RAMA UNIVERSITY

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FACULTY OF NURSING SCIENCES

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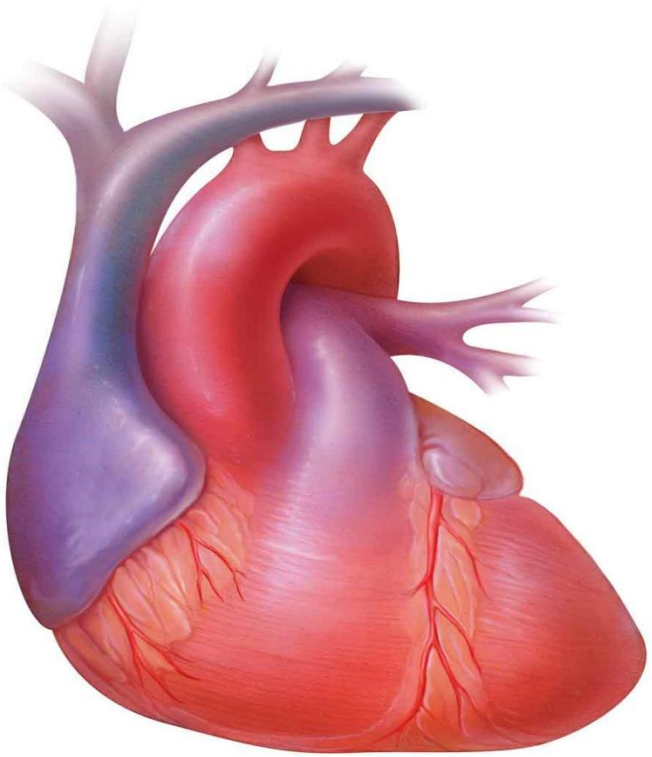
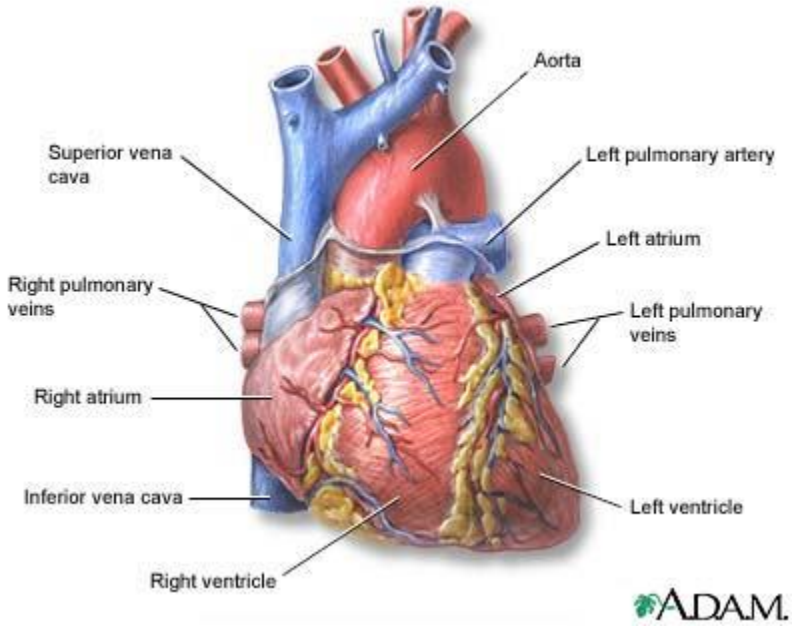
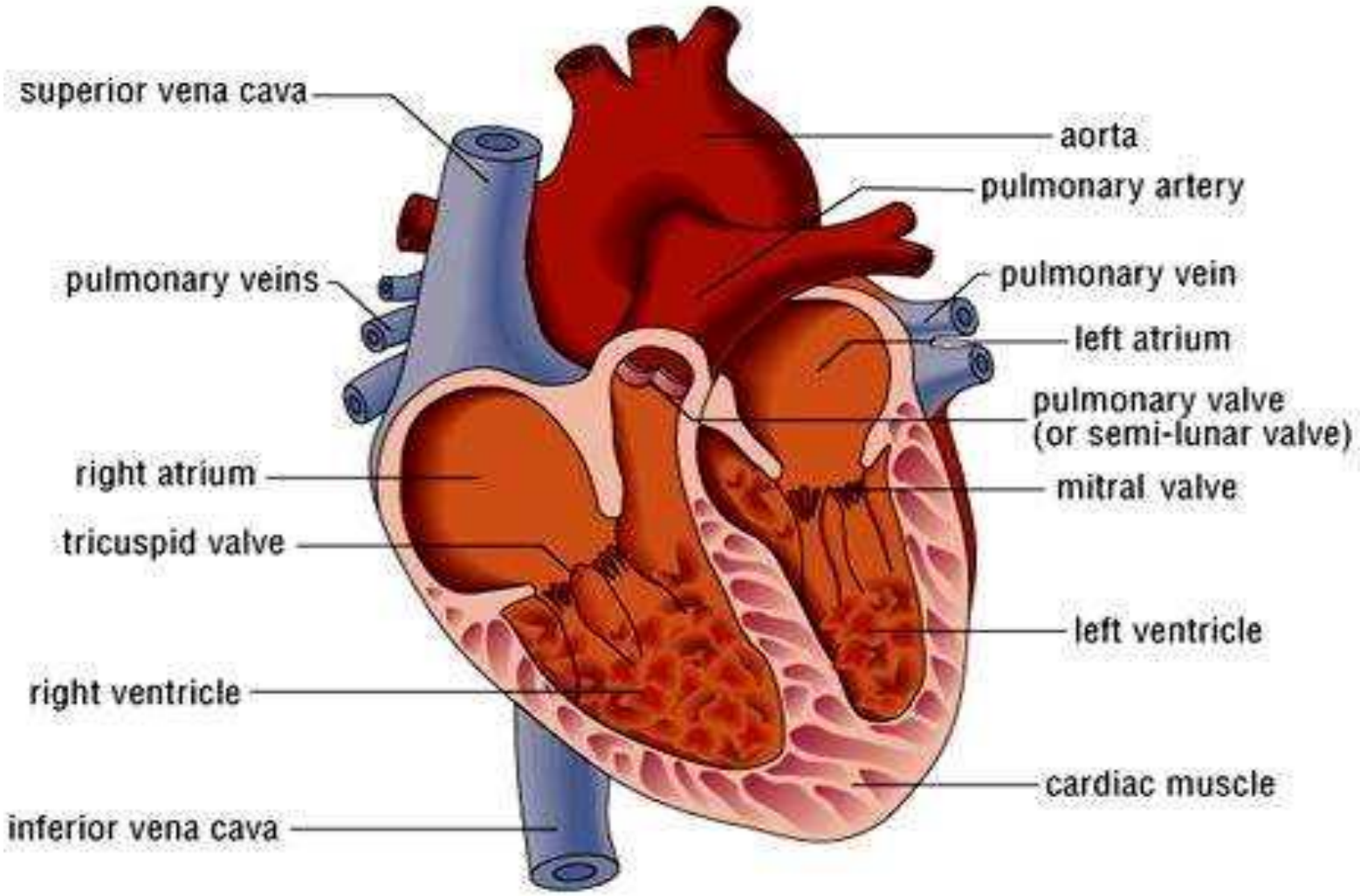
CARE OF PATIENT WITH CARDIAC SURGERY

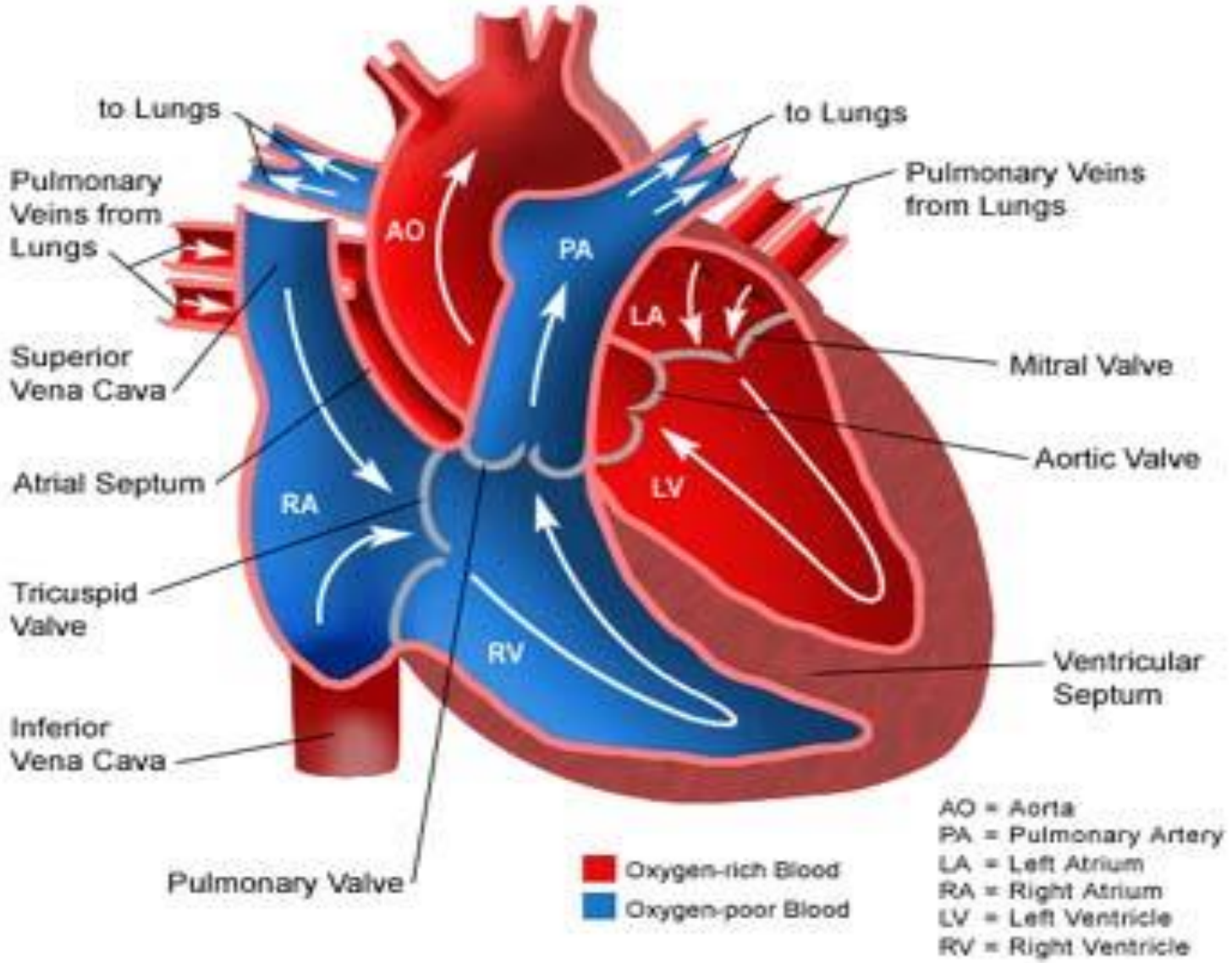


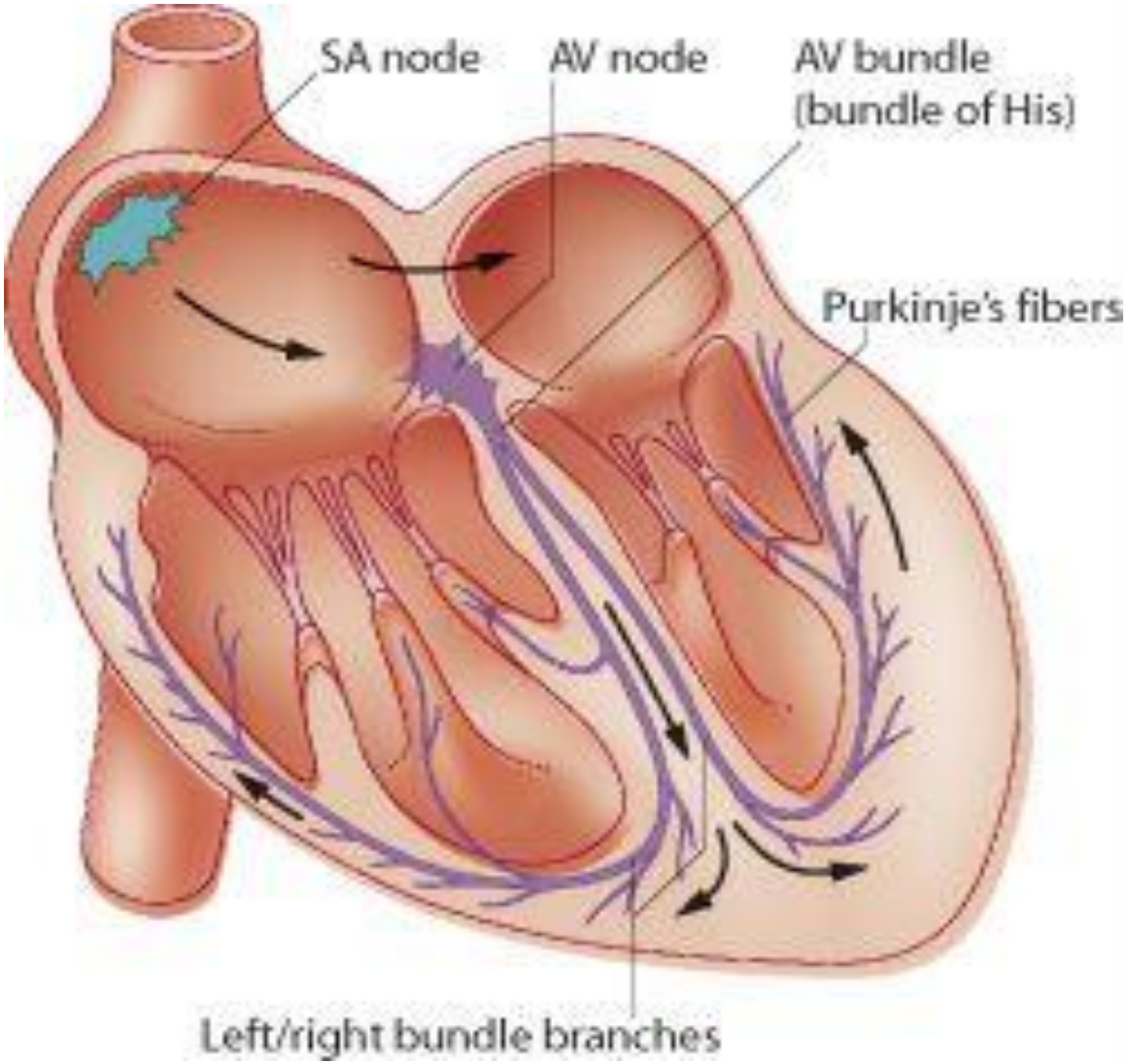
ANATOMY OF HEART

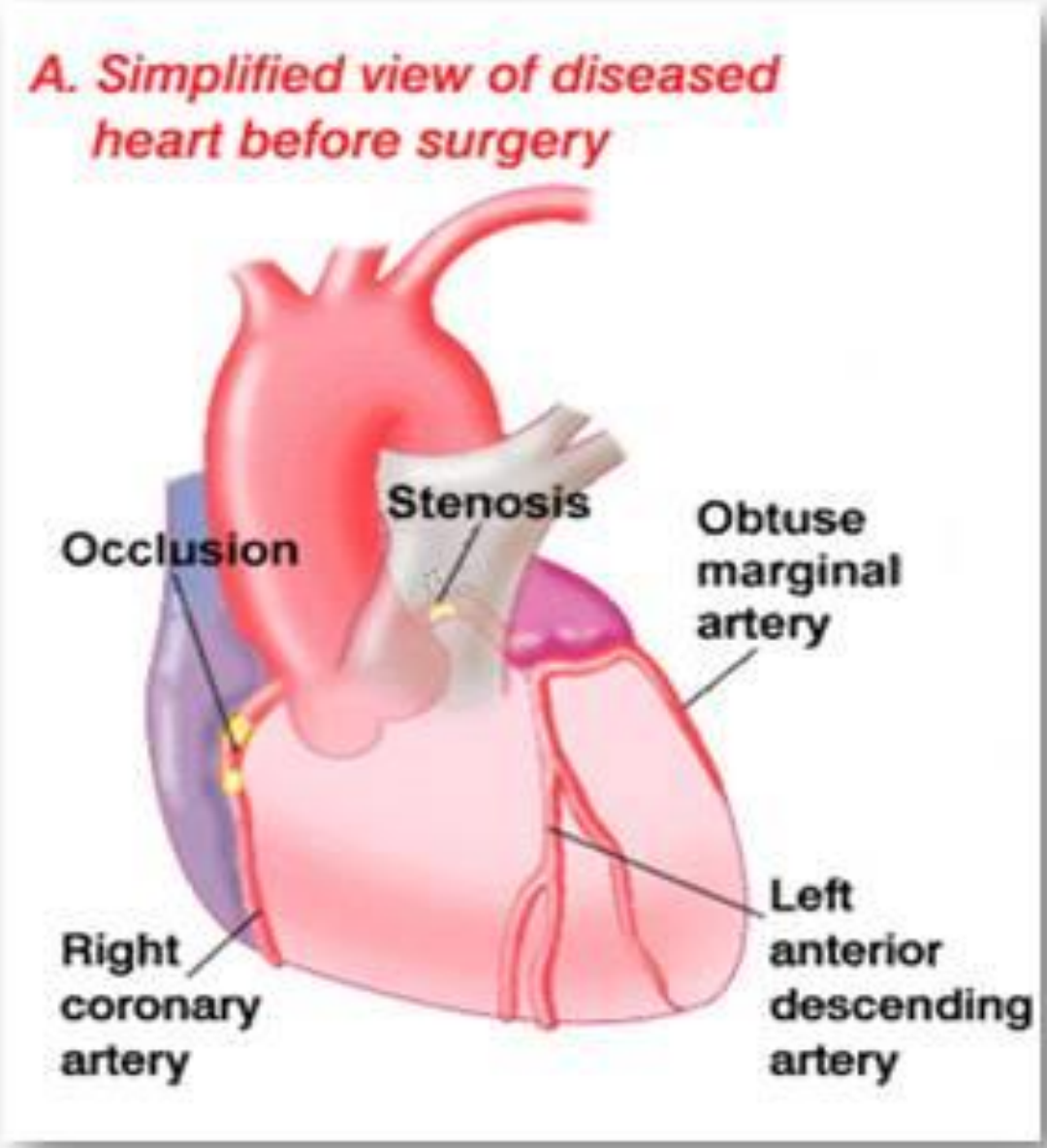



superior vena cava
aorta
pulmonary artery
pulmonary veins
pulmonary vein
left atrium
pulmonary valve
(or semi-lunar valve)
right atrium
mitral valve
tricuspid valve
left ventricle
right ventricle
cardiac muscle
inferior vena cava

Normal Heart

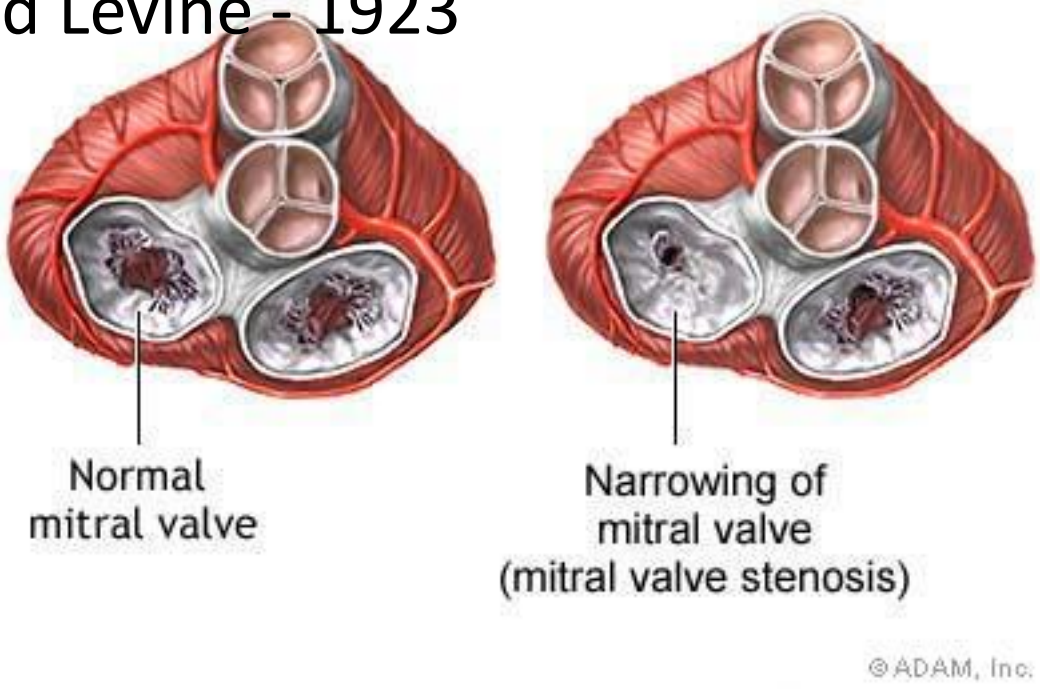



SA node
AV node
AV bundle
(bundle of His)
Purkinje's fibers
Left/right bundle branches


A. Simplified view of diseased heart before surgery
Occlusion
Stenosis
Obtuse marginal artery
Right coronary artery
Left anterior descending artery

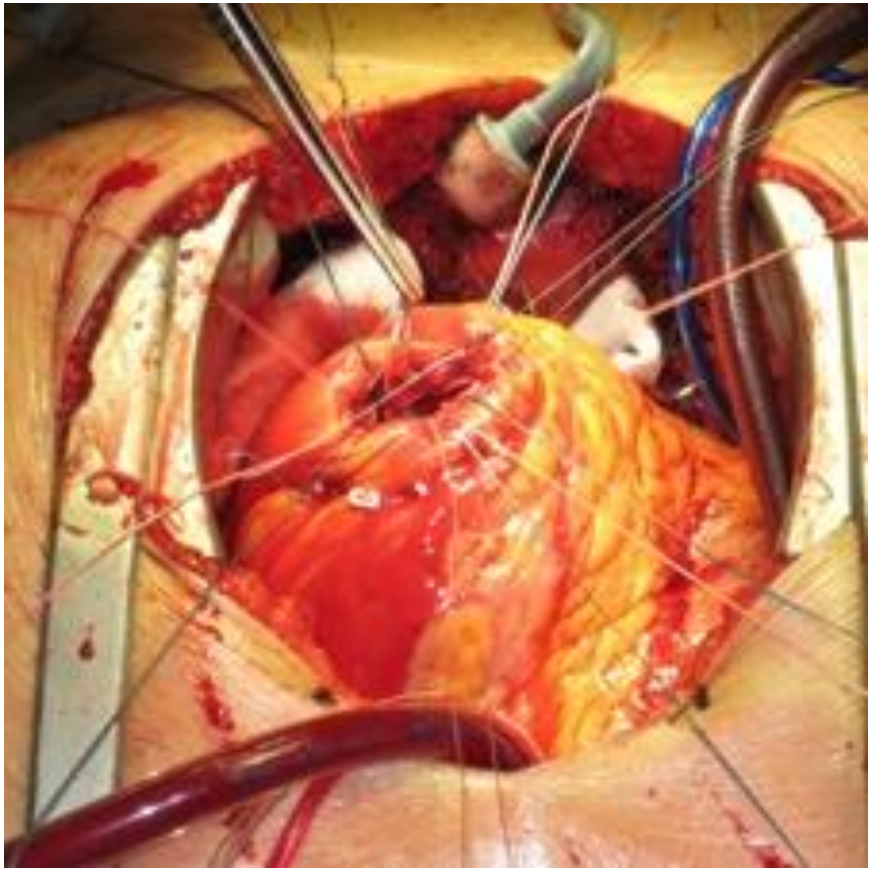
CARDIAC SURGERY

Culter and Levine - 1923



TYPES OF HEART SURGERY

- Open heart surgery
- Closed heart surgery



Closed heart surgery

- Performed without the benefit or hazards of extracorporial circulation
- ECC- is a procedure in which a machine completely control the cardiopulmonary function
- Example

1. Closed mitral commissurotomy
2. Implantation of an internal mammary gland
3. Procedures that correct abnormal congenital shunt

Open heart surgery

- Allow the surgeon to directly visualize the heart
- Examples

1. Replacement of diseased valve with a prosthetic valve
2. Heart transplantation

- Slow the patients circulation for a period of time without causing brain anoxia
- Detour the blood that normally enter the heart and lungs through an artificial heart lung machine

- Techniques to make open heart surgery

1. Hypothermia
2. ECC

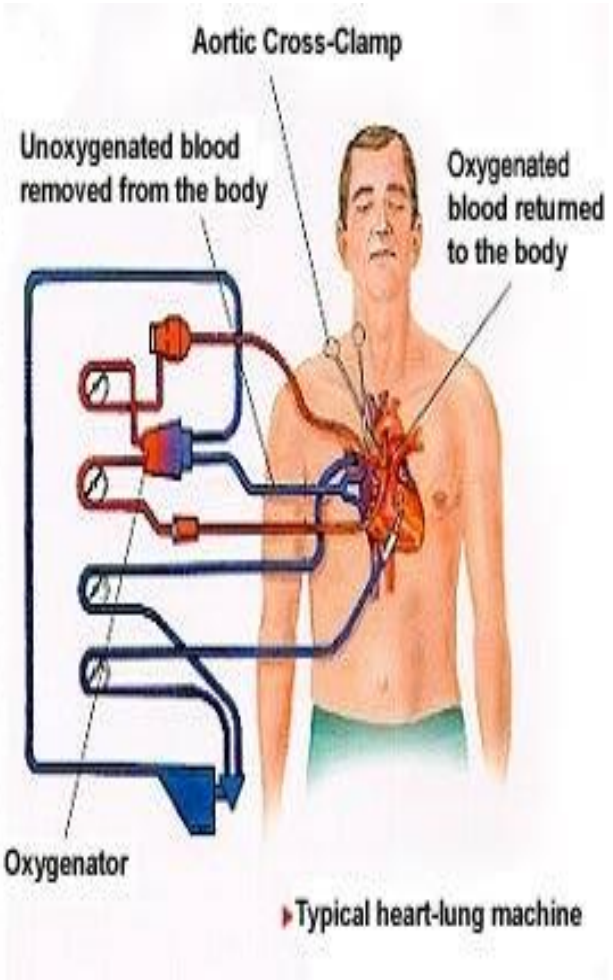
- Heart lung machine

➢ To divert the circulation from the heart and lungs

➢ Perform all gas exchange functions

➢ To filter rewarm or cool the blood

➢ To circulate the oxygenated, filtered blood back into patients arterial system



Care of patient with heart surgery

- Preoperative phase

➢Stars before

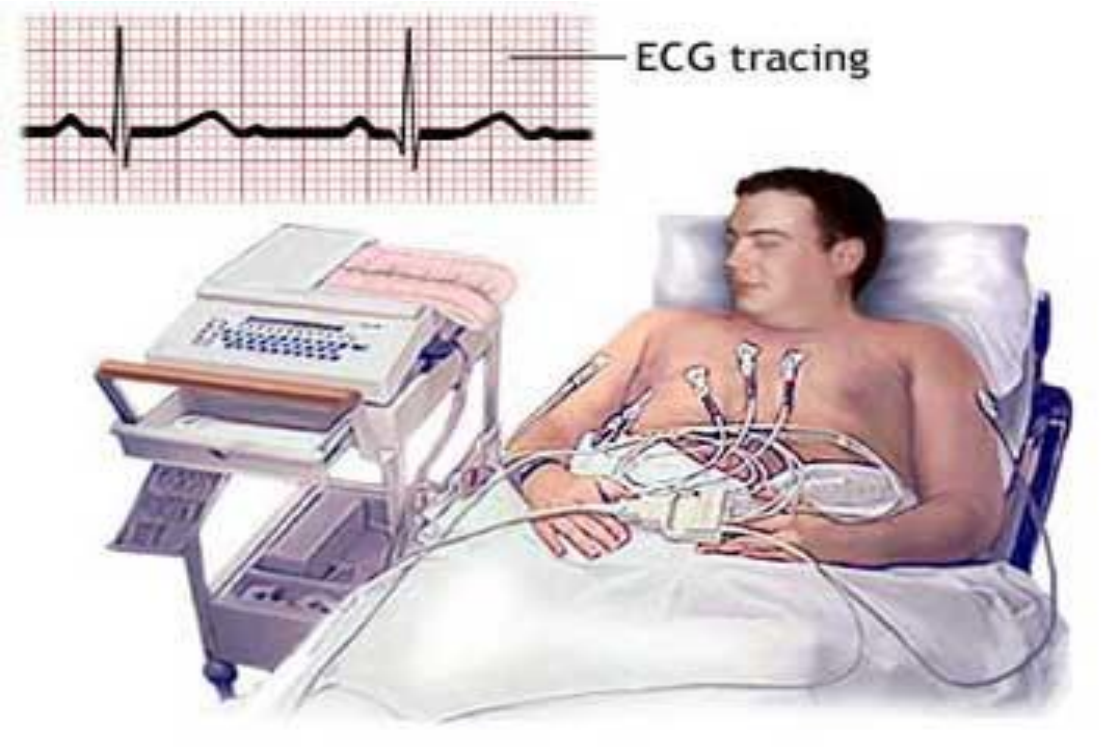
➢ hospitalization

➢ Assessment of disorders

➢ Provide information's

➢Clarify the medication regimen

- X ray , ECG, Laboratory testing , Blood typing and cross matching



- Focuses of health assessment

➢Physiological, psychosocial, social information

➢Patients and families learning needs

➢Patients usual functional level, coping mechanisms, and support system

- Health history

➢Importance of preoperative history and health assessment

➢Assessment of the functional status of cardio vascular system

➢Alterations in cardiac output can affect other systems of the body

➢Patients history of

✓ Major illness

✓ Previous surgeries

✓ Medication therapies

✓ Use of drugs

✓ Use of alcohol and tobacco

- Physical assessment

➢General appearance and behavior

➢Vital signs

➢Nutritional and fluid status, weight and height

➢Inspection and palpation of heart

➢Auscultation of heart

➢Jugular venous pressure

➢Peripheral pulses

➢Peripheral edema

- Psychosocial assessment

➢Importance of psychosocial assessment of the patient and family

➢Assessment of level of anxiety

➢Nurse allow the patient and family to express their fear

➢Patients are approached as unique individuals with their on specific learning needs, learning styles, and level of understanding

- Nursing diagnosis

➢ Fear related to the surgical procedure, its uncertain outcomes, and the threat to well-being

➢ Deficient knowledge regarding the surgical procedures and post operative outcome

Cardiac Surgery Intensive Care Unit

Intraoperative nursing care

- Assessment and prepare the patient for the operating room and recovery experience
- Identify the changes in patients status
- Procedures are explained before they are performed

  Application of electrodes and continuous monitoring of indwelling catheters, and an SpO2 probe
- Insert the intravenous lines
- Assess and prevent intraoperative complications
- Responsibilities of nurse

- Assist the surgical procedures

Post operative care

- Maintaining hemodynamic stability and recovery from general anesthesia
- Transfer the patient to post anesthesia care unit or intensive care unit
- Care focuses on

    wound care

    progressive activity

    nutrition

- **Assessment**

➢ **Neurological status**

level of responsiveness, pupil size and reaction to light, reflexes, facial symmetry, movement of extremities, and hand grip strength

➢ **Cardiac status**

heart rate and rhythm, heart sounds, arterial blood pressure, CVP, pulmonary artery pressure, PAWP, systemic and pulmonary artery resistance, pulmonary artery oxygen saturation

➢ **Respiratory status**

chest movement, breath sounds, ventilator settings, respiratory rate, ventilatory pressure, arterial oxygen saturation, arterial blood gases

- **Peripheral vascular status**

  peripheral pulses; color of skin, nailbeds, mucosa, lips and ear lobes; skin temperature; edema; condition of dressing

- **Renal function**

  urinary output, urine specific gravity and osmolality

- **Fluid and electrolyte status**

  intake and output from all drainage tubes

- **Pain**

  nature, type, location, duration

- **Observing all equipment and tubes**

➢Endotracheal tube

➢Ventilator

➢End tidalCO_2 monitor

➢SpO_2 monitor

➢Pulmonary artery catheter

➢SvO_2 monitor

➢Arterial and intravenous lines

➢Intravenous infusion devices and tubing

➢Cardiac monitor

➢Pacemaker

➢Chest tubes

➢Urinary drainage system

- Assess the psychological emotional status
- Assess the families needs
- Assessing for complication

➢ Decreased cardiac output

Causes - preload alterations

- afterload alterations
- heartrate alterations
- contractility alterations

➢ Fluid volume and electrolyte imbalance

monitoring cardiac output, weight, PAWP, left arterial pressure and CVP reading, hematocrit levels, distension of neck veins, edema, liver size, breath sounds, and electrolyte levels

➢Impaired gas exchange

- Provide endotracheal tube with ventilator assistance
- Assessment of impaired gas exchange
- Restlessness, anxiety, cyanosis of mucous membrane and peripheral tissues, tachycardia, fighting the ventilator
- Assess the breath sounds
- Detect fluids in lungs and monitor lung expansion
- Monitor arterial blood gas values

➢Impaired cerebral circulation

- Assess the symptoms of hypoxia, restlessness, headache, confusion, dyspnea, hypotension, cyanosis
- Assess patients neurological status

- **NURSING DIAGNOSIS**

➢ Decreased cardiac output related to blood loss and compromised myocardial function

➢ Impaired gas exchange related to trauma of extensive chest surgery

➢ Risk for fluid volume and electrolyte imbalance related to alterations in blood volume

➢ Disturbed sensory perception related to excessive environmental stimulation, sleep deprevation, electrolyte imbalance

➢ Acute pain related t surgical trauma and pleural irritation caused by chest tubes and internal mammary artery dissection

➢ Ineffective renal tissue perfusion related to decreased cardiac output, hemolysis, or vasopressor drug therapy


Thank you