



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF CARDIOPULMONARY PERFUSION CARE
TECHNOLOGY

COURSE NAME: CPB & Perfusion Technology – II

TOPIC : Complications of CABG



General Surgical Complications



- Infection at incision sites or sepsis
- Bleeding
- Deep vein thrombosis
- Anesthetic complication such as malignant hyperthermia
- Keloid scarring
- Chronic pain at incision site
- Chronic stress regarding surgery



Infection & Bleeding

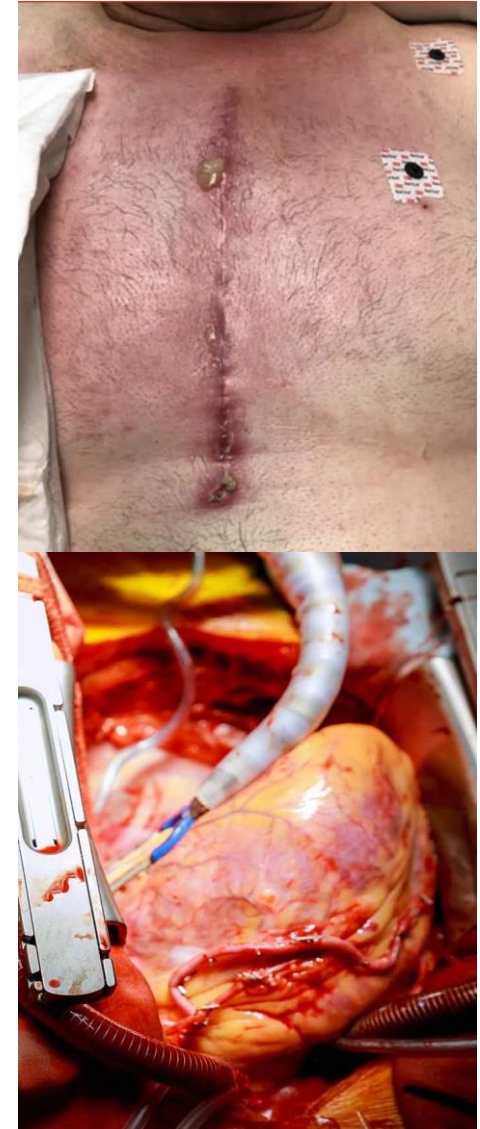


Infection:

- Infection due to incision(wound), Blood transfusion , Improper surgical asepsis , duration of surgery , duration of procedure, late immobilization of patient after surgery.

Bleeding:

- Common in all surgery due to incision.
- In CABG = risk of bleeding from site of attached grafts and other sources.
- About 30% of pts require Blood transfusion after surgery





Sternal Dehiscence & Keloid scarring



Reaction to anesthesia - as with any performed while the patient is asleep, pts may have reaction to anesthesia including difficulty breathing.

Keloid scarring - ugly scar due to overgrowth of granulation tissue.

Sternal Dehiscence

- Non union of sternum is a complications of cardiac surgery leads to increased morbidity and mortality.
- Harvesting of internal thoracic artery / IMA devascularizes the sternum leads to improper healing and incomplete closure.





Perioperative complications



OFF PUMP

Incision
heart manipulation
Pressure.

ON PUMP

Cannulation
priming
Hemolysis
Higher suction

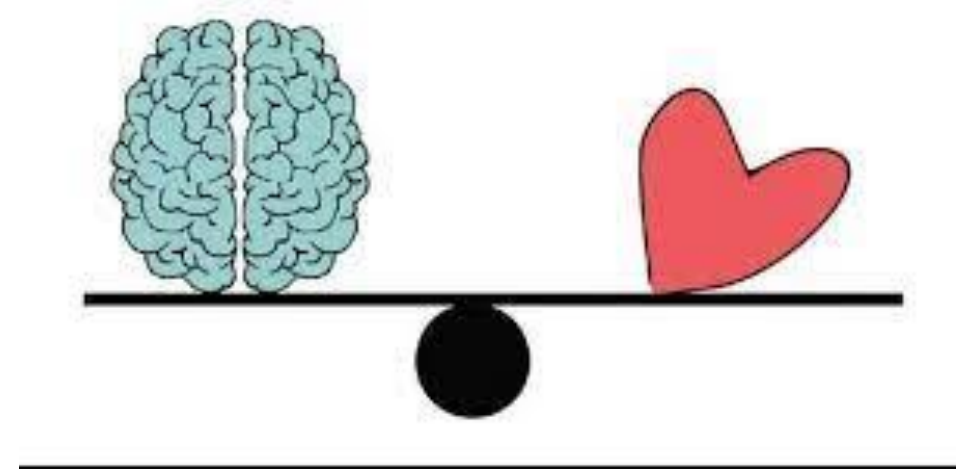




Post perfusion syndrome (Pump head)



- Is the transient neurocognitive impairment with CPB.
- Includes delirium, decreased psycho motor speed, decreased memory, etc.
- Occurs due to Inflammatory reactions, hypoperfusion, embolism.
- It often leads to multiorgan failure and mixed acid-base disturbances

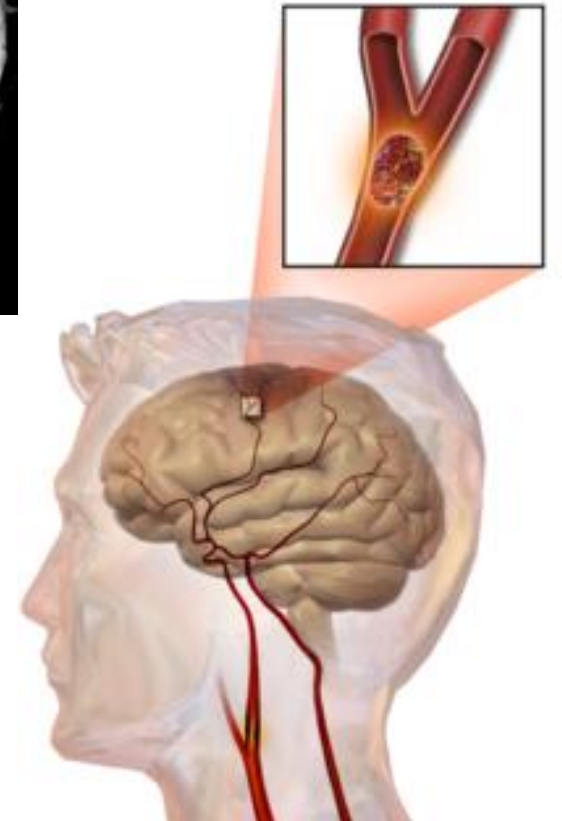




Stroke



- Stroke/CVA/CVI/brain attack is the loss of brain function due to disturbance in blood supply to the brain.
- Ischemic stroke occurs due to thrombosis or arterial embolism or by cerebral hypoperfusion.
- Evidence proven that incidence decreased with OPCAB which not requires CPB

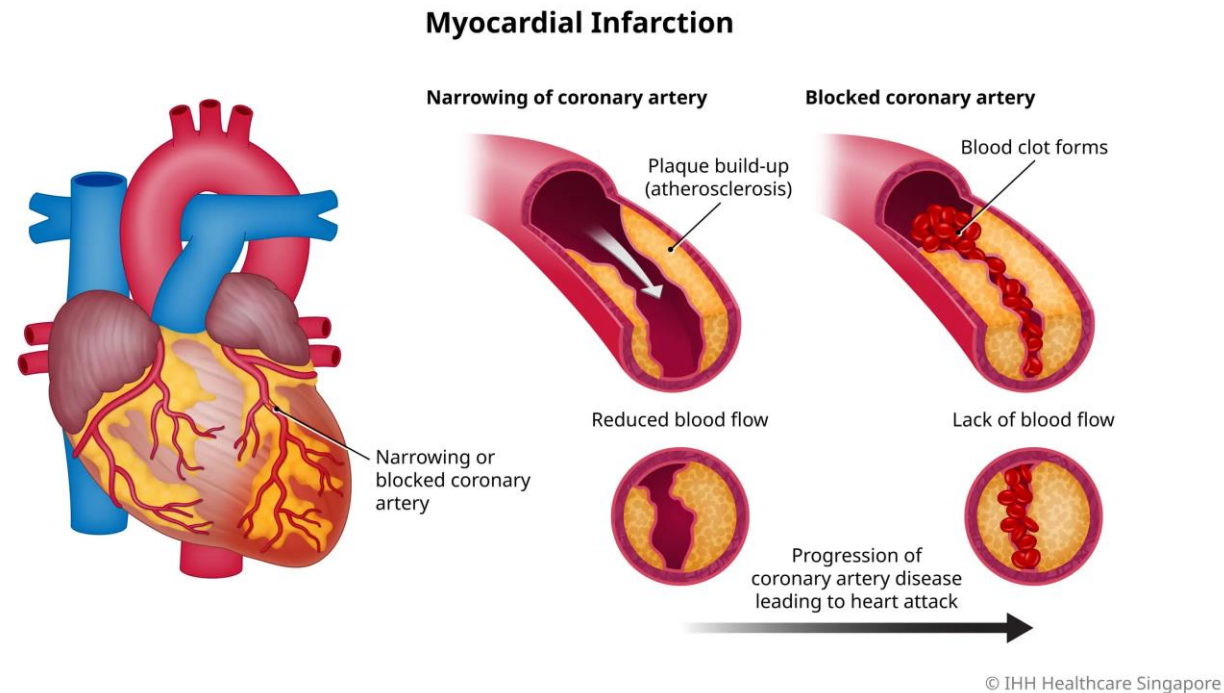




Recurrent MI



- 2-4% of people experience electrographic or enzymatic evidence of a MI after surgery, which generally is small to moderate size.
- Occurs with High risk and emergency .
- Especially in pts with some damage to the heart muscle prior to CABG(low CO) can occur after surgery. Medical therapy involves and directed towards reducing the workload of the myocardium.
- Also occurs due to embolism, hypoperfusion and graft failure.

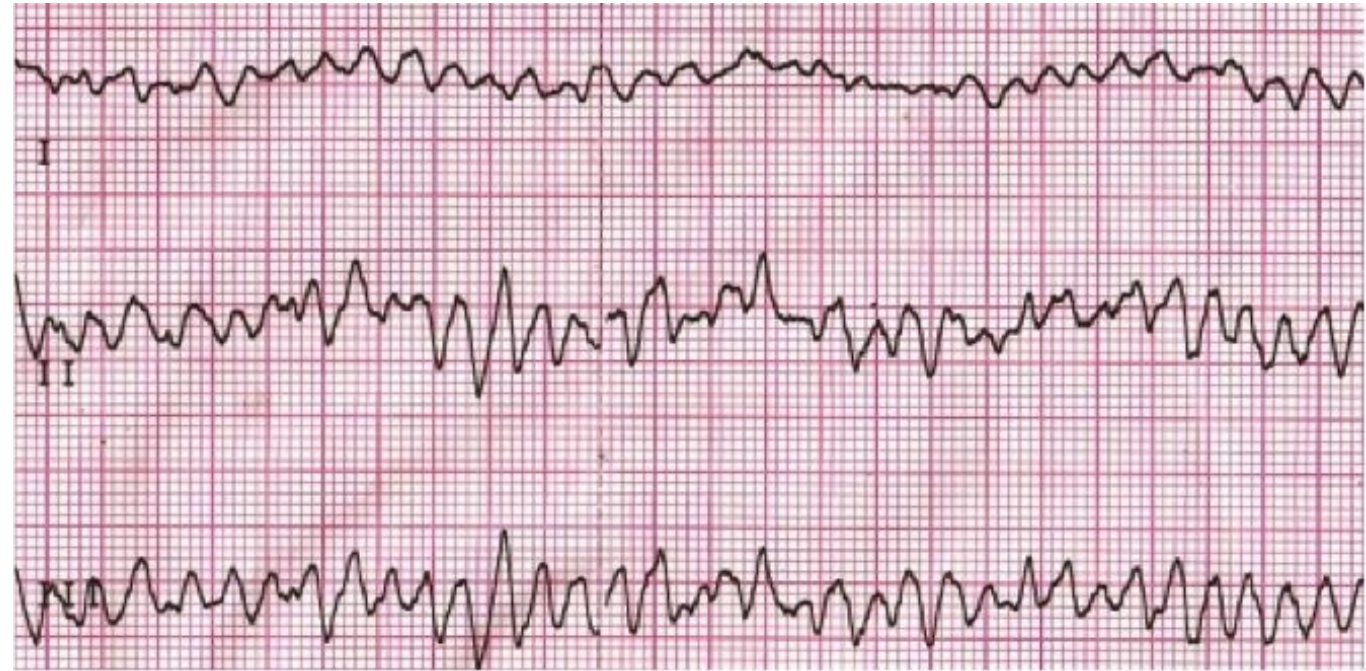




Arrhythmias



- Absence of normal rhythm
- Tachyarrhythmia's do occur temporarily may occur after CABG
- AF occurs in 40% of people but can be prevented with medications.
- This rhythm disturbance may cause blood clot within the heart .
- If this blood clot becomes dislodged, it can travel to another organ in the body , such as brain resulting in stroke.

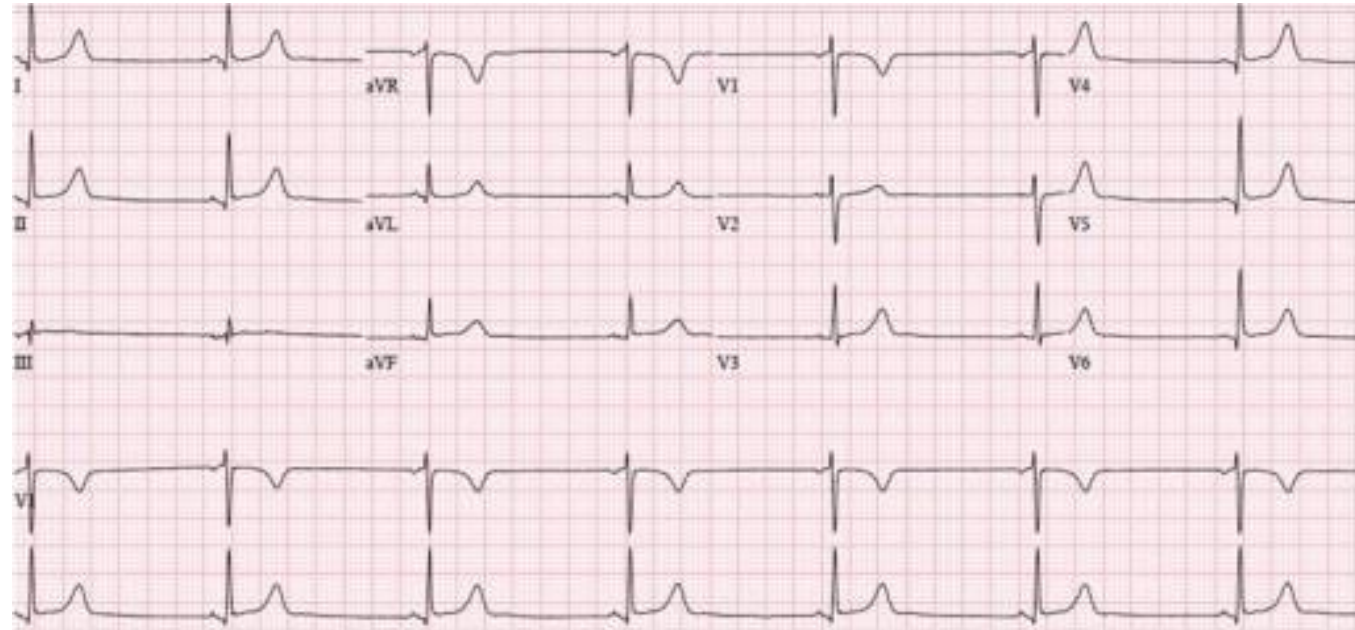




Arrhythmias



- Sustained VT or VF occurs app 2-3% with four days of surgery can be terminated by using temporary pacemaker.
- Post OP Brady arrhythmias can cause heart to beat slowly and require permanent pacemaker in 0.8-4% of patients.
- Can occur because of electrolyte disturbances, temperature





Late Graft Stenosis



- Grafts used for CABG includes LIMA, RIMA, RA, SVG even right gastroepiploic artery by laparotomy and Inferior epigastric artery.

Graft Patency:

- A graft is considered as a patent if there is flow through the graft without significant (<70% diameter) stenosis in the grafted vessel.
- Graft lasts 8 – 15 years and then needed to be replaced.
- Graft may get diseased and occlude in months to year because of improper medication post operatively.
- Patency depends on no. of factors include type of graft used, size of graft, skill of surgeon.
- RA Vs SVG: early patency = Equivalent & Mid to late patency = RA > SVG.
- Late graft stenosis can leads to recurrent angina and MI.





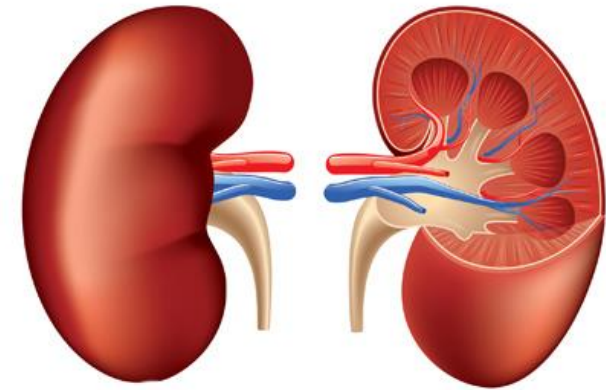
Acute Renal Failure



ARF occurs because of renal ischemia due to hypoperfusion , embolism , patient history, electrolyte imbalance , pH and acid base imbalance, fluid shift and edema.

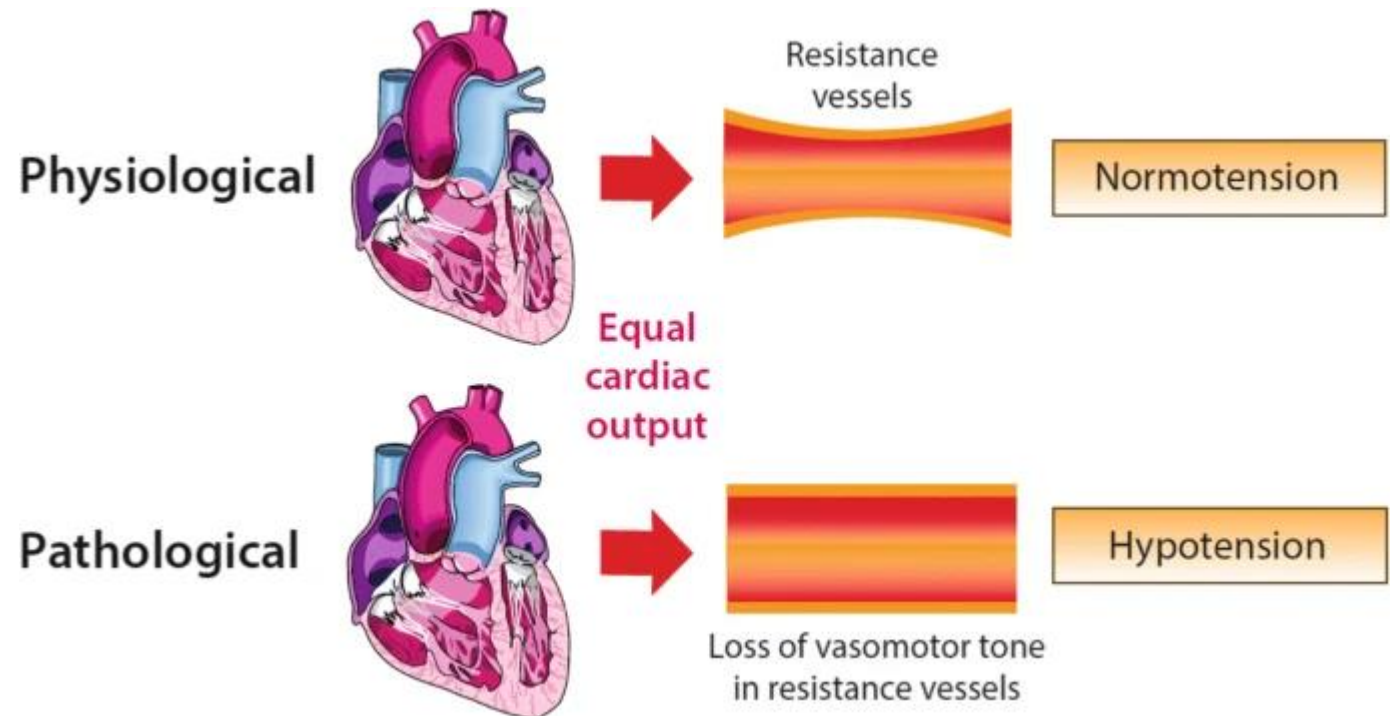
Treatment:

Diuretics (Lasix) or Dialysis according to severity of electrolyte accumulation



Vasoplegic Syndrome

- Defined as post perfusion syndrome characterized by low SVR (< 1600 dynes/cm²/sec) and high cardiac output (>2.5 Lpm/m²).
- Frequently after CABG within 4 hrs.
- Occurs secondary to CPB and hypothermia.





Cardiac Tamponade

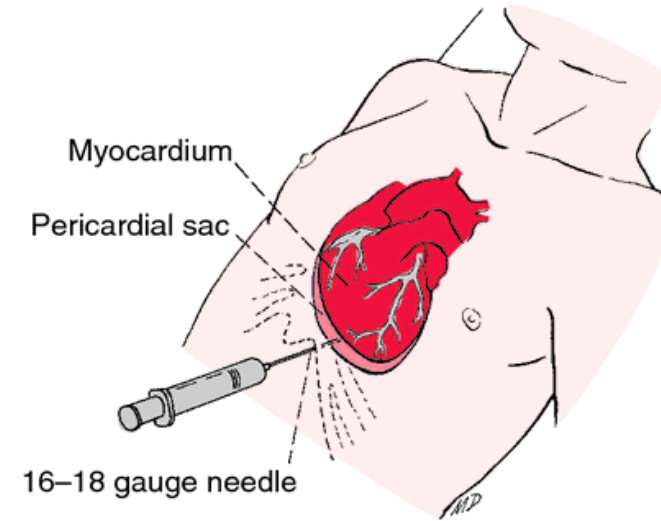
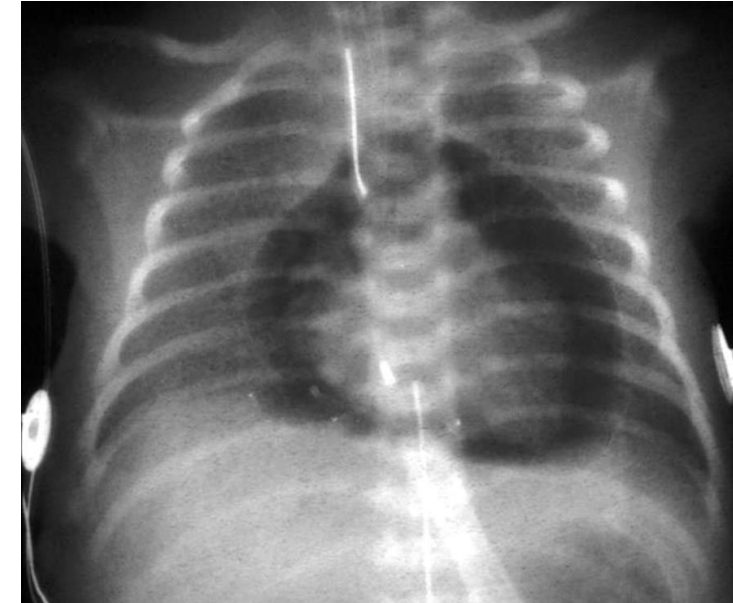


- Blood collection around the heart that compresses the heart muscle and causes poor body and brain circulation/perfusion.
- ICD --- prevents this.

Causes: If ICD tubes are obstructed or clotted, excessive internal bleeding, hemothorax.

Treatment: Pericardiocentesis

- Procedure that uses a needle to remove fluid from the pericardial sac.
- The patient should be hyper oxygenated, given fluids to maintain BP

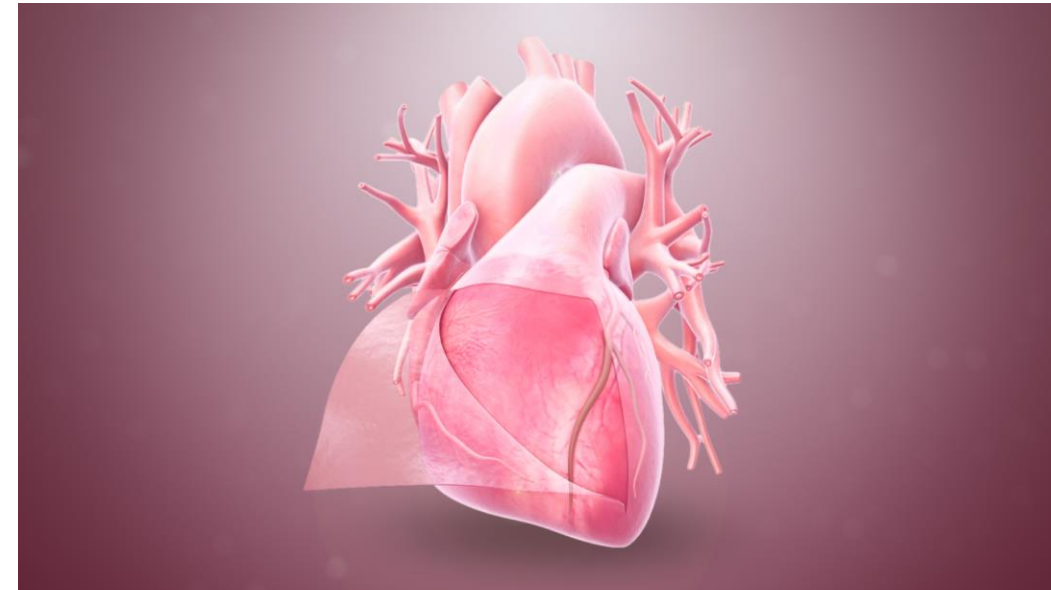




Post pericardiotomy syndrome(PPS)



- Produced due to lack of pericardium.
- The symptoms associated are Pain, Friction rub with ECG Changes
- Pleural effusion and pericardial effusion can occur
- Immune phenomenon usually occurs after 3-6 weeks .
- complications include pericarditis, pericardial effusion, pericardial tamponade



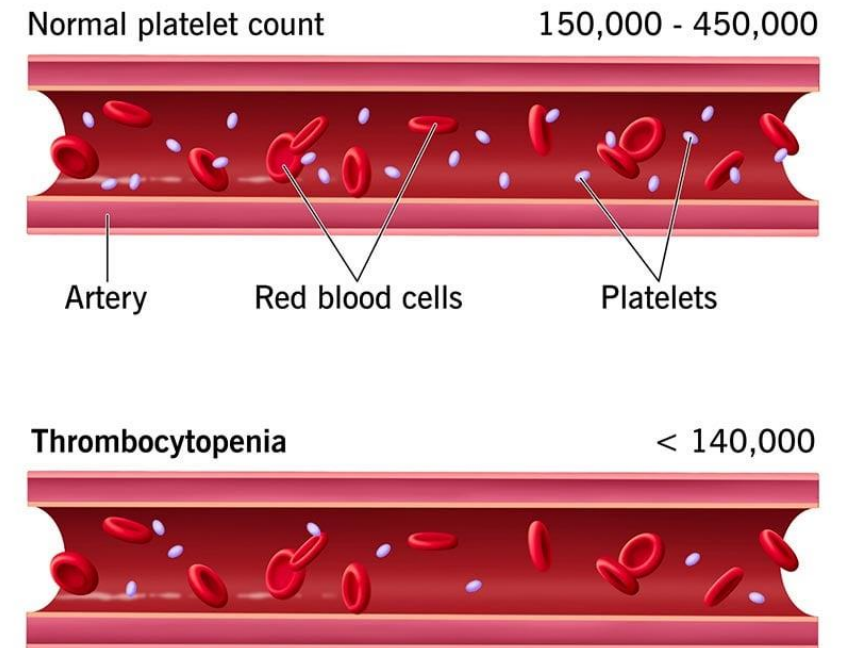


Other complications of CABG



- Phrenic nerve damage
- Intercostal nerve damage
- Thrombocytopenia

Thrombocytopenia



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Care after surgery



- Medications
- Exercise
- Avoid risk factors
- Heart healthy diet
- Proper checkups
- Maintaining a good doctor patient relationship is important.



THANK YOU



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