

MANAGEMENT OF COMPLICATIONS IN A CARDIOTHORACIC PATIENT

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Aims of the evening

- ◆ Review expected postoperative course and medications after common CT surgeries
- ◆ Understand common complications and their management
- ◆ Review of important guidelines and dosages
- ◆ Questions

- ◆ \$1 out of every \$10 is spent on complications
- ◆ Mortality low; morbidity high
- ◆ ↑ Risk
 - Valve replacement or combined operation
 - Urgency of operative intervention
 - Age and gender
 - Prior heart surgery
 - Arterial occlusive disease
 - Comorbidities

Trial & Error

MICHAEL RICHARDS JEFF DANIELS

Trial and Error



Routine CABG

- ◆ Mr DK. 67 Male. CABG x 4. Lima + Radial + vein grafts
- ◆ AF on day 3, needed Amiodarone.
- ◆ Type II DM. Longstanding hypertension.
- ◆ Normal lipids.
- ◆ Past MI x 2; mildly depressed LV function.
- ◆ Left lower lobe collapse and raised counts on day 3 and 4.

Expected Medications

- ◆ Antiplatelet: Aspirin
- ◆ Antihypertensives: Beta blockers, ACE-, ARBs
- ◆ Amiodarone.
- ◆ Statins.
- ◆ Antibiotics.
- ◆ Analgesics.
- ◆ Followup CXR, Sputum sample if needed.

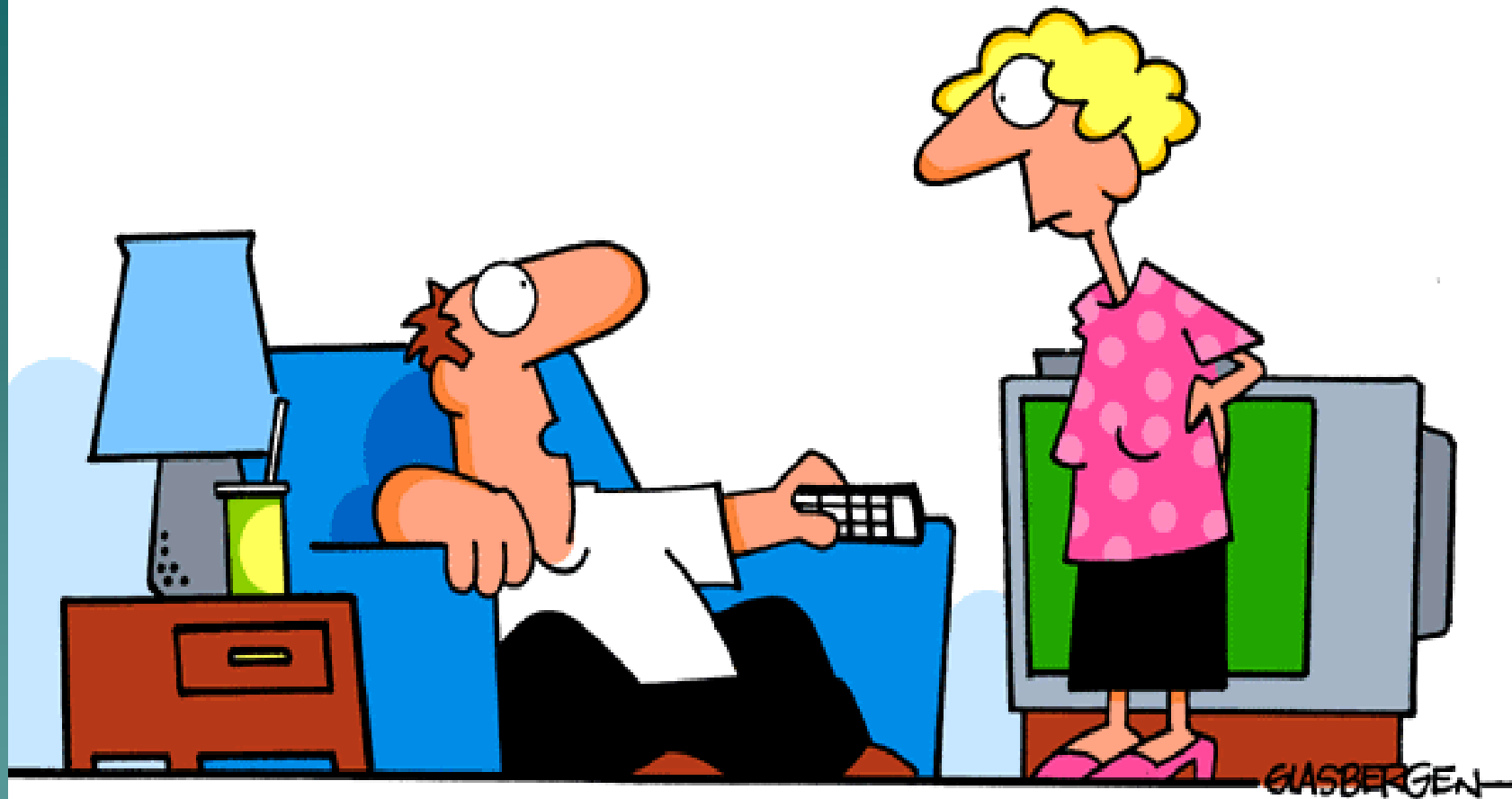
COMMON EARLY PROBLEMS

- ◆ ATRIAL FIBRILLATION
- ◆ CONFUSION
- ◆ DEPRESSION
- ◆ CHEST INFECTION
- ◆ ORAL THRUSH
- ◆ TEMPERATURE

COMMON LATE PROBLEMS

- ◆ MOOD SWINGS
- ◆ CONCENTRATION AND VISUAL DISTURBANCES
- ◆ MUSCULAR ACHES AND PAINS
- ◆ BREATHLESSNESS
- ◆ PALPITATIONS
- ◆ PAIN, STERNAL ISSUES

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**“My doctor told me to start my exercise program
very gradually. Today I drove past a store
that sells sweat pants.”**

Long Term plan

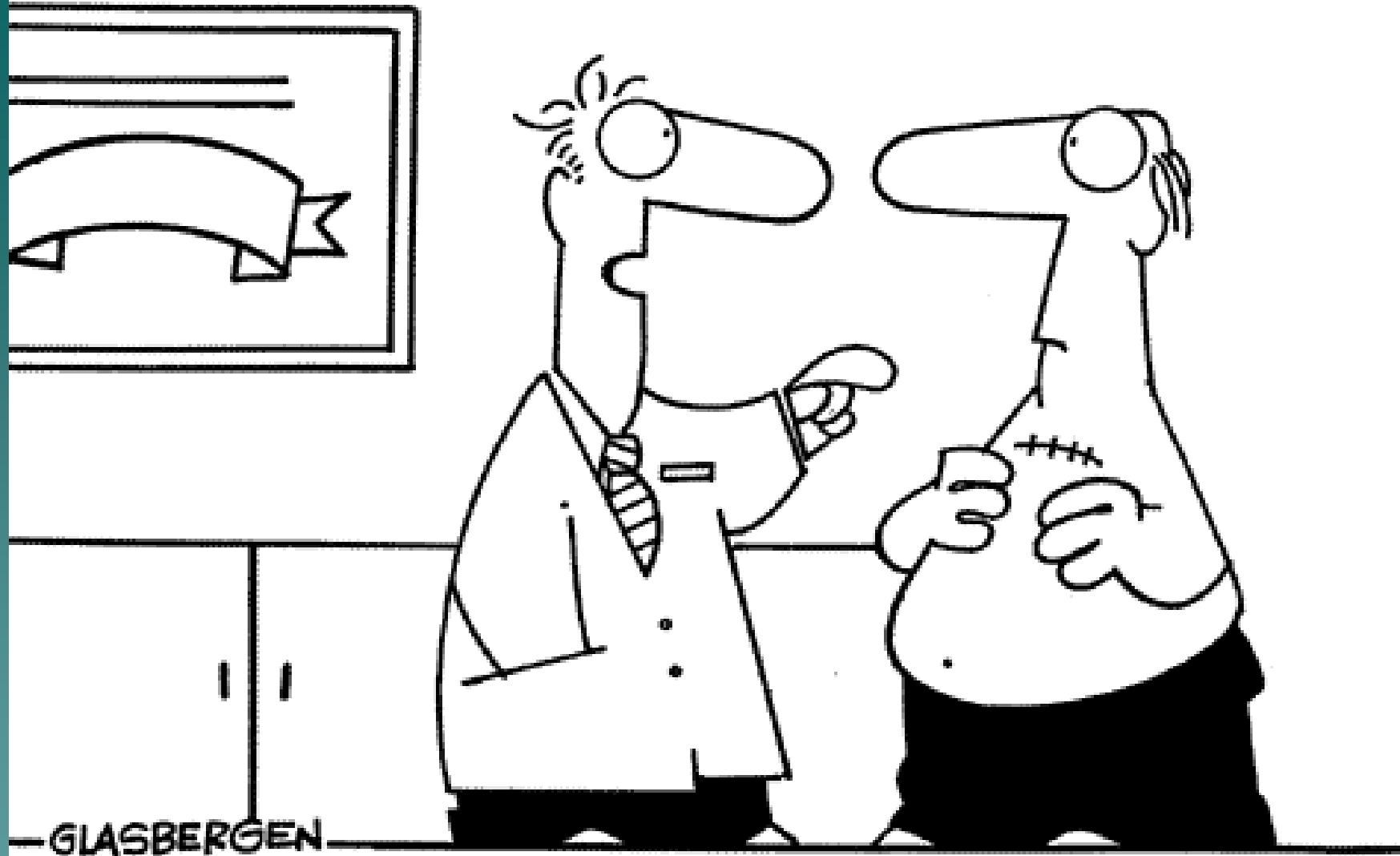
- ◆ MODIFIABLE RISK FACTORS
- ◆ LIFESTYLE CHANGES
- ◆ DIET, HABITS AND ADDICTIONS
- ◆ PROPER AWARENESS AND EDUCATION
- ◆ POSITIVE ATTITUDE

MODIFIABLE RISK FACTORS

- ◆ SMOKING
- ◆ HIGH BLOOD PRESSURE
- ◆ HIGH BLOOD CHOLESTEROL
- ◆ OVERWEIGHT
- ◆ LACK OF PHYSICAL EXERCISE
- ◆ DIET
- ◆ MENTAL HEALTH

UNMODIFIABLE RISK FACTORS

- ◆ FAMILY HISTORY
- ◆ OWN P/H
- ◆ AGE
- ◆ GENDER
- ◆ DIABETES



**“Whenever your cholesterol goes too high,
a sensor will send a signal that automatically
locks the kitchen door and turns on your treadmill.”**

Aortic Valve disease

- ◆ Mrs CJ, 77 year old lady. AVR with porcine bioprosthesis. Uneventful recovery. Isolated systolic hypertension.
- ◆ Sternal clicking right parasternal region
- ◆ Bi-pedal edema
- ◆ Lack of balance, occasional giddiness.
- ◆ Scant discharge from the lower end of the sternal wound



Discharge medications

- ◆ Antiplatelet: Aspirin
- ◆ No Warfarin unless AF or other indications
- ◆ Beta blockers
- ◆ ISH: Amlodipine group: w/f bipedal edema
- ◆ Diuretics management, electrolytes
- ◆ Giddiness as postoperative symptom
- ◆ Sternal clicking with right parasternal discharge: vigilance pays: early CT scans, swabs for c/s, appropriate antibiotics if needed, CTSU referral
- ◆ IE prophylaxis
- ◆ Rheumatic prophylaxis



Tissue valve or Mechanical valve



Choosing a PHV for a Patient

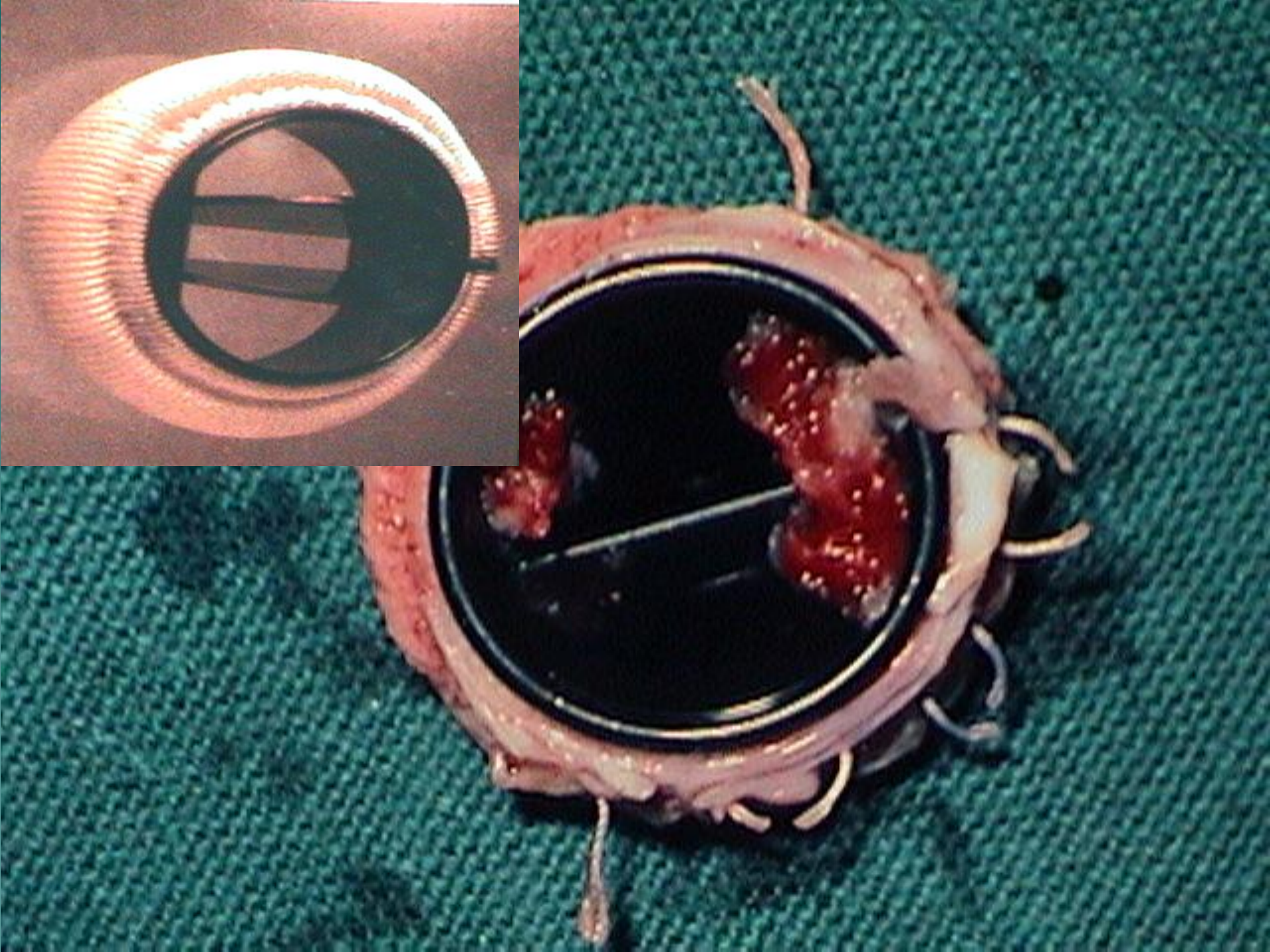
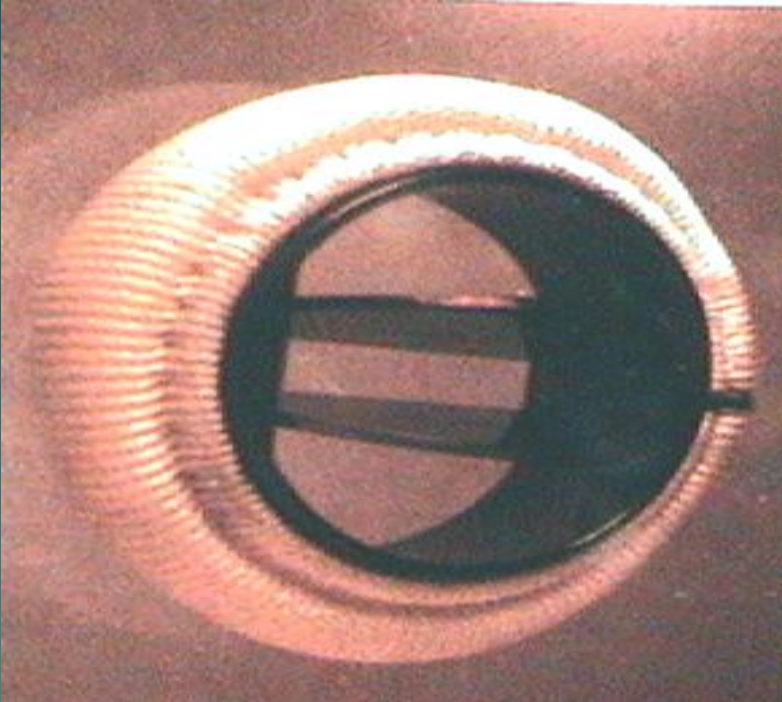
- 1) Known long-term results of PHV from randomized, non-randomized trials and databases
- 2) Patient characteristics
 - 1) Age
 - 2) Associated cardiovascular lesions
 - 3) Co-morbid conditions
 - 4) Life expectancy
 - 5) Unique patient needs

INR MONITORING

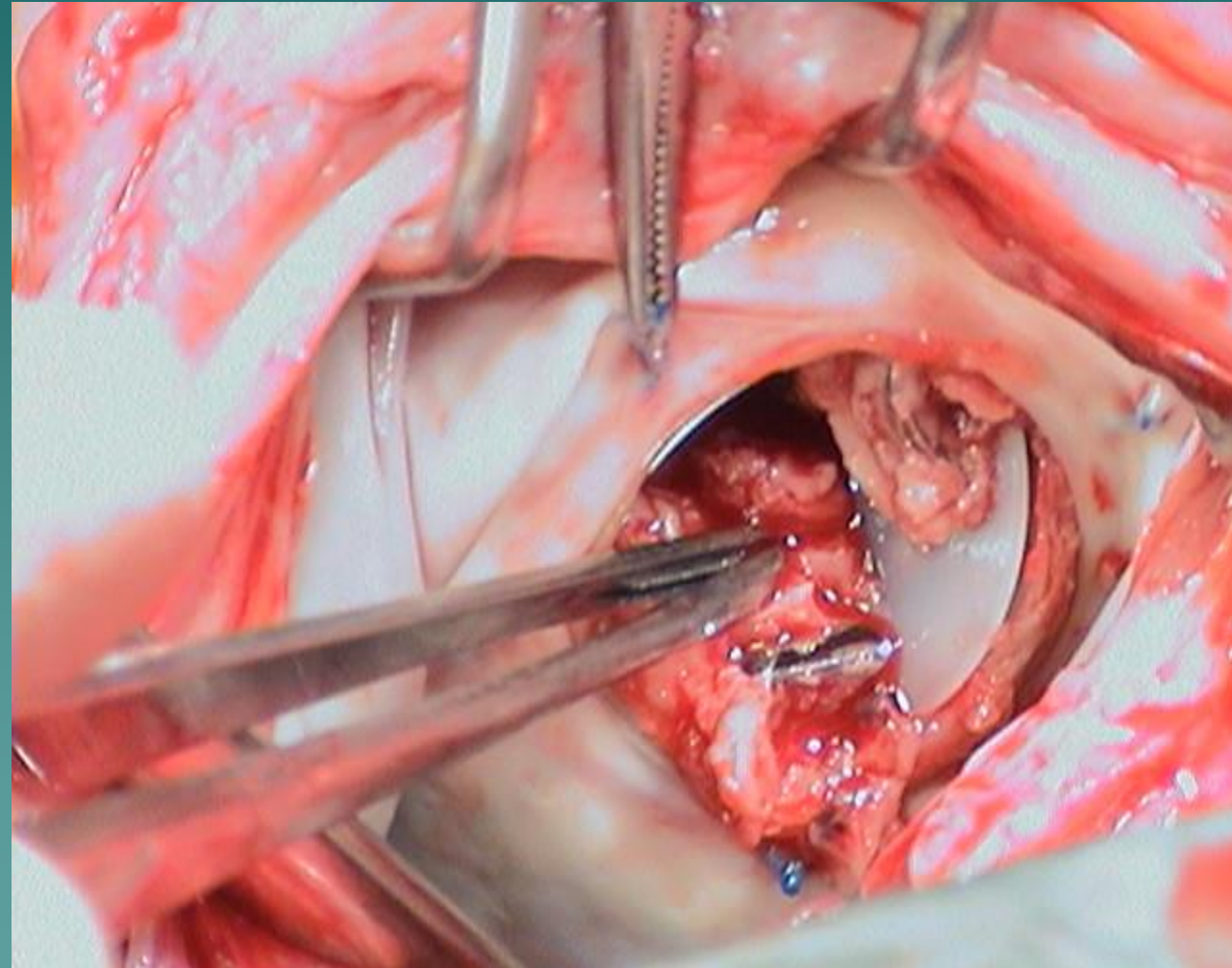
- ◆ INR used so that different thromboplastins could be on a level platform
- ◆ AVR 2.5 to 3.0
- ◆ MVR or DVR 2.5 to 3.5
- ◆ Bioprostheses / Repairs: for 6 weeks
- ◆ AF / DVT around 2.0 to 2.5
- ◆ Once a month when stable
- ◆ Dietary restrictions and drug interactions

THROMBOEMBOLIC EVENTS

- ◆ MITRAL 2-5 % / PATIENT-YEAR
AORTIC 1-2 % / PATIENT-YEAR
- ◆ VALVE THROMBOSIS :
CATASTROPHIC OR SUBACUTE



Choked Valve



ANTICOAGULATION RELATED HEMORRHAGE

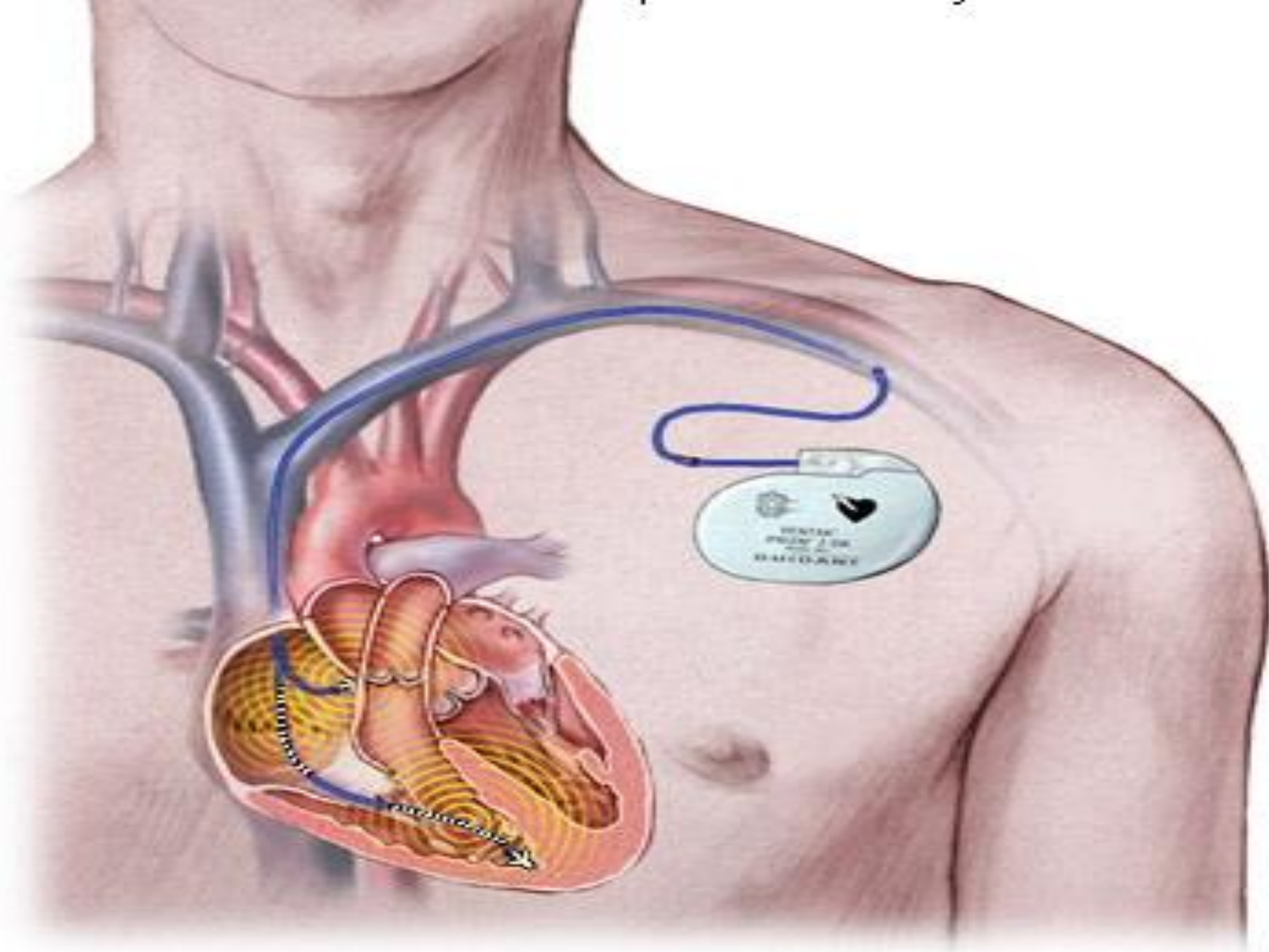
- ◆ FATAL 0.5 % / PATIENT-YEAR
- ◆ MAJOR 1-2 % / PATIENT-YEAR
- ◆ MINOR 4-8 % / PATIENT-YEAR

PROSTHETIC VALVE ENDOCARDITIS

- ◆ 1-2 % / PATIENT-YEAR
- ◆ EARLY AND LATE
- ◆ MORTALITY 50 % AND 25 %

AHA GUIDELINES FOR IE PROPHYLAXIS

- ◆ Ampicillin 2g + gentamicin 1.5 mg/kg max 80 30 min preop and repeat 8hrs / 6hrs oral 1.5g Amoxicillin
- ◆ Vancomycin iv 1g over 1 hr + gentamicin 1hr preop
- ◆ Low risk pts and dental procedures: Amoxicillin oral 3g 1 hr before procedure, and 1.5 g 6 hrs after first dose



Complications Associated With Pacemaker Insertion

- ◆ Infection
- ◆ Thrombophlebitis
- ◆ Bleeding or hematoma
- ◆ Ventricular dysrhythmias
- ◆ Pneumothorax, hemothorax
- ◆ Lead displacement
- ◆ Pacemaker malfunction
- ◆ Stimulation of phrenic nerve or diaphragm
- ◆ Cardiac tamponade

Lung Resections

- ◆ Mrs SB, 54 yr old, ex-smoker, left lower lobectomy for lung cancer
- ◆ Lymph nodes negative
- ◆ Chronic pain syndrome: Back ache
- ◆ Psychological issues

Discharge medications

- ◆ Analgesics
- ◆ Analgesics
- ◆ Analgesics
- ◆ Pulmonologist followup
- ◆ Adjuvant treatment usually not necessary
- ◆ Pain clinic
- ◆ Wound healing, VATS approach, muscle sparing thoracotomies

Pleurodesis

- ◆ Usually VATS procedures
- ◆ Inflammatory symptoms
- ◆ Pain
- ◆ Lung re-expansion
- ◆ Repeated episodes
- ◆ Restrictions on activities

Miscellaneous

- ◆ Sympathectomies
- ◆ VATS procedures
- ◆ MV repairs
- ◆ Aortic aneurysms and arch surgery
- ◆ Dissections
- ◆ Cryoablation, maze procedures
- ◆ Pericardiectomy
- ◆ Cervical ribs, thoracic outlet syndromes
- ◆ Pectus deformities

DOCUMENTATION

- ◆ Summary of preop investigations
- ◆ Discharge summary
- ◆ Medications at each visit
- ◆ Postop investigations
- ◆ What advise was given each time

FIRST VISIT

- ◆ What operation was done?
- ◆ Wound healing
- ◆ CVS, RS, systemic examination
- ◆ Medications
- ◆ Necessary investigations
- ◆ Plan next visits

WOUND PROBLEMS

- ◆ Discharge
- ◆ Redness
- ◆ Oozing
- ◆ Burning pain, tingling numbness, altered sensations
- ◆ Gaping
- ◆ Hypertrophic scars or keloid

INFECTIONS

- ◆ Wound
- ◆ Respiratory
- ◆ Urinary tract
- ◆ Bacteraemia, septicaemia and IE
- ◆ IE prophylaxis : prostheses, patches
- ◆ WHO recommendations

CLINICAL PARAMETERS

- ◆ Fever
- ◆ Chills
- ◆ Anorexia
- ◆ Sweating
- ◆ Pain, esp. throbbing
- ◆ toxemia

BIOCHEMICAL

- ◆ CBC > 10,000
- ◆ Acute phase reactants
- ◆ Leftward shift

MICROBIOLOGICAL

- ◆ Gram Stain
- ◆ Cultures
- ◆ organisms

Case 1

- ◆ 66 year old male
- ◆ DM, HTN, ex-smoker, triple vessel disease
- ◆ CAG x 4. LIMA, Radial and Vein.
- ◆ Edema, pain in both lower limbs, especially the right leg from where the vein had been taken off

Case 2

- ◆ 78 year old lady
- ◆ Aortic stenosis, tissue valve replacement
- ◆ Now 3 weeks postop
- ◆ Shortness of breath persistent, no change at all

Differential

- ◆ Pain, sternal healing issues
- ◆ Pleural or pericardial effusion / collection
- ◆ Chest infection / collapse
- ◆ AF / rhythm issues
- ◆ DVT – PE
- ◆ Valve related issues

Case 3

- ◆ Obese lady, 56 year old.
- ◆ Bilateral mammary arteries, 3 grafts 2 weeks ago, uneventful
- ◆ Complains of discharge from the lower end of sternotomy wound
- ◆ New onset AF

Discussion

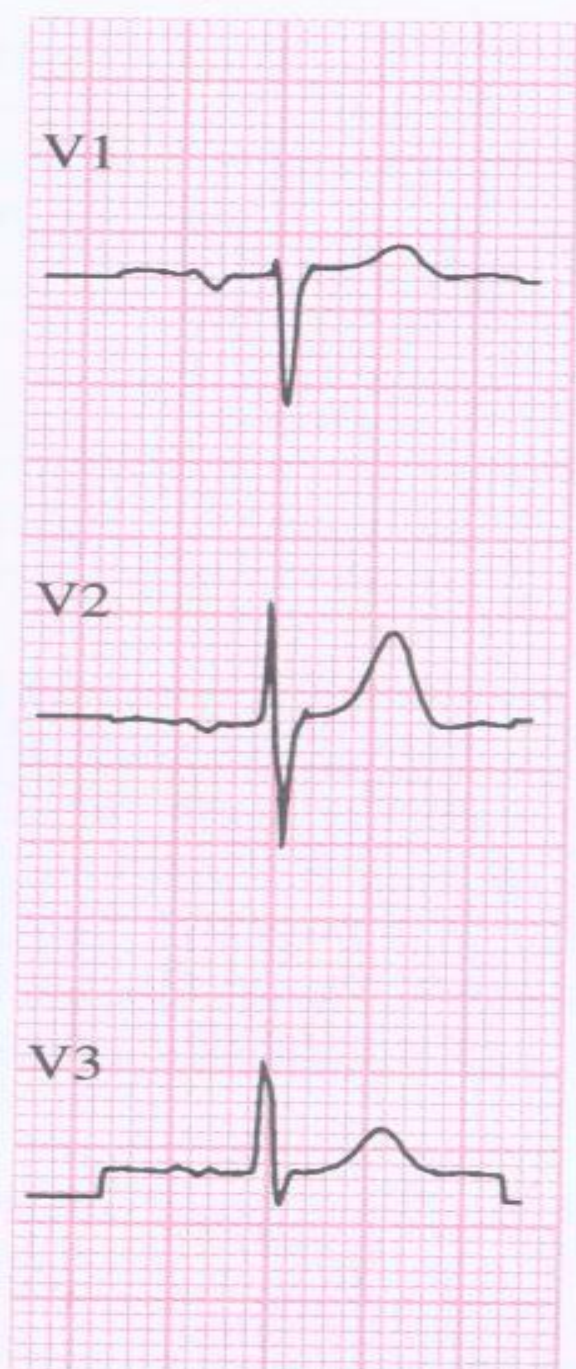
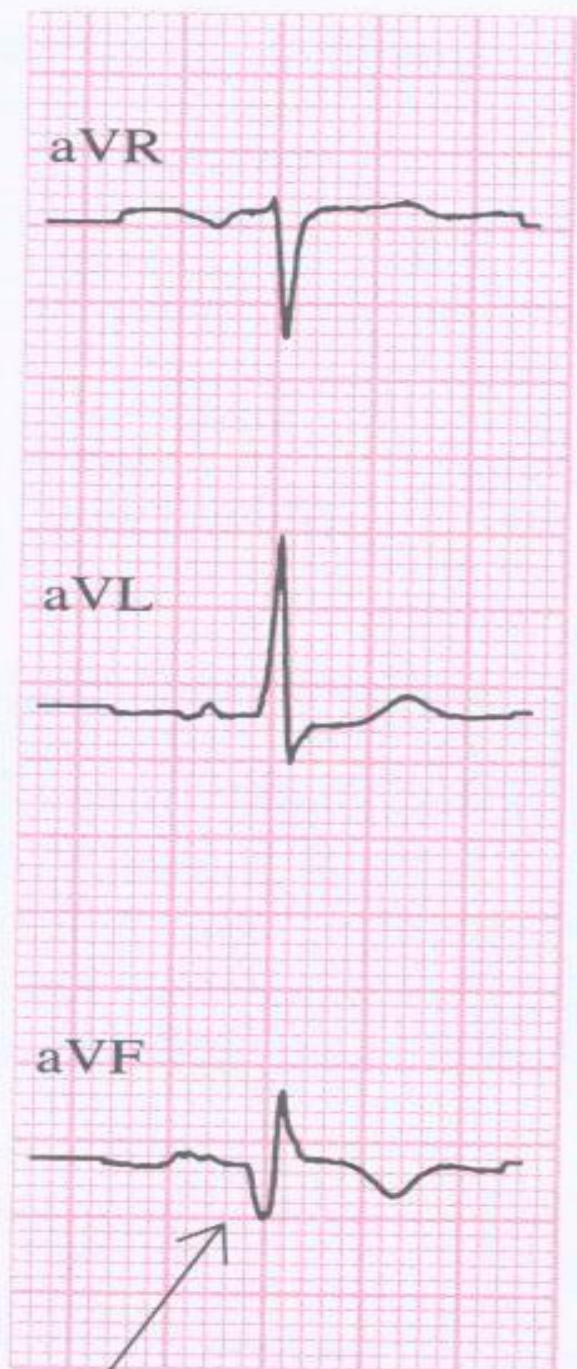
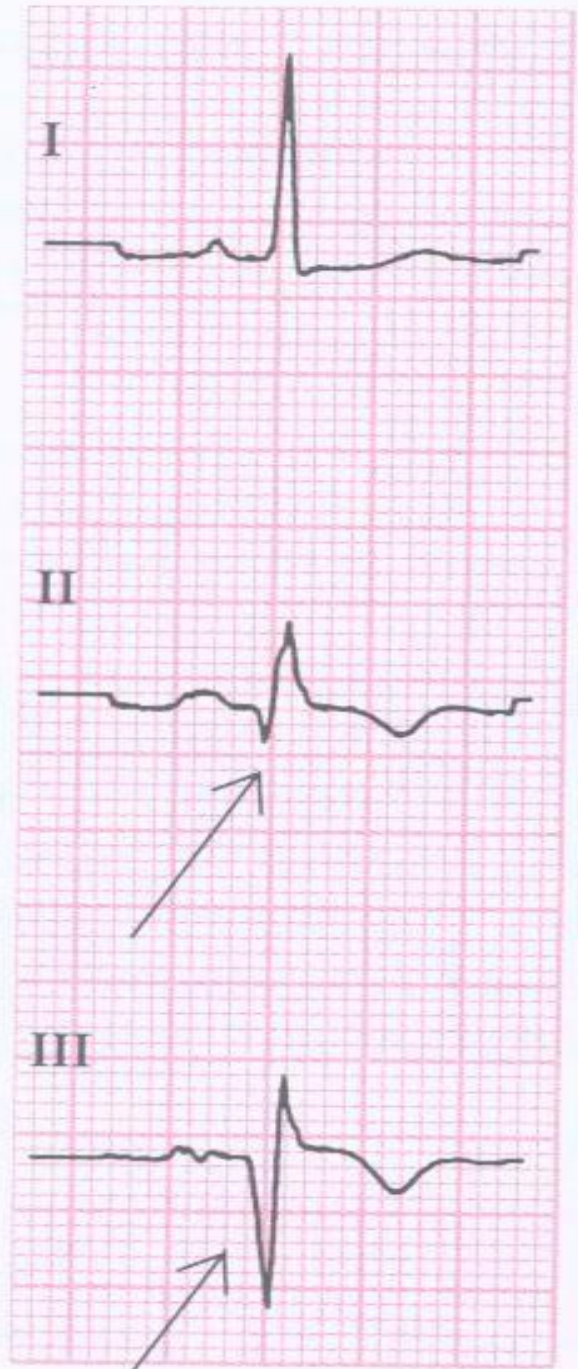
- ◆ Infection: superficial
- ◆ Fat necrosis and liquefaction
- ◆ Sternal separation
- ◆ Pericardial / pleural effusion tracking out

Plan

- ◆ Reassure
- ◆ Analgesia
- ◆ Swab and culture
- ◆ XRC +/- ultrasound
- ◆ Echocardiogram
- ◆ CTSU referral
- ◆ Antibiotics
- ◆ Drainage

Case 4

- ◆ Lung Cancer stage I left lower lobe
- ◆ Uneventful surgery 2 weeks ago
- ◆ Pleuritic pain and fever
- ◆ Medications
- ◆ Discussion



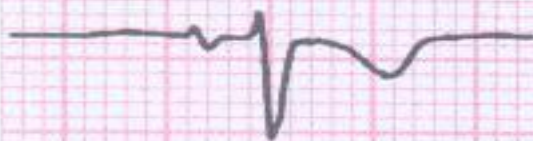
I



aVR



V1



V4



II



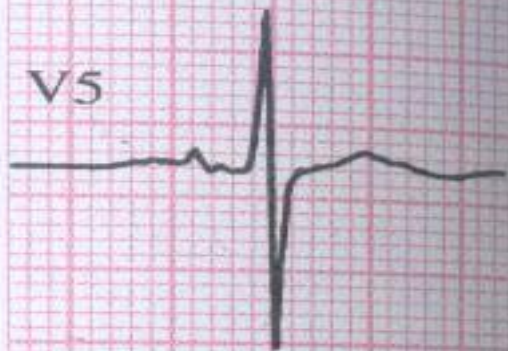
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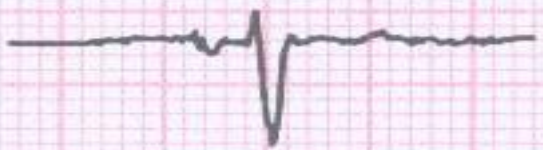
V2



V5



III



aVF

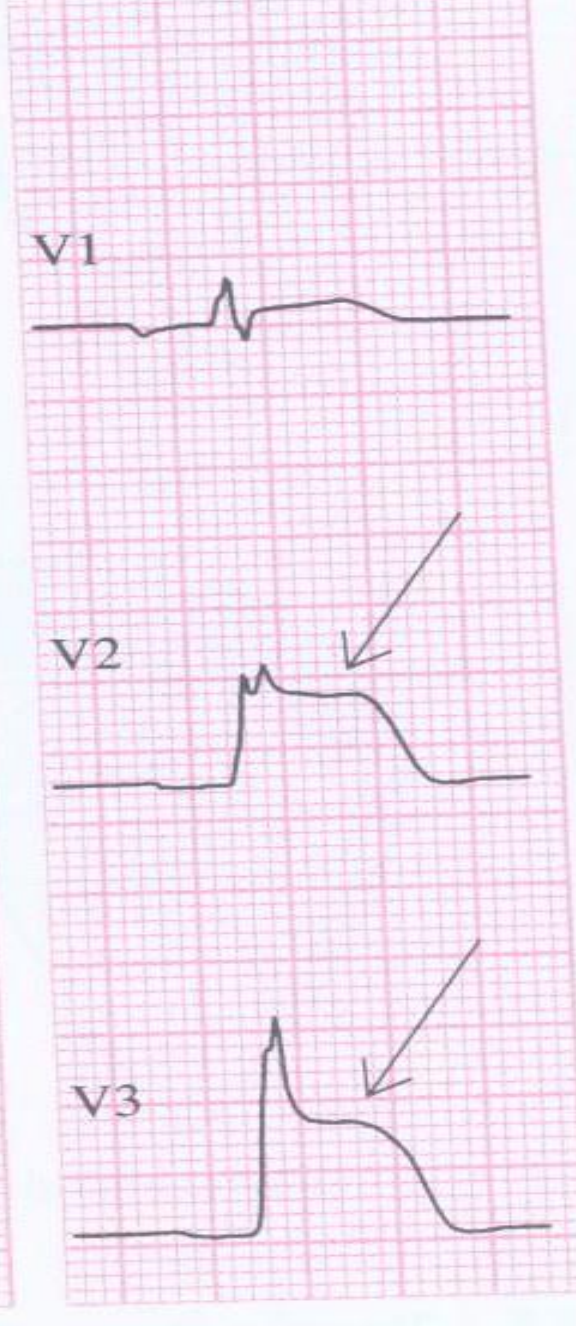
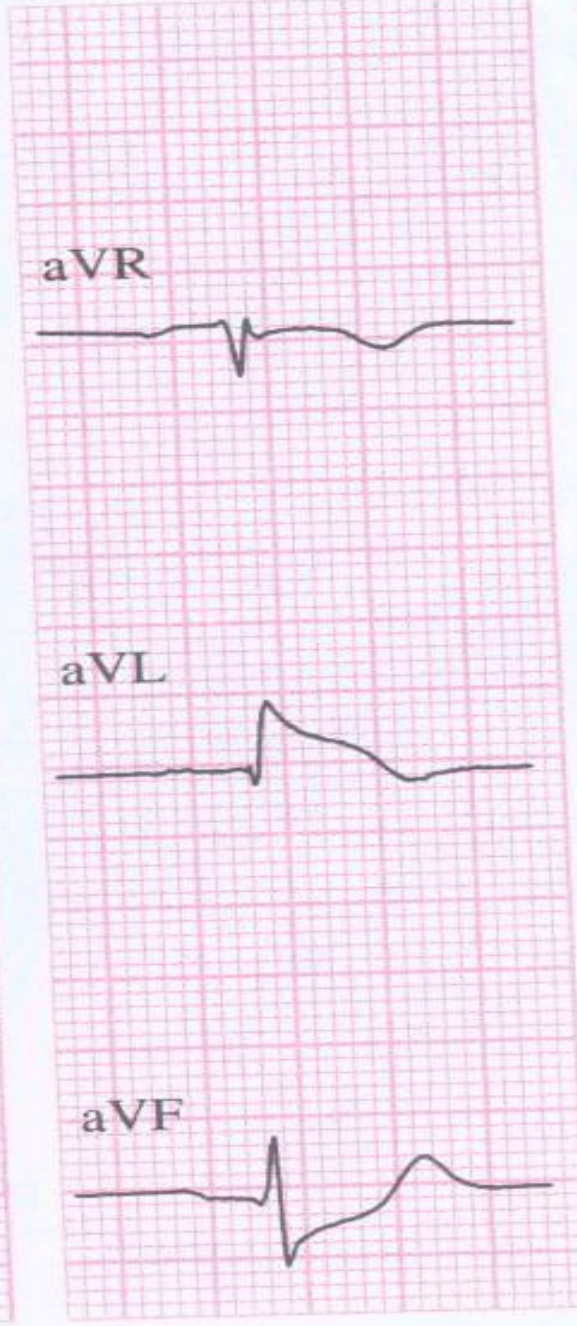
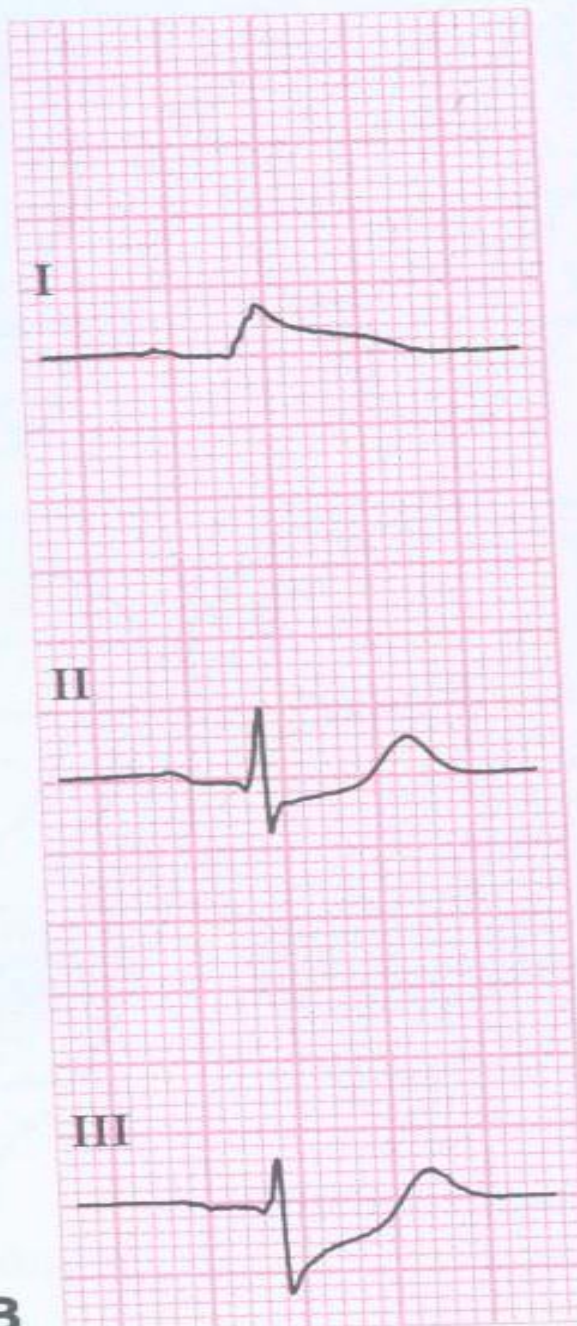


V3



V6





B

... first minute of balloon OC-

I



aVR



V1



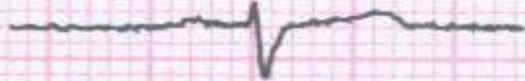
V4



II



aVL



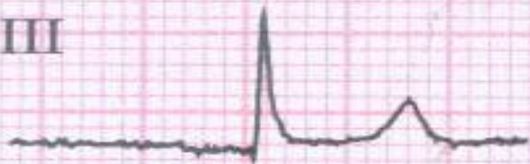
V2



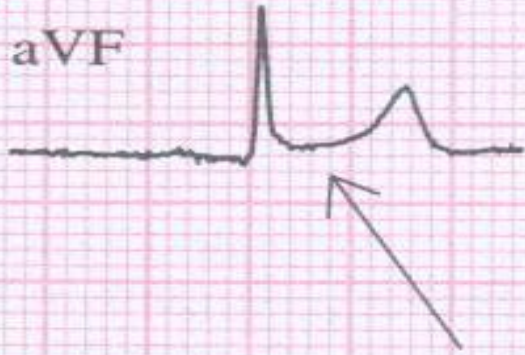
V5



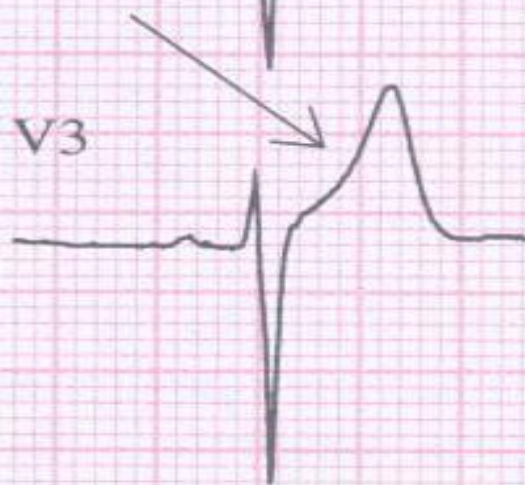
III



aVF



V3



V6



Aortic Dissection / Aneurysm

- ◆ Strict blood pressure control
- ◆ Avoidance of isometric / anaerobic exercises
- ◆ Beta blockers
- ◆ Aspirin
- ◆ Statins
- ◆ Yearly CT scans and Echocardiograms
- ◆ Vasculopathy
- ◆ IE prophylaxis

Factors affecting wound healing

- ◆ Steroids
- ◆ Malnutrition
- ◆ Radiation
- ◆ Diabetes

Factors leading to postop infection

- ◆ DM
- ◆ Renal failure
- ◆ Preop infection
- ◆ Immunosuppressive medication
- ◆ Steroids
- ◆ Smoking

CTSU: RHH / Calvary LVH

- ◆ Discharge summaries
- ◆ Registry programmes: Aortic registry, Early AS
- ◆ Long term follow up studies
- ◆ Email correspondence:
ashutosh.hardikar@ths.tas.gov.au
- ◆ RHH: 6166 8842 Calvary: 6278 5071

My Doctor said "Only 1 glass of alcohol a day". I can live with that.

