

**Lecture# 15**  
**semester# 2**

**Coronary artery bypass graft**  
**CABG**

**:by**

**Assistant lecturers**

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**2<sup>nd</sup> Class**

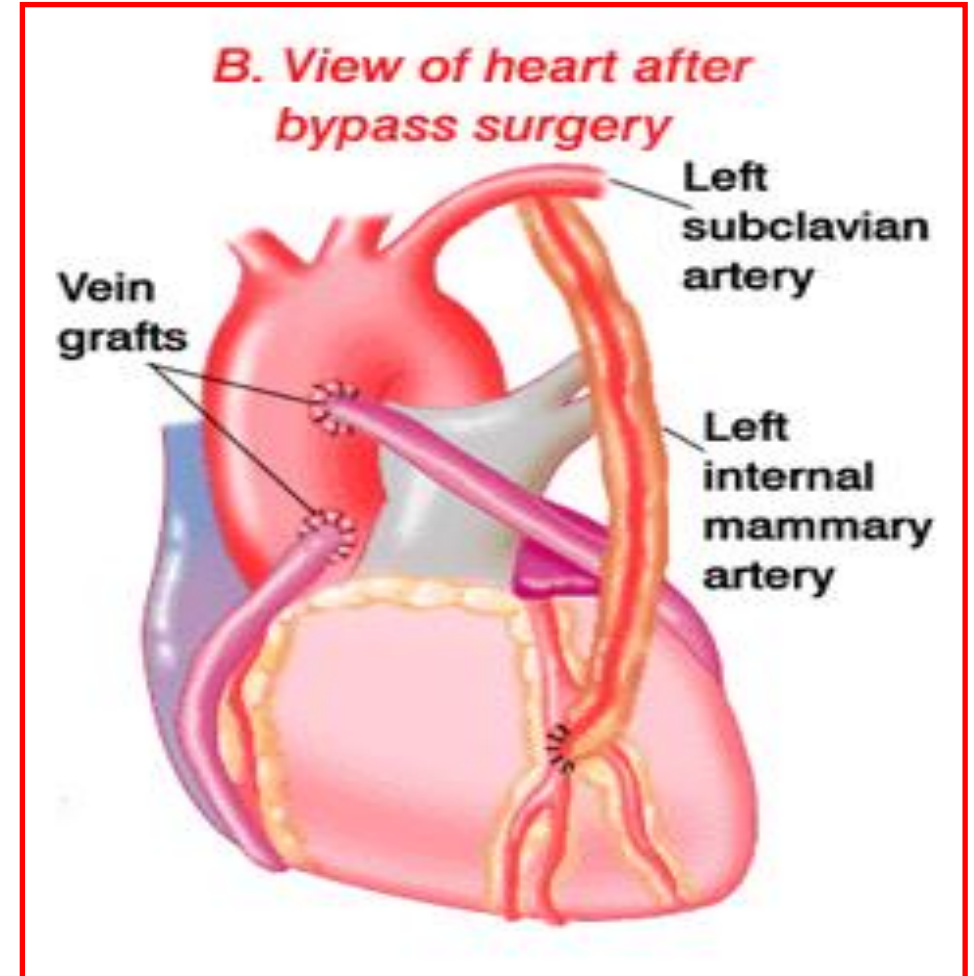
**Adult Nursing**

# Cardiac surgery

is surgery on the heart or great vessels performed by cardiac surgeons. Frequently, it is done to treat complications of ischemic heart disease (for example, coronary artery bypass grafting), correct congenital heart disease, or treat valvular heart disease

# What is CABG

**Coronary artery bypass graft is the surgical technique which uses saphenous leg veins as grafts (SVG) or the internal mammary (LIMA or RIMA) /radial arteries as grafts to bypass obstructed portions of a coronary artery**



# Causes of CABG

**Stable angina but meds not controlling pain, pt has ↓function**

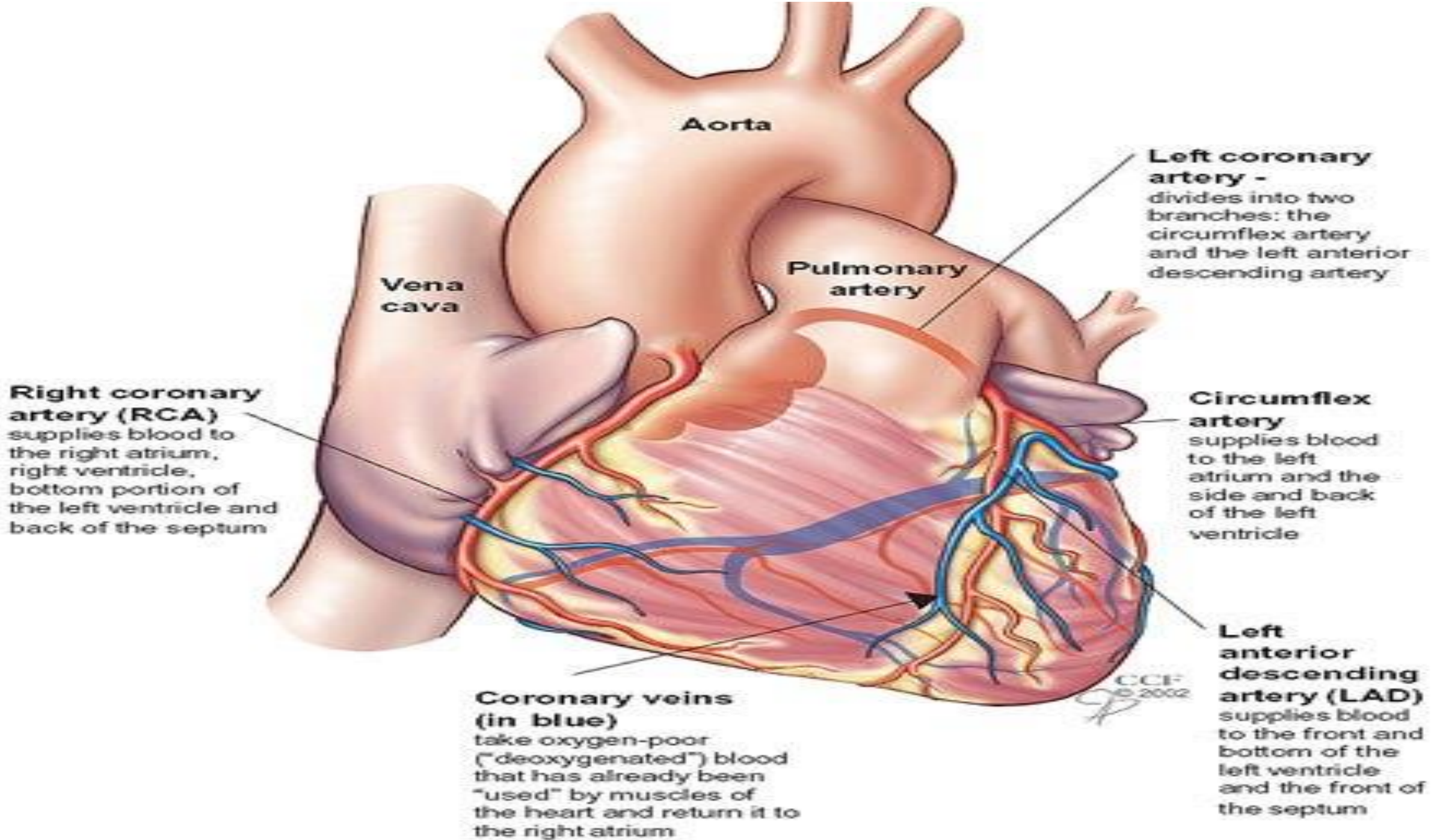
**Non-successful PTCA with evolving MI**

**Unstable angina**

**A positive exercise tolerance test [treadmill], & lesions or blockage that cannot be treated by PTCA**

**A Left Main Coronary lesion or blockage of more than 60% (50%)**

**Single or double vessel disease with type B or C lesions**



**Aorta**

**Vena cava**

**Pulmonary artery**

**Left coronary artery** - divides into two branches: the circumflex artery and the left anterior descending artery

**Right coronary artery (RCA)** supplies blood to the right atrium, right ventricle, bottom portion of the left ventricle and back of the septum

**Circumflex artery** supplies blood to the left atrium and the side and back of the left ventricle

**Left anterior descending artery (LAD)** supplies blood to the front and bottom of the left ventricle and the front of the septum

**Coronary veins (in blue)** take oxygen-poor ("deoxygenated") blood that has already been "used" by muscles of the heart and return it to the right atrium

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# PREOPERATIVE DIAGONSTIC TEST

ECG

Laboratory (CBC, BUN, ABGs, PT, PTT)

Chest x ray

Echocardiogram

Cardiac enzyme test (troponin )

TMT

# Standard Cardiac surgery :Requires

CPB(Cardiopulmonary bypass)

Aortic cross clamping

cardioplegia arrest

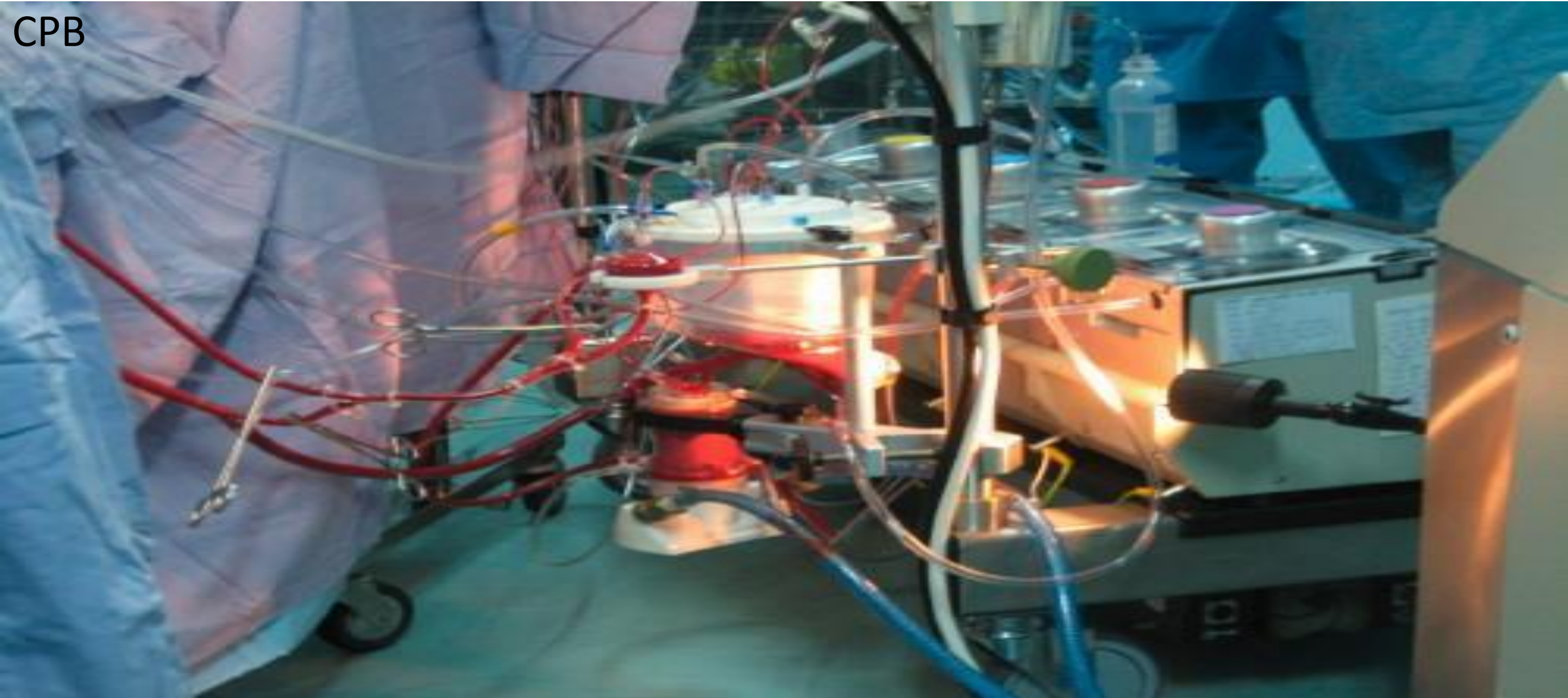
## **Cardiopulmonary Bypass**

Moves oxygenated blood around the body during open heart surgery

Core body temp is lowered to 28° C to 32°

# CPB

CPB

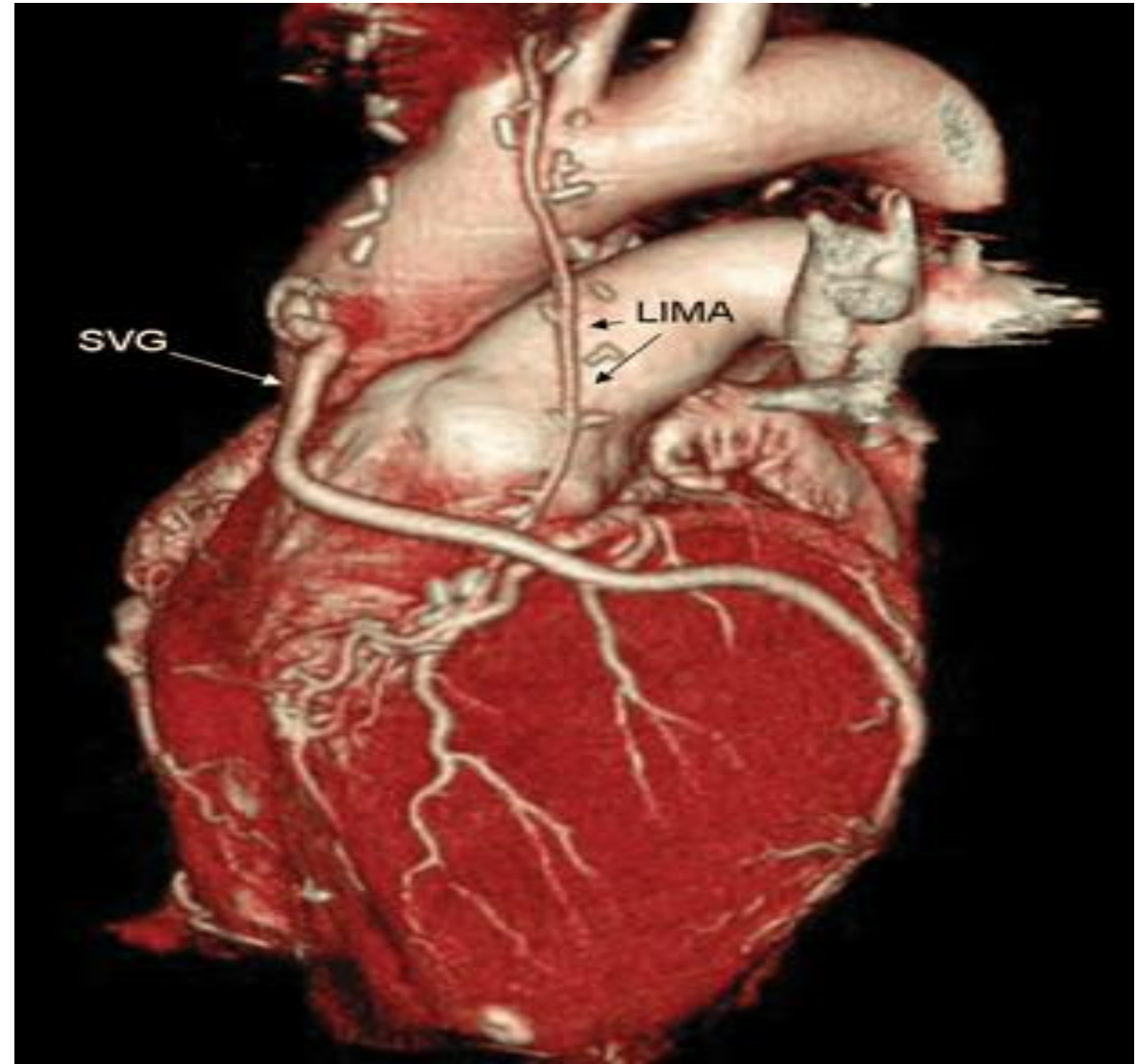




# Vessel Patency

internal mammary artery graft 90%  
patency at 10 years

. saphenous vein graft 50% patency at  
10 years



# Complications of CABG

## Early

### Bleeding

**blood loss not to exceed 300cc/hr (200) in first several hours. After several hours should slow to 150-200 cc/hr. The average total loss is 1 liter**

### Possible bleed sites

**leg & chest wounds**

**cardiac tamponade- heart is compressed by blood in the mediastinal.  
The heart is unable to fill adequately causing low CO and Hypotension**

# Late Postoperative Period

Wound Infection

Hepatitis

Pancreatitis [early or late]

Systemic arterial emboli

endocarditis

Dysrhythmias and MI

Occlusion of graft

# NURSING MANAGEMENT

Preoperative Nursing Management.

Intraoperative Nursing Management.

Postoperative Nursing Management.

# **PREOPERATIVE ASSESSMENT**

**History**

**Physical examination**

**Radiographic examination**

**Electrocardiogram**

# PHYSICAL EXAMINATION

General appearance and behavior

Vital signs

Nutritional and fluid status, weight and Height

Inspection and palpation of heart

Auscultation of heart

Peripheral pulses.

Peripheral edema

# NURSING DIAGNOSIS

Knowledge deficit regarding the surgical procedure and the postoperative course.

Fear related to surgical procedure, its uncertain outcome, and the threat of well-being.

# INTERVENTIONS

Patient and family teaching about

Hospitalization

Surgery

Length of surgery

Expected pain and discomfort

Critical care phase

Recovery phase



# INTERVENTIONS

Physical preparation before surgery

Medications before surgery

Information regarding equipments, tubes that will be present postoperatively

Teaching the postoperative exercises.

# INTRAOPERATIVE NURSING MANAGEMENT

Assisting in surgical procedure

Continuous monitoring

Monitoring for complications: dysrhythmias, hemorrhage, MI, embolization etc.

# POST OPERATIVE NURSING MANAGEMENT

## ASSESSMENT:

Neurological status

Cardiac status

Respiratory status

Peripheral vascular status

Renal function

Fluid & electrolyte status

# POST OPERATIVE ASSESSMENT

Pain

Assessment of equipments and tubings

Psychological and emotional status as patient regains consciousness

Assessing for complications.

# NURSING DIAGNOSIS

Decreased cardiac output related to blood loss and compromised myocardial function

Risk for impaired gas exchange related to trauma of extensive chest surgery

# INTERVENTIONS

Monitor cardiovascular status

Assess arterial pressure every 15 min. until stable

Auscultate for heart sounds and rhythms

Assess all peripheral pulses

Hemodynamic monitoring

ECG monitoring

Assess cardiac enzymes

Monitor urinary output

Observe for persistent bleeding

Observe for cardiac tamponade

**Observe for signs of cardiac failure Prepare to administer diuretics,  
digoxin**

Observe for myocardial infarction.

# INTERVENTIONS

Maintain proper ventilation

Monitor arterial blood gases, tidal volumes, peak inspiratory  
Auscultate chest for breath sounds

Provide chest physiotherapy as prescribed

Promote deep breathing coughing and turning, use of incentive  
spirometer.

Teach incisional splinting with a cough pillow to decrease  
discomfort during deep breathing and coughing

Suction tracheobronchial secretions as needed, using aseptic  
technique

**THANK YOU**