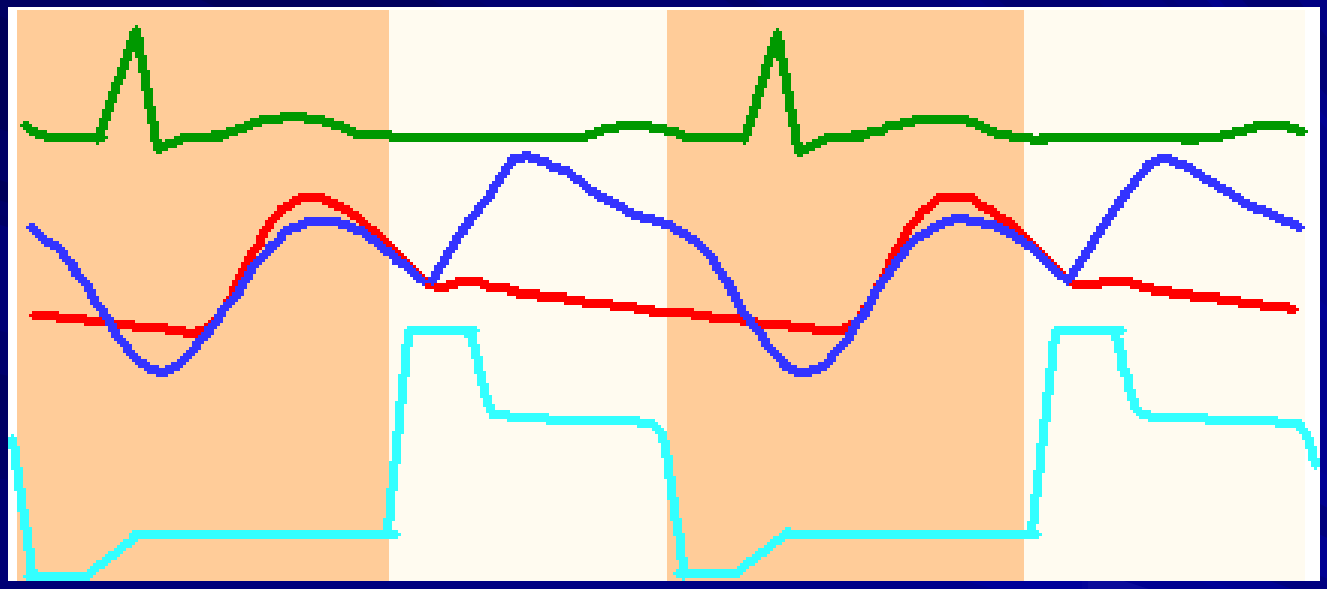
- The end of the balloon should be just distal to the takeoff of the left subclavian artery
- Position should be confirmed by fluoroscopy or chest x-ray







Pressure Waveforms



Red wave = normal arterial pressure trace

Blue wave = arterial pressure trace on IABP

IAB INFLATION - DIASTOLE

- Augmentation of diastolic pressure
- Increase coronary perfusion
- Increase Myocardial Oxygen Supply

IAB DEFLATION - SYSTOLE

- Decrease afterload
- Decrease cardiac work
- Decrease myocardial oxygen consumption
- Increase cardiac output

IABP Indications

- Cardiogenic Shock
- Refractory Ventricular Arrhythmia
- Refractory Angina
- Bridge to Heart Transplantation
- Perioperative Treatment of Complications due to Myocardial Infarction

CONTRAINDICATIONS

Absolute-

- Significant aortic regurgitation
- Aortic dissection
- Aortic stents
- Bilateral femoral popliteal bypass grafts for severe PVD

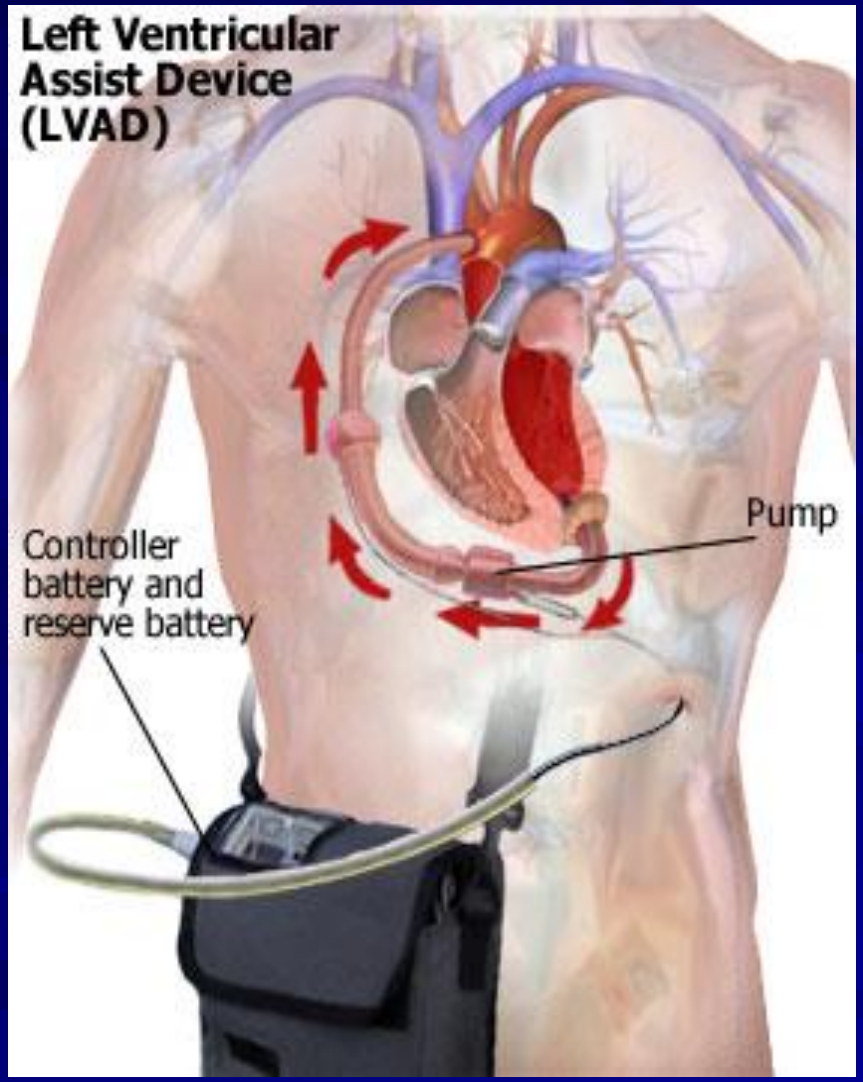
Relative -

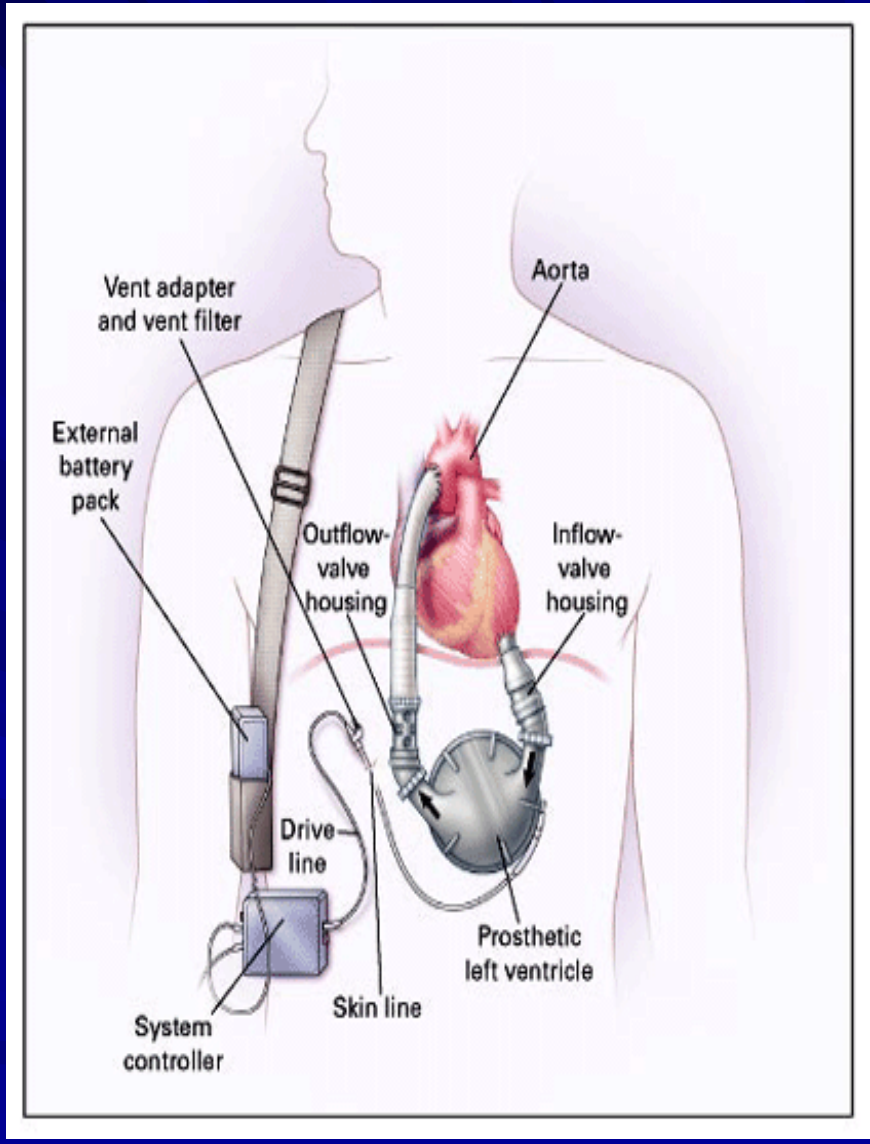
- Abdominal aortic aneurysm
- Uncontrolled septicemia
- Uncontrolled bleeding diathesis
- Severe bilateral peripheral vascular disease

Ventricular Assist Devices (VADs)

- Indications for VAD therapy
- Postcardiotomy cardiogenic shock
- Bridge to recovery or cardiac transplantation

Left ventricular assist device






THANKS FOR YOUR ATTENTION