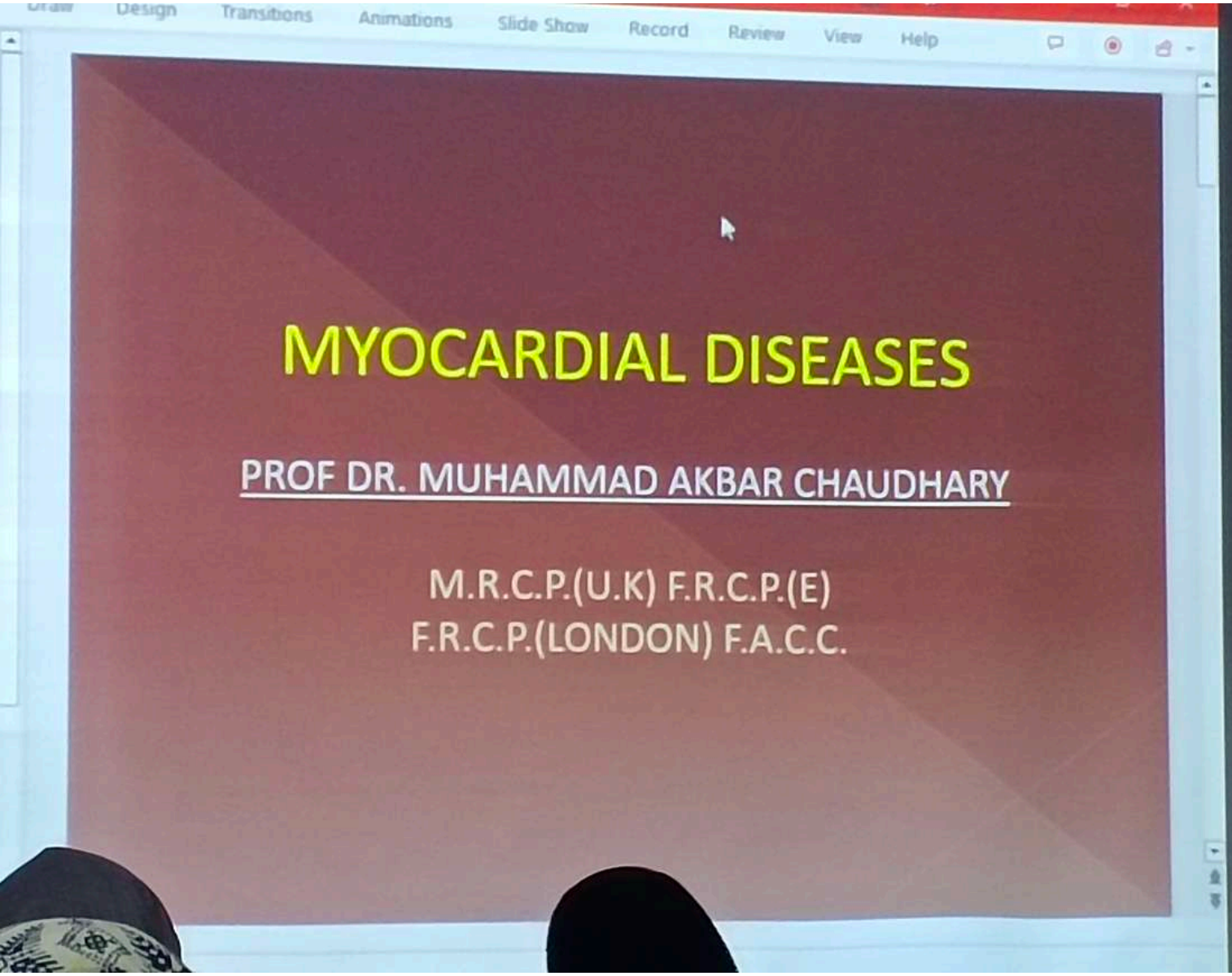

Design
Transitions
Animations
Slide Show
Record
Review
View
Help
MYOCARDIAL DISEASES
PROF DR. MUHAMMAD AKBAR CHAUDHARY
M.R.C.P.(U.K) F.R.C.P.(E)
F.R.C.P.(LONDON) F.A.C.C.

MYOCARDIAL DISEASE

MYOCARDITIS

- Inflammatory process involving the myocardial wall, and may be caused virtually by any bacterial, viral, rickettsial, mycotic or parasitic organism.
- INFECTIONS

(A). Viral

- Coxsackie-b, enterovirus, echovirus, adenovirus, cytomegalovirus, Herpes Simplex, H Zoster, Influenza, Mumps, Polio, Rubella, Viral Hepatitis

(B). Bacterial

- Diphtheria, Brucellosis, Actinomycosis, Scarlet fever, Rheumatic fever, Staphylococcus, Pneumococcal,Tuberculosis,Salmonella

MYOCARDIAL DISEASE

MYOCARDITIS

(C.) SPIROCHAETAL

- Leptospirosis, Relapsing Fever, Syphilis, Q. Fever Typhus, Rockey mountain Spotted Fever.

(D.) MYCOTIC (fungi)

- Aspergillosis, Blastomycosis, Candidiasis Histoplasmosis

(E.) PROTOZAOL

- Amoebiasis, Chaga's Disease, Toxoplasmosis, Malaria, Leishmaniasis, Trypanosomiasis

(F.) HELMINTHIC

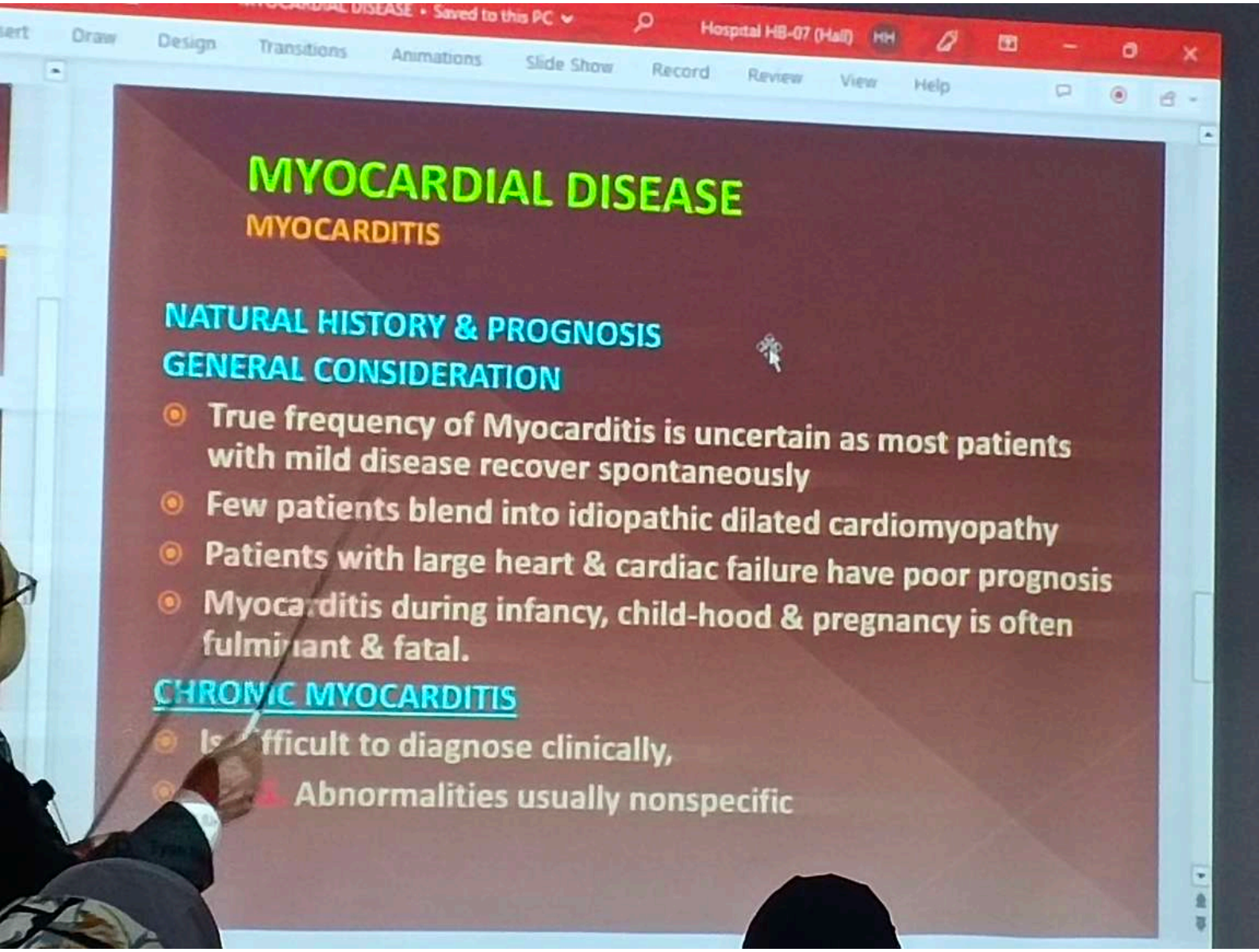
- Ascariasis, Cysticercosis, Echinococcus, Filiariasis, Trichinosis,schistosomiasis .

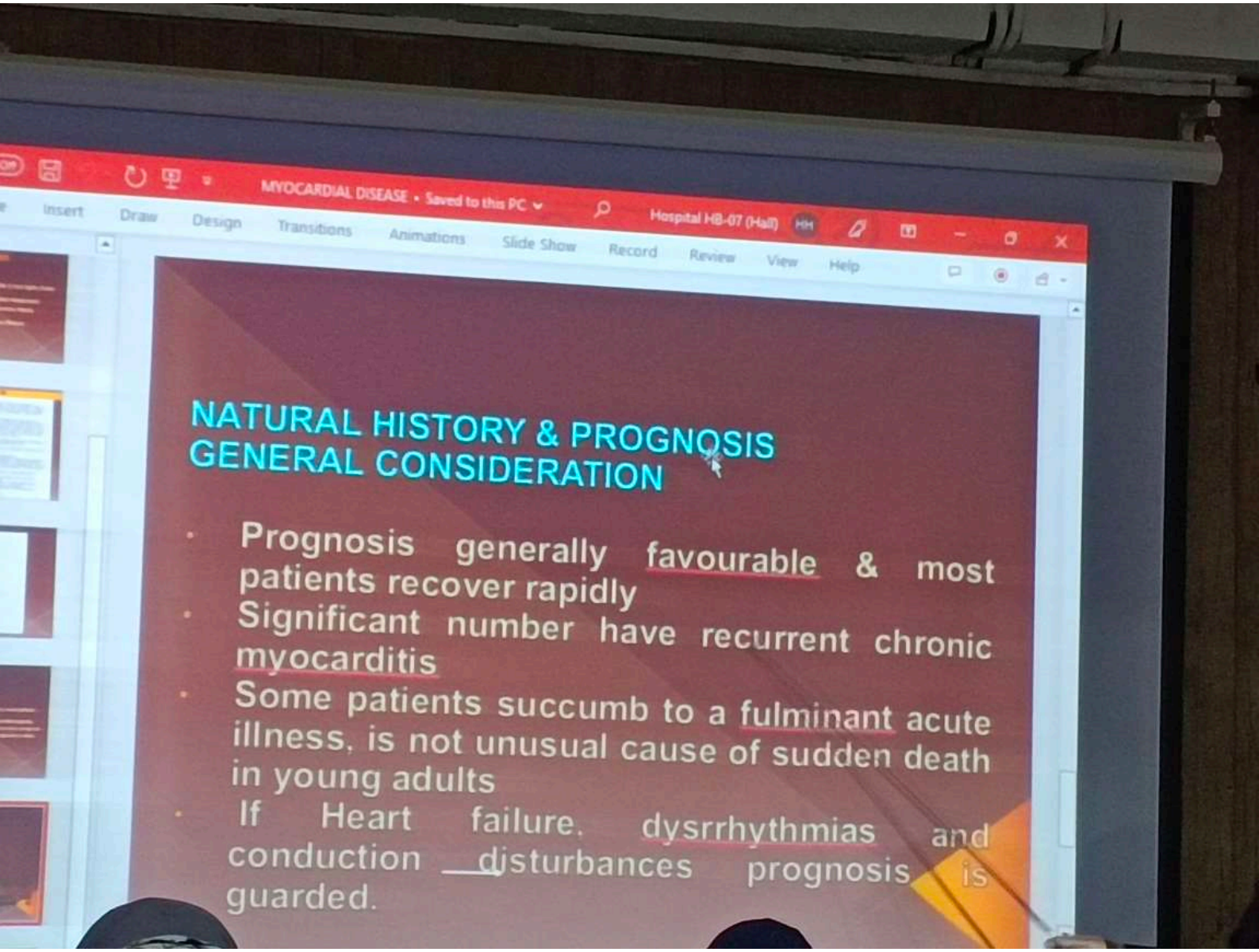
NON INFECTIOUS

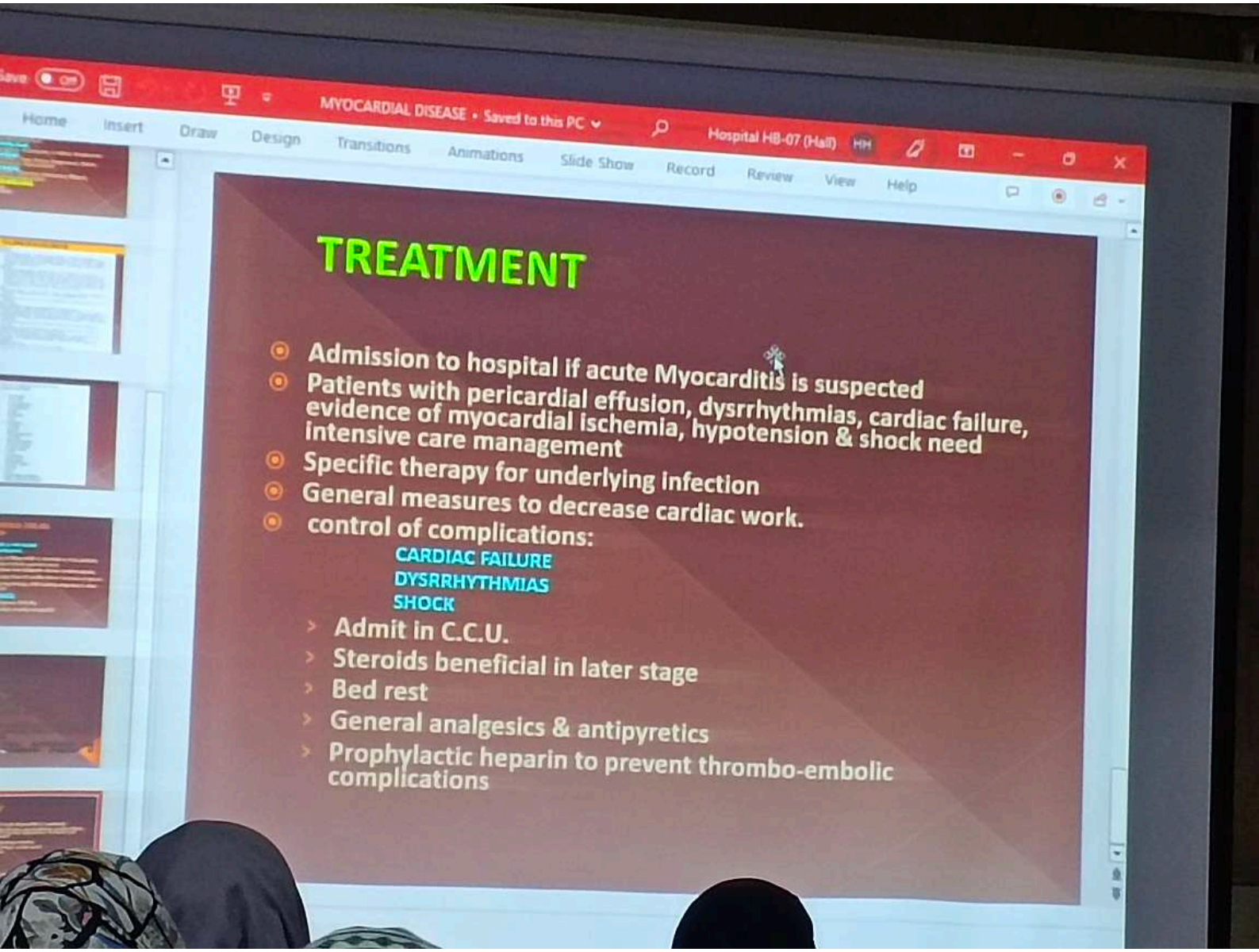
- Drugs
- Radiation

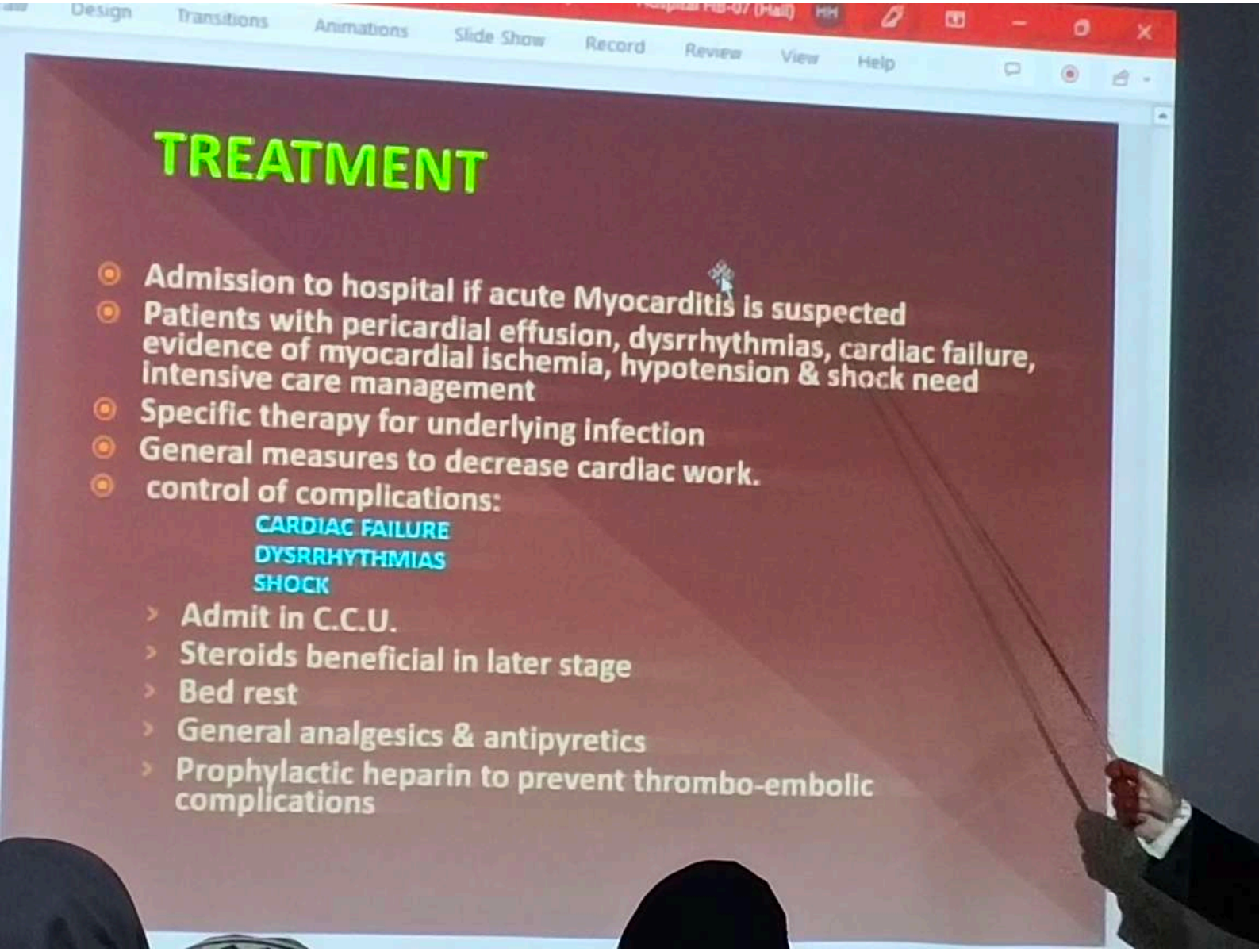
CAUSES OF MYOCARDITIS

- **Infectious**
  - **Viruses**
    - Coxsackievirus, echovirus, HIV, Epstein-Barr virus, influenza, cytomegalovirus, adenovirus, hepatitis (A and B), mumps, poliovirus, rabies, respiratory syncitial virus, rubella, vaccinia, varicella zoster, arbovirus
  - **Bacteria**
    - *Cornyebacterium diptheriae, Streptococcus pyogenes, Staphylococcus aureus, Haemophilus pneumoniae, Salmonella* spp., *Neisseria gonorrhoeae, Leptospira, Borrelia burgdorferi, Treponema pallidum, Brucella, Mycobacterium tuberculosis, Actinomyces, Chlamydia* spp., *Coxiella burnetti, Mycoplasma pneumoniae, Rickettsia* spp.
  - **Fungi**
    - *Candida* spp., *Aspergillus* spp., *Histoplasma, Blastomyces, Cryptococcus, Coccidioidomyces*
  - **Parasites**
    - *Trypanosoma cruzii, Toxoplasma, Schistosoma, Trichina*
- **Noninfectious**
  - **Drugs causing hypersensitivity reactions**
    - Antibiotics: sulfonamides, penicillins, chloramphenicol, amphotericin B, tetracycline, streptomycin
    - Antituberculous: isoniazid, para-aminosalicylic acid
    - Anticonvulsants: phenindione, phenytoin, carbemazepine
    - Anti-inflammatories: indomethacin, phenylbutazone
    - Diuretics: acetazolamide, chlorthalidone, hydrochlorothiazide, spironolactone
    - Others: amitriptyline, methyldopa, sulfonylureas
  - **Drugs not causing hypersensitivity reactions**
    - Cocaine, cyclophosphamide, lithium, interferon alpha
  - **Nondrug causes**
    - Radiation, giant-cell myo


Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Hospital HB-07 (Hall)
MYOCARDIAL DISEASE
MYOCARDITIS
NATURAL HISTORY & PROGNOSIS
GENERAL CONSIDERATION
True frequency of Myocarditis is uncertain as most patients with mild disease recover spontaneously
Few patients blend into idiopathic dilated cardiomyopathy
Patients with large heart & cardiac failure have poor prognosis
Myocarditis during infancy, child-hood & pregnancy is often fulminant & fatal.
CHRONIC MYOCARDITIS
fficult to diagnose clinically,
Abnormalities usually nonspecific


MYOCARDIAL DISEASE • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
NATURAL HISTORY & PROGNOSIS
GENERAL CONSIDERATION
Prognosis generally favourable & most patients recover rapidly
Significant number have recurrent chronic myocarditis
Some patients succumb to a fulminant acute illness, is not unusual cause of sudden death in young adults
If Heart failure, dysrrhythmias and conduction disturbances prognosis is guarded.


MYOCARDIAL DISEASE • Saved to this PC
Hospital HB-07 (Hall)
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
TREATMENT
Admission to hospital if acute Myocarditis is suspected
Patients with pericardial effusion, dysrrhythmias, cardiac failure, evidence of myocardial ischemia, hypotension & shock need intensive care management
Specific therapy for underlying infection
General measures to decrease cardiac work.
control of complications:
CARDIAC FAILURE
DYSRRHYTHMIAS
SHOCK
Admit in C.C.U.
Steroids beneficial in later stage
Bed rest
General analgesics & antipyretics
Prophylactic heparin to prevent thrombo-embolic complications


Design
Transitions
Animations
Slide Show
Record
Review
View
Help
TREATMENT
Admission to hospital if acute Myocarditis is suspected
Patients with pericardial effusion, dysrrhythmias, cardiac failure, evidence of myocardial ischemia, hypotension & shock need intensive care management
Specific therapy for underlying infection
General measures to decrease cardiac work.
control of complications:
CARDIAC FAILURE
DYSRRHYTHMIAS
SHOCK
Admit in C.C.U.
Steroids beneficial in later stage
Bed rest
General analgesics & antipyretics
Prophylactic heparin to prevent thrombo-embolic complications

cardiomyopathy • Saved to this PC

Hospital HB-07 (Hall)

Insert Draw Design Transitions Animations Slide Show Record Review View Help

In the Name of **Allah** the Most Beneficent and Merciful

Cardiomyopathies

Prof. Dr. Muhammad Akbar Chaudhry

M.R.C.P.(UK) , F.R.C.P.(E)
F.R.C.P. (LONDON), F.A.C.C.

Cardiomyopathies

- ***Primary***

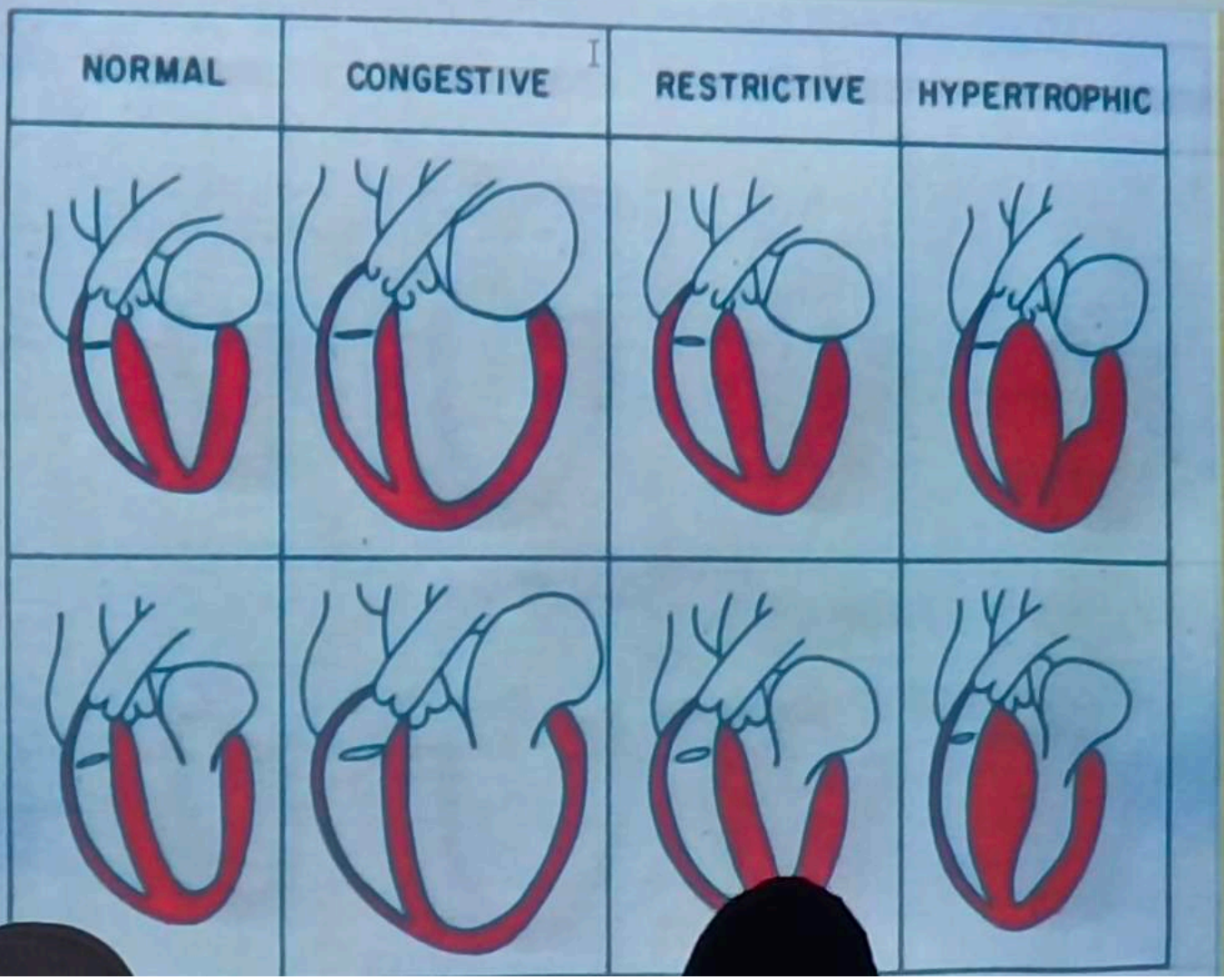
"Heart muscle disease of unknown cause"

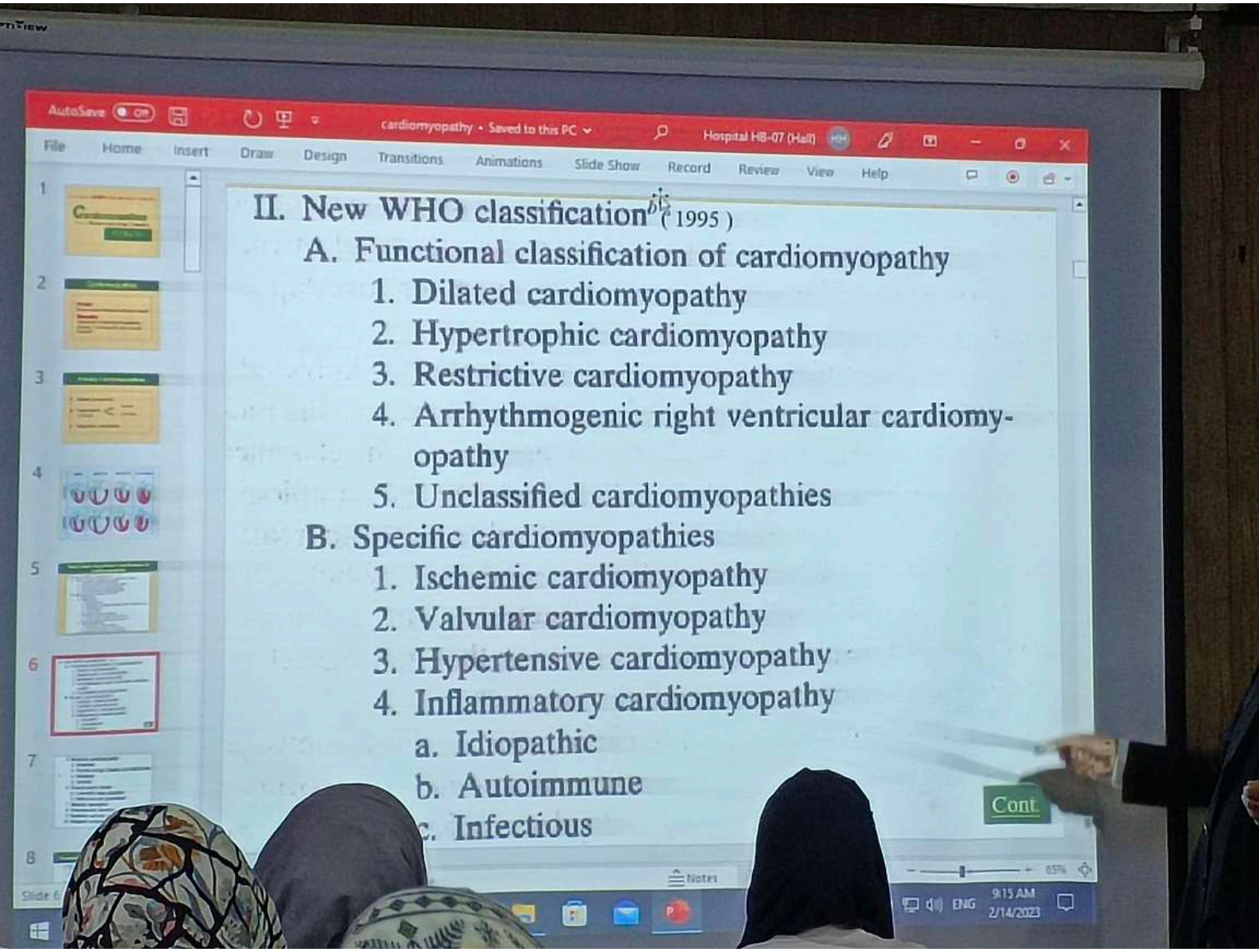
- ***Secondary***

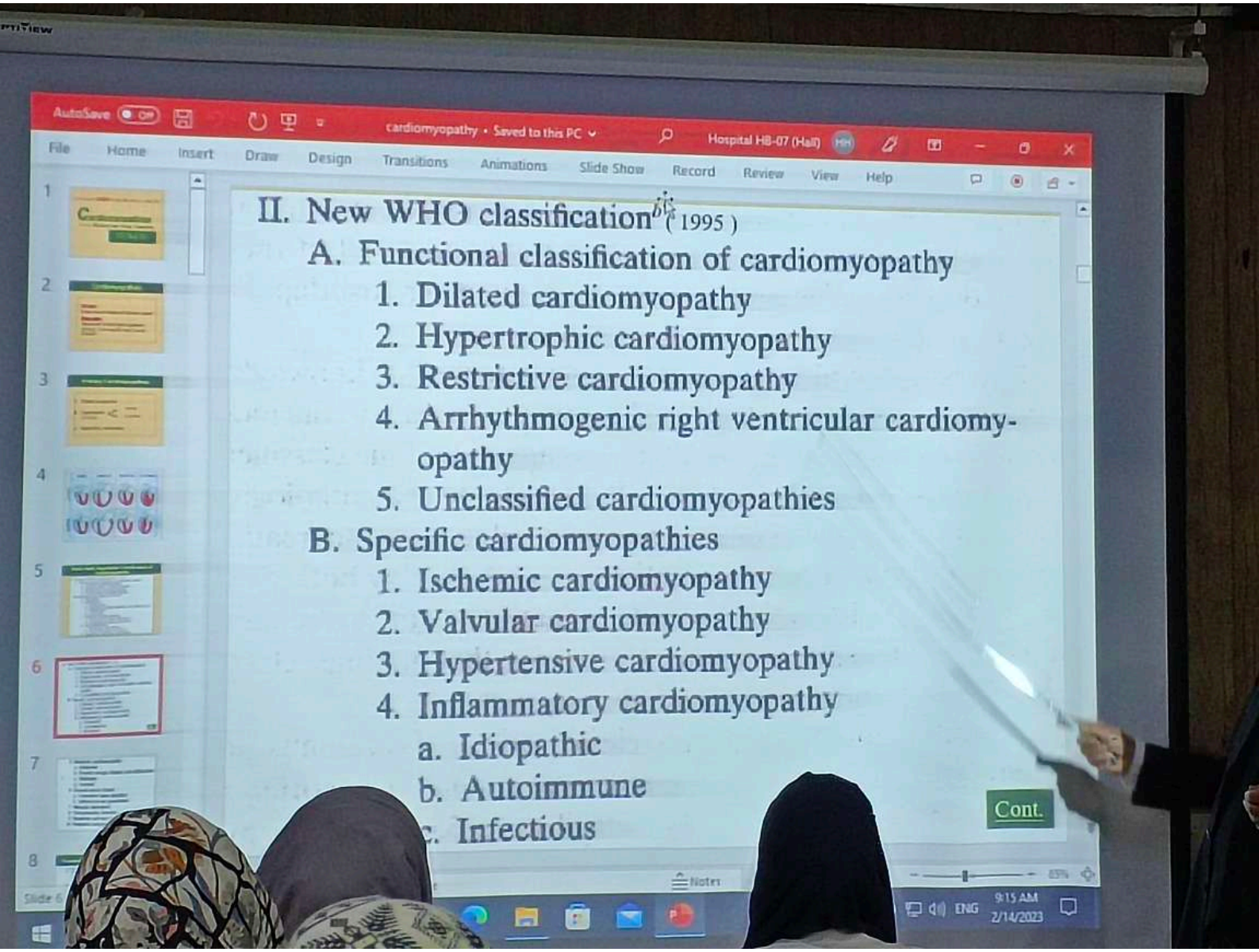
Myocardial involvement in systemic disease " (rare specific heart muscle disease)"

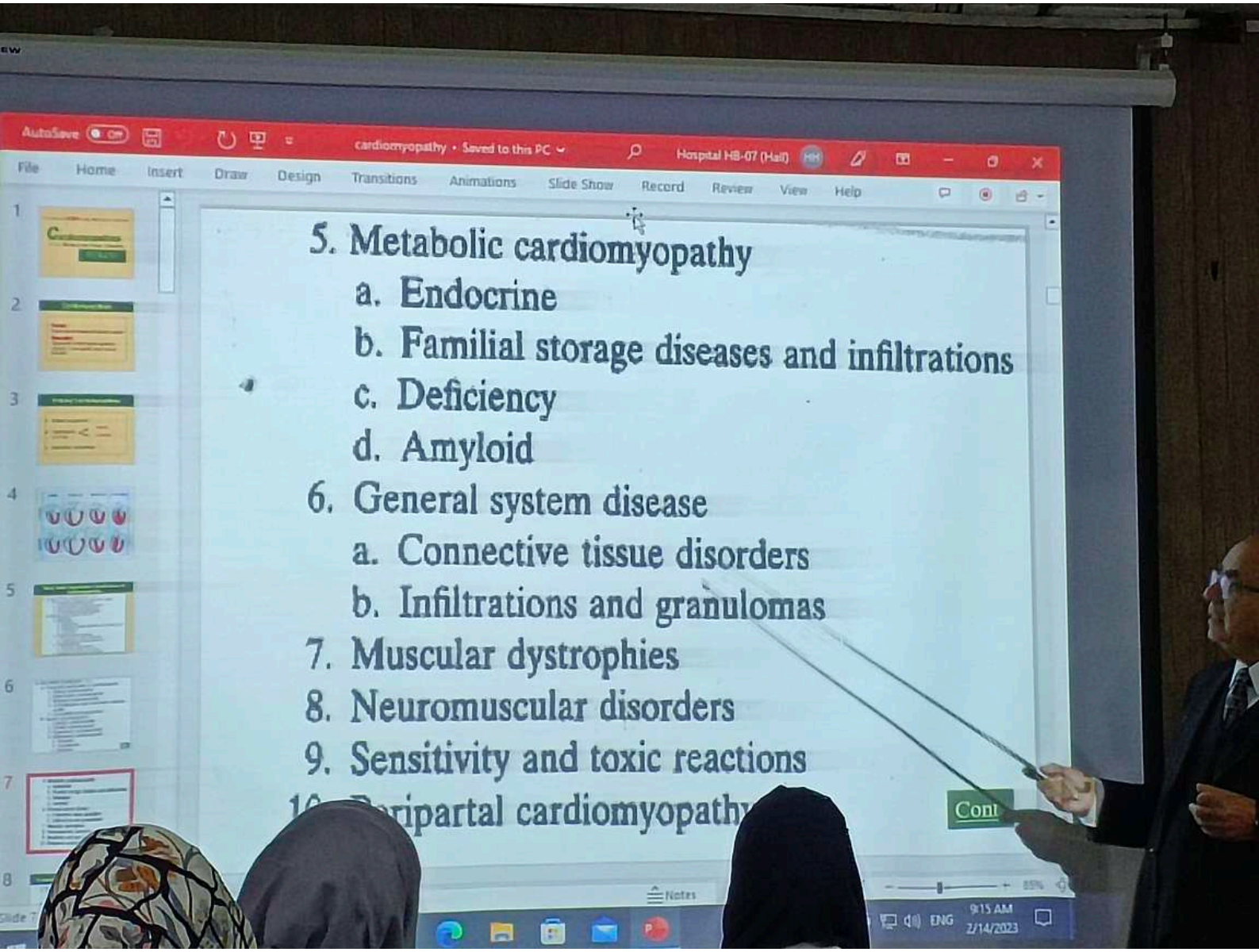
Primary Cardiomyopathies

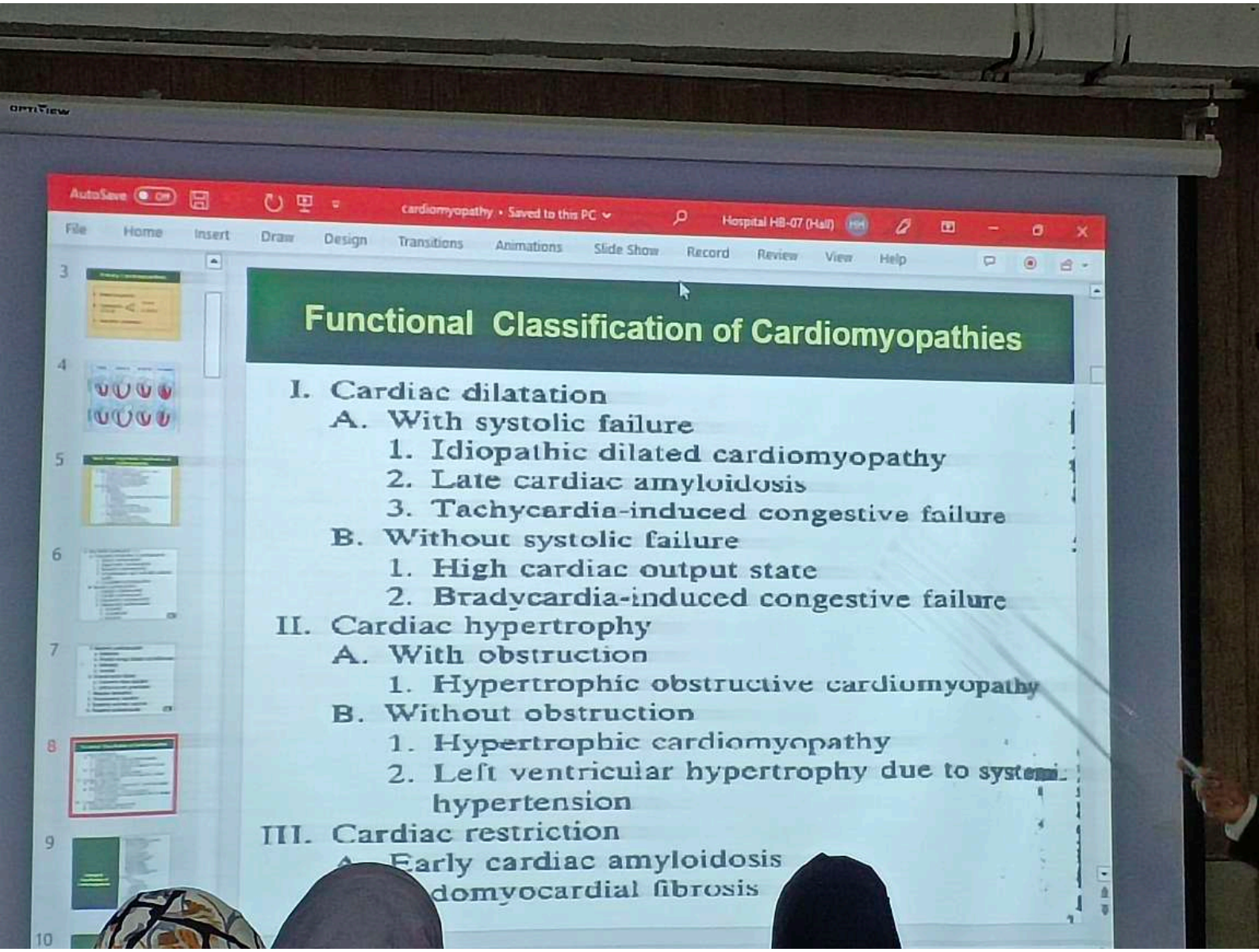
1. Dilated (congestive)
2. Hypertrophic (I.H.S.S)
   - H.O.C.M.
   - H.N.O.C.M.
3. Restrictive / obliterative

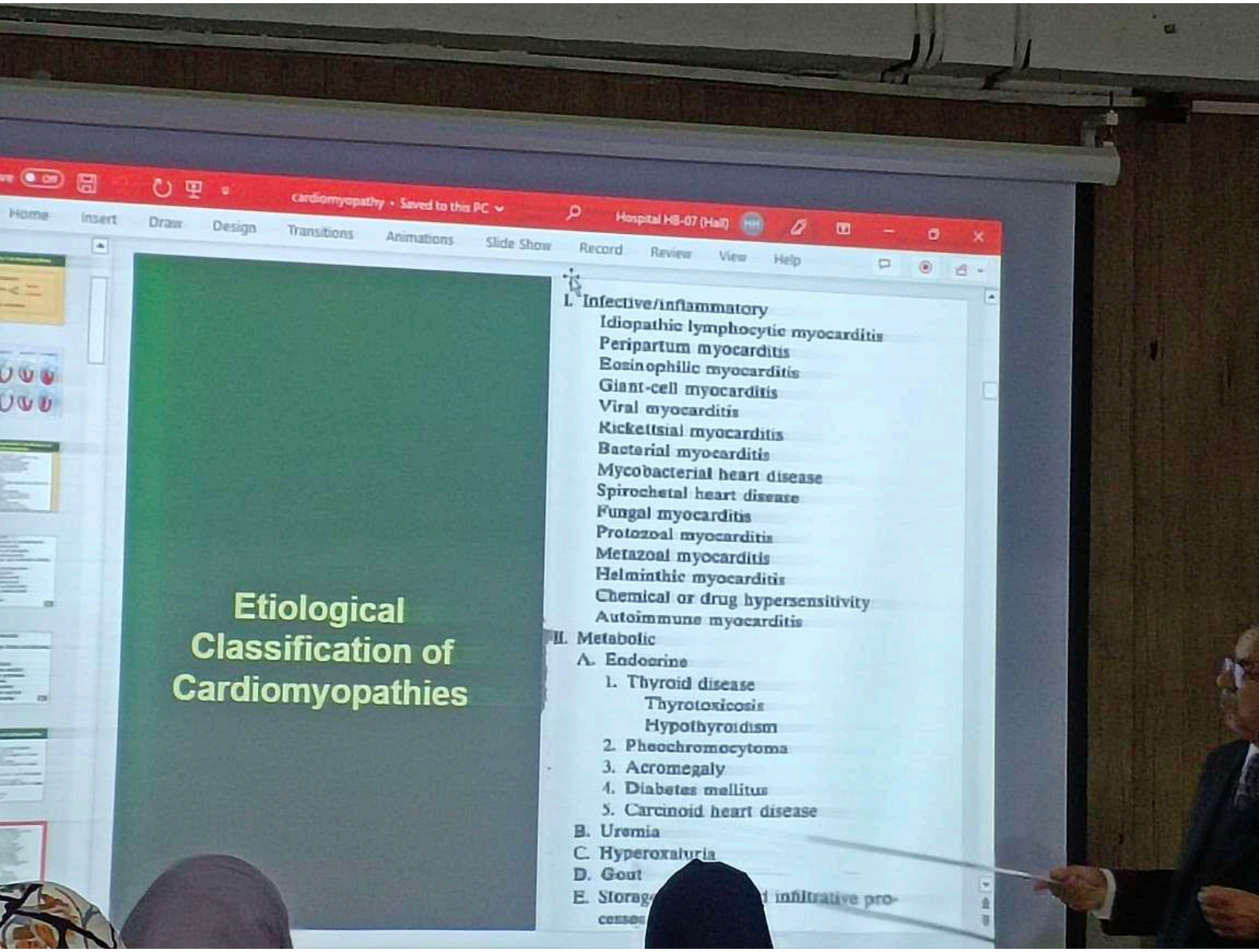

NORMAL
CONGESTIVE
RESTRICTIVE
HYPERTROPHIC
SYSTOLE
DIASTOLE

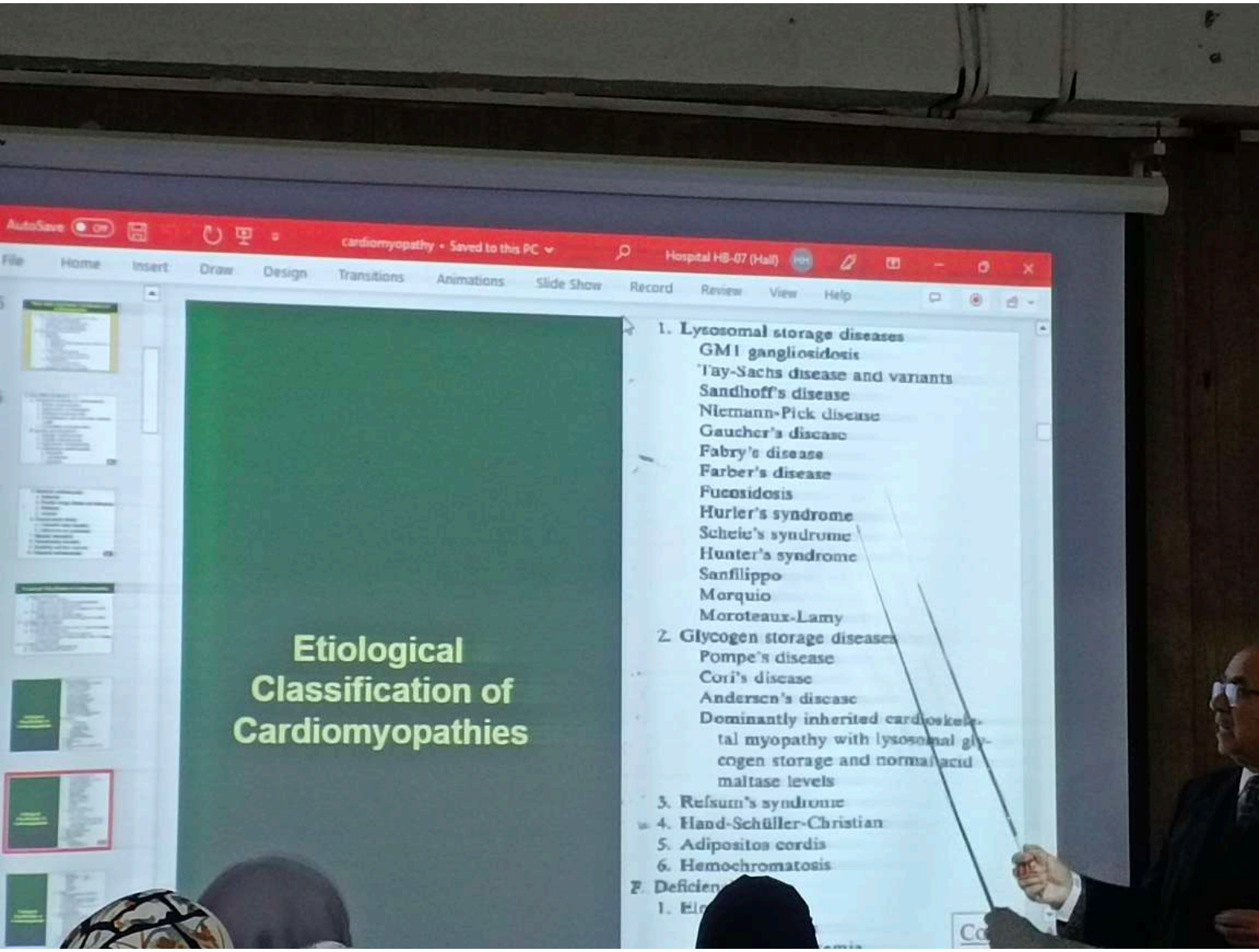

AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
II. New WHO classification (1995)
A. Functional classification of cardiomyopathy
1. Dilated cardiomyopathy
2. Hypertrophic cardiomyopathy
3. Restrictive cardiomyopathy
4. Arrhythmogenic right ventricular cardiomyopathy
5. Unclassified cardiomyopathies
B. Specific cardiomyopathies
1. Ischemic cardiomyopathy
2. Valvular cardiomyopathy
3. Hypertensive cardiomyopathy
4. Inflammatory cardiomyopathy
a. Idiopathic
b. Autoimmune
c. Infectious
Cont.
Notes
9:15 AM
2/14/2023

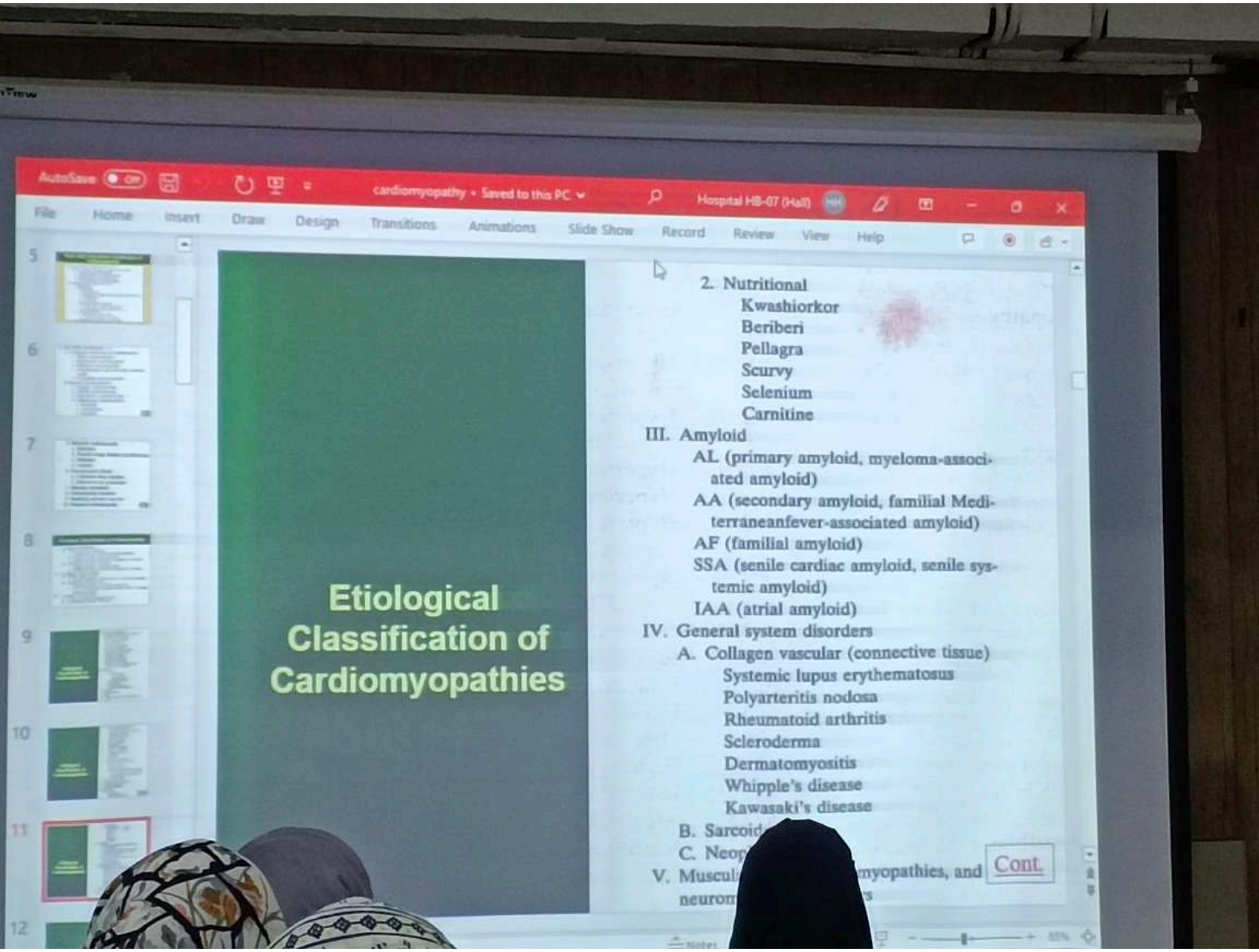

cardiomyopathy • Saved to this PC
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
II. New WHO classification (1995)
A. Functional classification of cardiomyopathy
1. Dilated cardiomyopathy
2. Hypertrophic cardiomyopathy
3. Restrictive cardiomyopathy
4. Arrhythmogenic right ventricular cardiomyopathy
5. Unclassified cardiomyopathies
B. Specific cardiomyopathies
1. Ischemic cardiomyopathy
2. Valvular cardiomyopathy
3. Hypertensive cardiomyopathy
4. Inflammatory cardiomyopathy
a. Idiopathic
b. Autoimmune
c. Infectious
Cont.
Notes
ENG 9:15 AM 2/14/2023

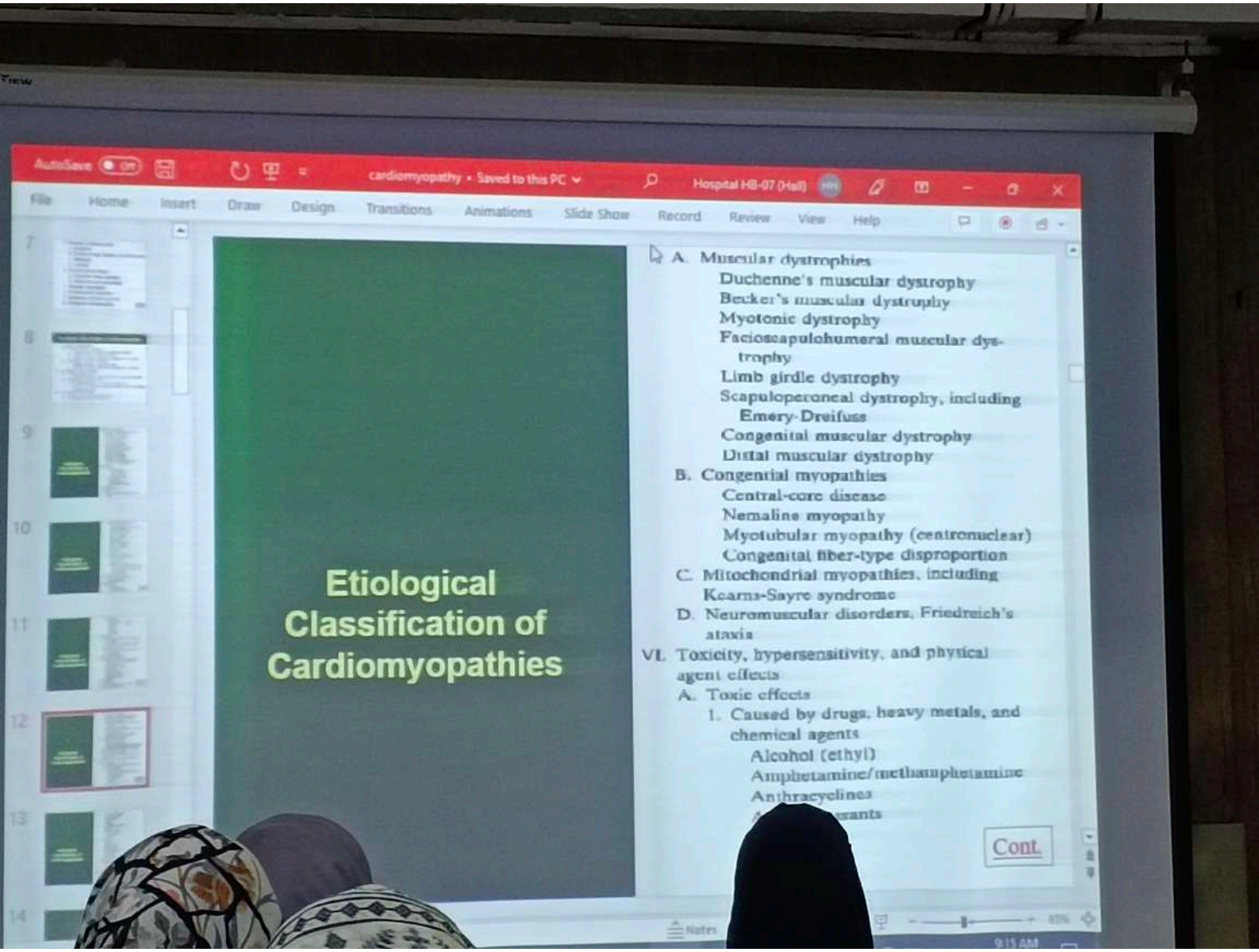

cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
5. Metabolic cardiomyopathy
a. Endocrine
b. Familial storage diseases and infiltrations
c. Deficiency
d. Amyloid
6. General system disease
a. Connective tissue disorders
b. Infiltrations and granulomas
7. Muscular dystrophies
8. Neuromuscular disorders
9. Sensitivity and toxic reactions
Cont
Notes
ENG
9:15 AM
2/14/2023

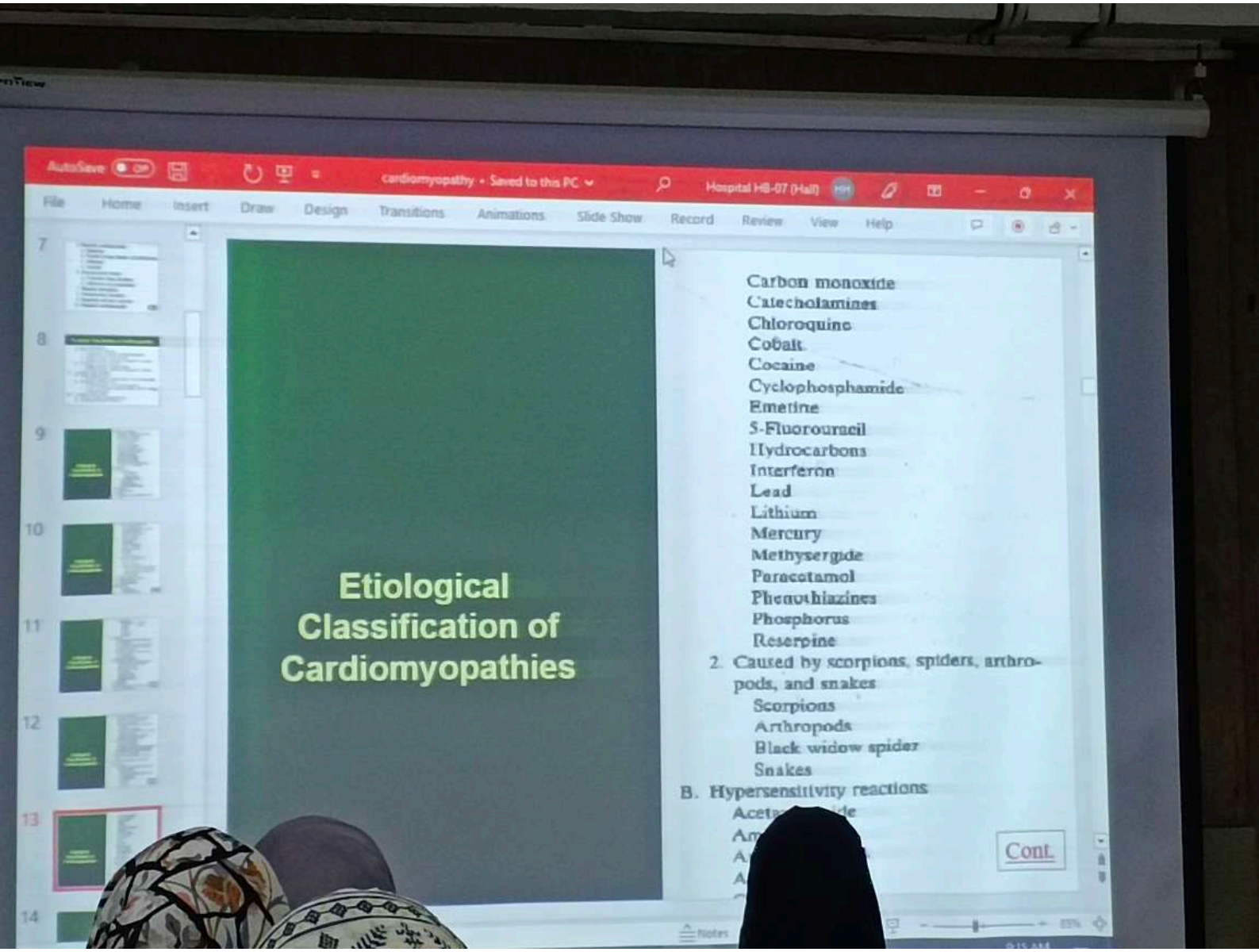

AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Functional Classification of Cardiomyopathies
I. Cardiac dilatation
A. With systolic failure
1. Idiopathic dilated cardiomyopathy
2. Late cardiac amyloidosis
3. Tachycardia-induced congestive failure
B. Without systolic failure
1. High cardiac output state
2. Bradycardia-induced congestive failure
II. Cardiac hypertrophy
A. With obstruction
1. Hypertrophic obstructive cardiomyopathy
B. Without obstruction
1. Hypertrophic cardiomyopathy
2. Left ventricular hypertrophy due to systemic hypertension
III. Cardiac restriction
A. Early cardiac amyloidosis
domyocardial fibrosis

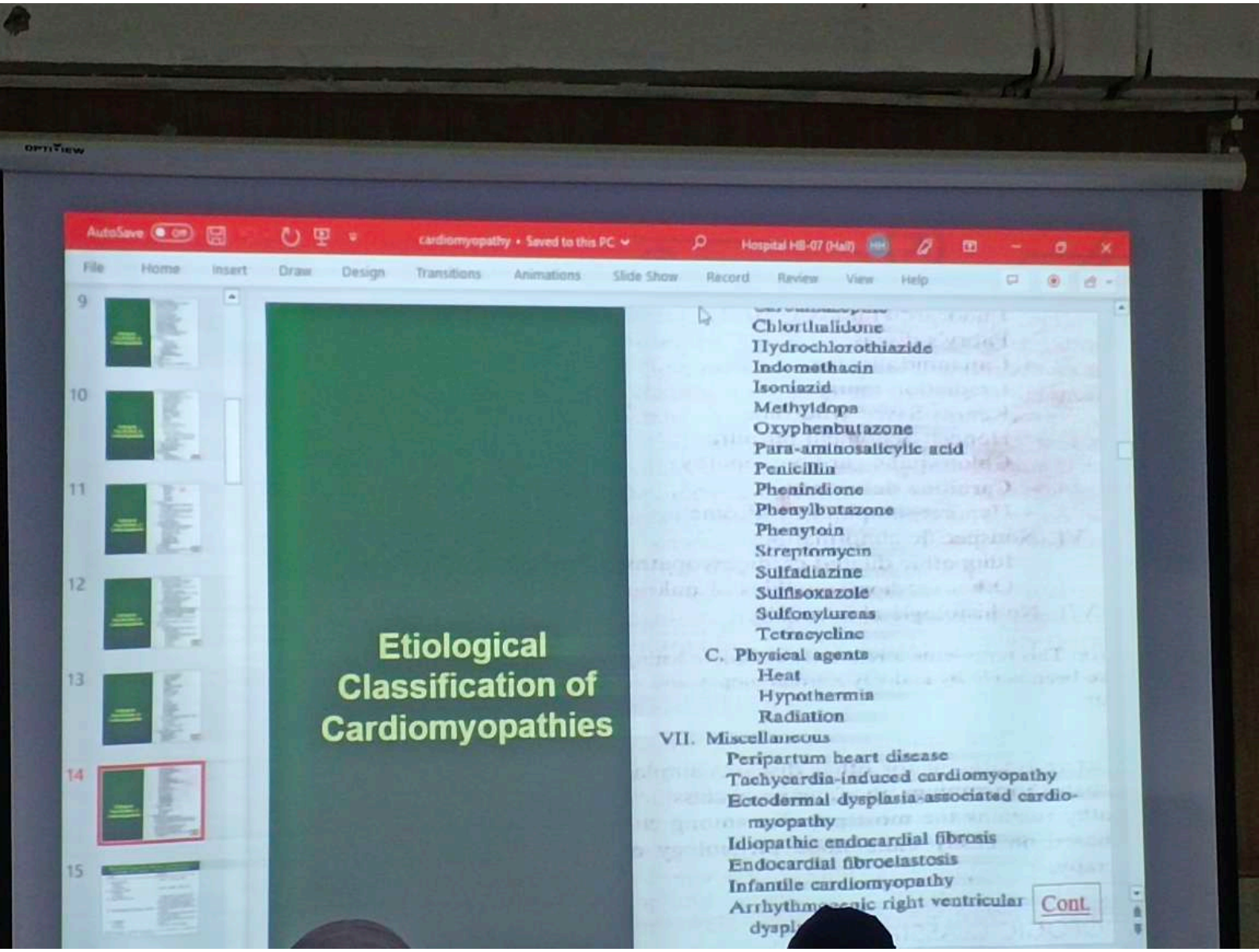

cardiomyopathy • Saved to this PC
Hospital H8-07 (Hall)
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Etiological Classification of Cardiomyopathies
I. Infective/inflammatory
Idiopathic lymphocytic myocarditis
Peripartum myocarditis
Eosinophilic myocarditis
Giant-cell myocarditis
Viral myocarditis
Rickettsial myocarditis
Bacterial myocarditis
Mycobacterial heart disease
Spirochetal heart disease
Fungal myocarditis
Protozoal myocarditis
Metazoal myocarditis
Helminthic myocarditis
Chemical or drug hypersensitivity
Autoimmune myocarditis
II. Metabolic
A. Endocrine
1. Thyroid disease
Thyrotoxicosis
Hypothyroidism
2. Pheochromocytoma
3. Acromegaly
4. Diabetes mellitus
5. Carcinoid heart disease
B. Uremia
C. Hyperoxaluria
D. Gout
E. Storage
infiltrative pro-
cesses

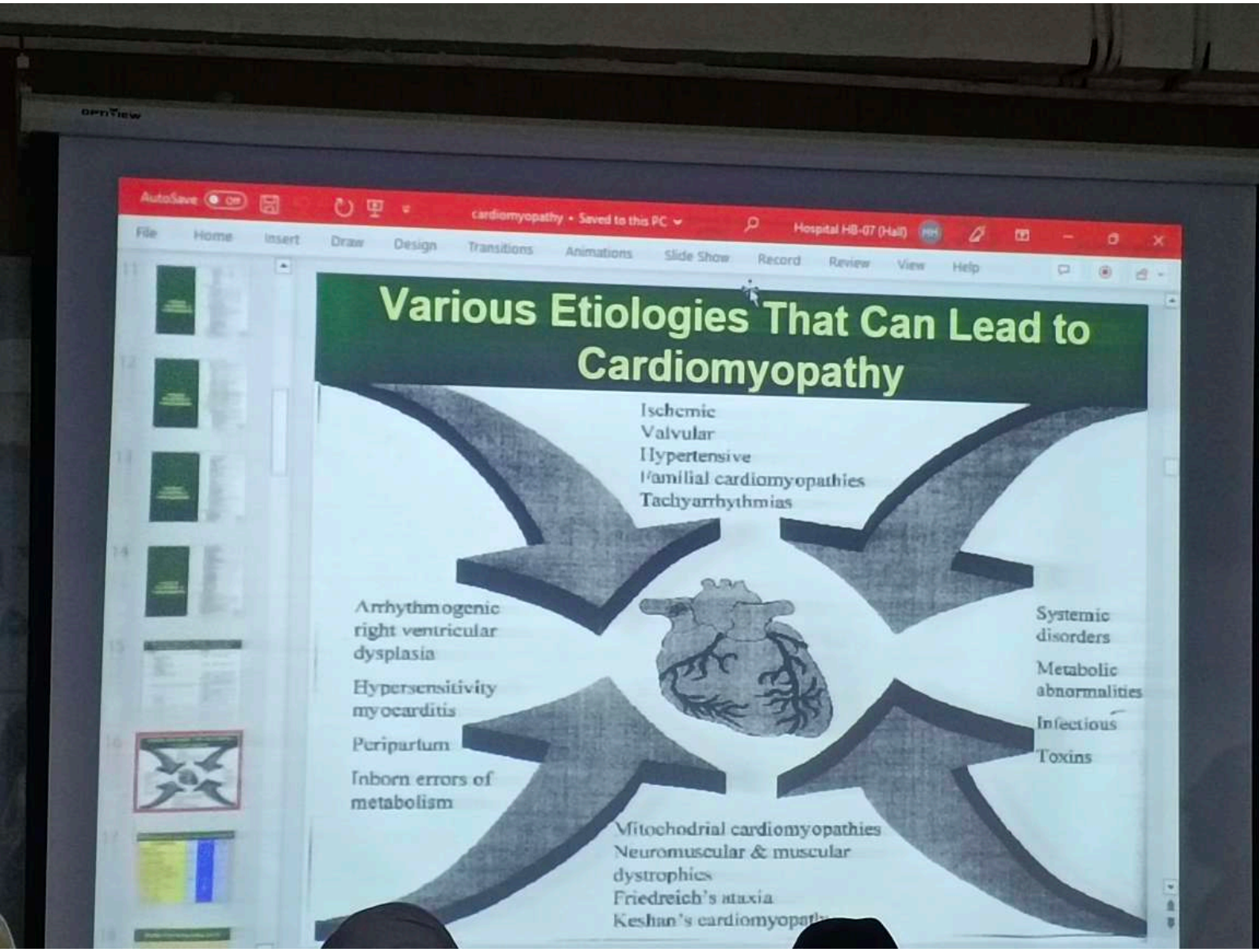

AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Etiological Classification of Cardiomyopathies
1. Lysosomal storage diseases
GM1 gangliosidosis
Tay-Sachs disease and variants
Sandhoff's disease
Niemann-Pick disease
Gaucher's disease
Fabry's disease
Farber's disease
Fucosidosis
Hurler's syndrome
Scheie's syndrome
Hunter's syndrome
Sanfilippo
Morquio
Maroteaux-Lamy
2. Glycogen storage diseases
Pompe's disease
Cori's disease
Andersen's disease
Dominantly inherited cardioskeletal myopathy with lysosomal glycogen storage and normal acid maltase levels
3. Refsum's syndrome
4. Hand-Schüller-Christian
5. Adipositas cordis
6. Hemochromatosis

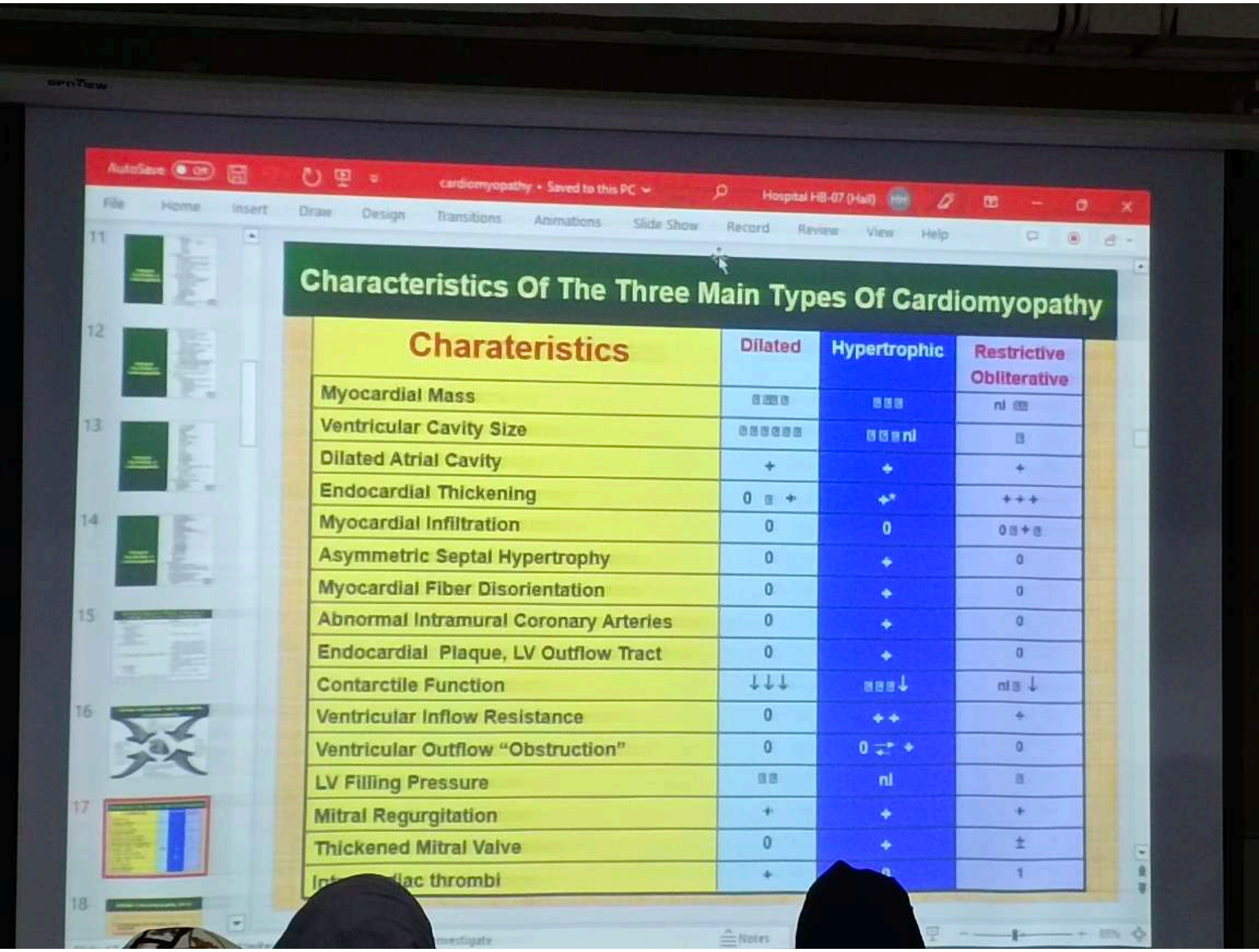

AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Etiological Classification of Cardiomyopathies
2. Nutritional
Kwashiorkor
Beriberi
Pellagra
Scurvy
Selenium
Carnitine
III. Amyloid
AL (primary amyloid, myeloma-associated amyloid)
AA (secondary amyloid, familial Mediterraneanfever-associated amyloid)
AF (familial amyloid)
SSA (senile cardiac amyloid, senile systemic amyloid)
IAA (atrial amyloid)
IV. General system disorders
A. Collagen vascular (connective tissue)
Systemic lupus erythematosus
Polyarteritis nodosa
Rheumatoid arthritis
Scleroderma
Dermatomyositis
Whipple's disease
Kawasaki's disease
Cont.

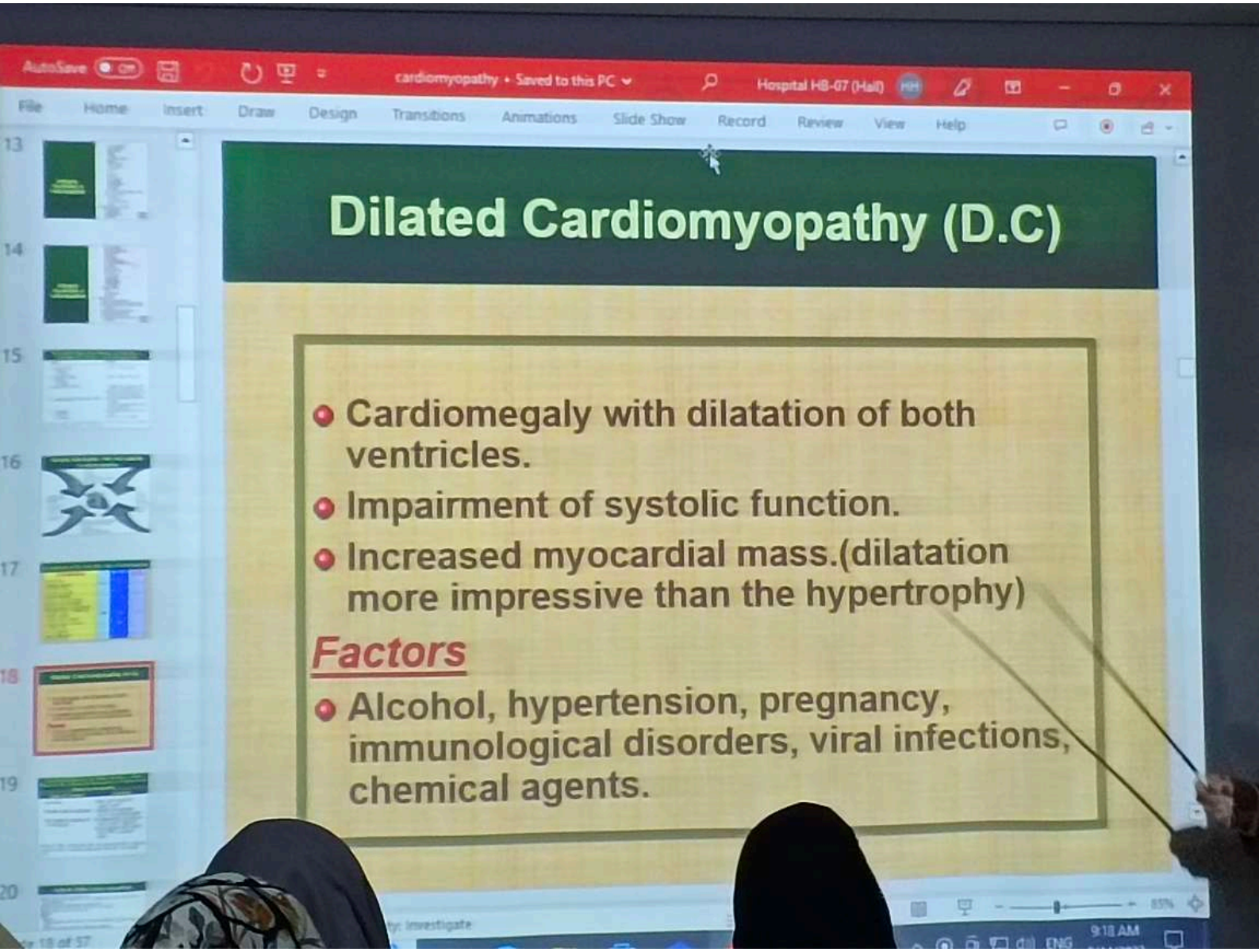

AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Etiological Classification of Cardiomyopathies
A. Muscular dystrophies
Duchenne's muscular dystrophy
Becker's muscular dystrophy
Myotonic dystrophy
Facioscapulohumeral muscular dystrophy
Limb girdle dystrophy
Scapuloperoneal dystrophy, including Emery-Dreifuss
Congenital muscular dystrophy
Distal muscular dystrophy
B. Congential myopathies
Central-core disease
Nemaline myopathy
Myotubular myopathy (centronuclear)
Congenital fiber-type disproportion
C. Mitochondrial myopathies, including Kearns-Sayre syndrome
D. Neuromuscular disorders, Friedreich's ataxia
VI. Toxicity, hypersensitivity, and phytical agent effects
A. Toxic effects
1. Caused by drugs, heavy metals, and chemical agents
Alcohol (ethyl)
Amphetamine/methamphetamine
Anthracyclines
Cont.
Notes


AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Etiological Classification of Cardiomyopathies
Carbon monoxide
Catecholamines
Chloroquine
Cobalt
Cocaine
Cyclophosphamide
Emetine
5-Fluorouracil
Hydrocarbons
Interferon
Lead
Lithium
Mercury
Methysergide
Paracetamol
Phenothiazines
Phosphorus
Reserpine
2. Caused by scorpions, spiders, arthropods, and snakes
Scorpions
Arthropods
Black widow spider
Snakes
B. Hypersensitivity reactions
Cont.


AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
9
10
11
12
13
14
15
Etiological Classification of Cardiomyopathies
Chlorthalidone
Hydrochlorothiazide
Indomethacin
Isoniazid
Methyldopa
Oxyphenbutazone
Para-aminosalicylic acid
Penicillin
Pheindione
Phenylbutazone
Phenytoin
Streptomycin
Sulfadiazine
Sulfisoxazole
Sulfonylureas
Tetracycline
C. Physical agents
Heat
Hypothermia
Radiation
VII. Miscellaneous
Peripartum heart disease
Tachycardia-induced cardiomyopathy
Ectodermal dysplasia-associated cardiomyopathy
Idiopathic endocardial fibrosis
Endocardial fibroelastosis
Infantile cardiomyopathy
Cont.


AutoSave
cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Various Etiologies That Can Lead to Cardiomyopathy
Ischemic
Valvular
Hypertensive
Familial cardiomyopathies
Tachyarrhythmias
Arrhythmogenic right ventricular dysplasia
Hypersensitivity myocarditis
Peripartum
Inborn errors of metabolism
Systemic disorders
Metabolic abnormalities
Infectious
Toxins
Mitochodrial cardiomyopathies
Neuromuscular & muscular dystrophies
Friedreich's ataxia
Keshan's cardiomyopathy


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Characteristics Of The Three Main Types Of Cardiomyopathy
Charateristics
Dilated
Hypertrophic
Restrictive Obliterative
Myocardial Mass
Ventricular Cavity Size
Dilated Atrial Cavity
Endocardial Thickening
Myocardial Infiltration
Asymmetric Septal Hypertrophy
Myocardial Fiber Disorientation
Abnormal Intramural Coronary Arteries
Endocardial Plaque, LV Outflow Tract
Contarctile Function
Ventricular Inflow Resistance
Ventricular Outflow "Obstruction"
LV Filling Pressure
Mitral Regurgitation
Thickened Mitral Valve
ac thrombi


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hail)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Dilated Cardiomyopathy (D.C)
Cardiomegaly with dilatation of both ventricles.
Impairment of systolic function.
Increased myocardial mass.(dilatation more impressive than the hypertrophy)
Factors
Alcohol, hypertension, pregnancy, immunological disorders, viral infections, chemical agents.

Three General Mechanism by Which Alterations in Gene Expression Can Influence the Development or Progression of a Dilated Cardiomyopathy

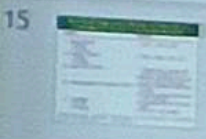
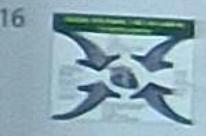
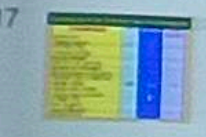
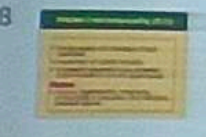
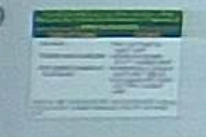
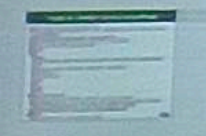
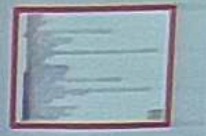
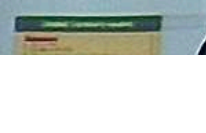
Types of Process	Examples
Gene mutation	Cardiac α-actin,[34] desmin,[35] dystrophin,[36,37] lamin[38,39]
Polymorphic variation in modifier genes	Angiotensin converting enzyme (ACE),[16,42,44] β_2-adrenergic receptor[46]
Altered expression of a completely normal, wild type gene	Decreased expression: β_1-adrenergic receptors,[8] α-MHC,[47,48] SERCA-2[49] Increased expression: ANP,[50] β-MHC,[47] ACE,[51,52] TNF-α,[53] endothelin,[54] βARK[55]

ABBREVIATIONS: MHC = mycsin heavy chain; TNF = tumor necrosis factor; βARK = β-adrenergic receptor kinase; SERCA = sarcoplasmic reticulum calcium ATP[illegible]; ANP = atrial natriuretic

Types of Dilated Cardiomyopathies

- Ischemic insult (ischemic cardiomyopathy)
- Valvular disease (mitral regurgitation, aortic regurgitation, aortic stenosis) (valvular cardiomyopathy)
- Chronic hypertension (hypertensive cardiomyopathy)
- Tachyarrhythmias (supraventricular, ventricular, atrial flutter)
- Familial (autosomal dominant, X-linked)
- Idiopathic
- Toxins
  - Ethanol
  - Chemotherapeutic agents (anthracyclines such as doxorubicin and daunorubicin)
  - Cobalt
  - Antiretroviral agents (zidovudine, didanosine, zalcitabine)
  - Phenothiazines
  - Carbon monoxide
  - Lithium
  - Lead
  - Cocaine
  - Mercury
- Metabolic abnormalities
  - Nutritional deficiencies (thiamine, selenium, carnitine, protein)
  - Endocrinologic disorders (hypothyroidism, acromegaly, thyrotoxicosis, Cushing's disease, pheochromocytoma, catecholamines, diabetes mellitus)
  - Electrolyte disturbances (hypocalcemia, hypophosphatemia)
- Infectious (coxsackie virus, cytomegalovirus, HIV)

Cont.

- Rickettsial
- Bacterial
- Mycobacterial
- Spirochetal
- Fungal
- Parasitic (toxoplasmosis, trichinosis, Chagas' disease)

Systemic disorders

- Systemic lupus erythematosis
- Juvenile rheumatoid arthritis
- Polyarteritis nodosa
- Kawasaki disease
- Collagen vascular disorders (scleroderma, lupus erythematosus, dermatomyositis)
- Hemochromatosis
- Amyloidosis
- Sarcoidosis
- Pseudoxanthoma elasticum
- Hypereosinophilic syndrome

Hypersensitivity myocarditis

Peri/postpartum dysfunction

Arrhythmogenic right ventricular dysplasia or cardiomyopathy

Infantile histiocytoid

Neuromuscular dystrophies

- Becker or Duchenne's muscular dystrophy, X-linked cardioskeletal myopathy

Facioscapulohumoral muscular dystrophy

Erb's limb-girdle dystrophy

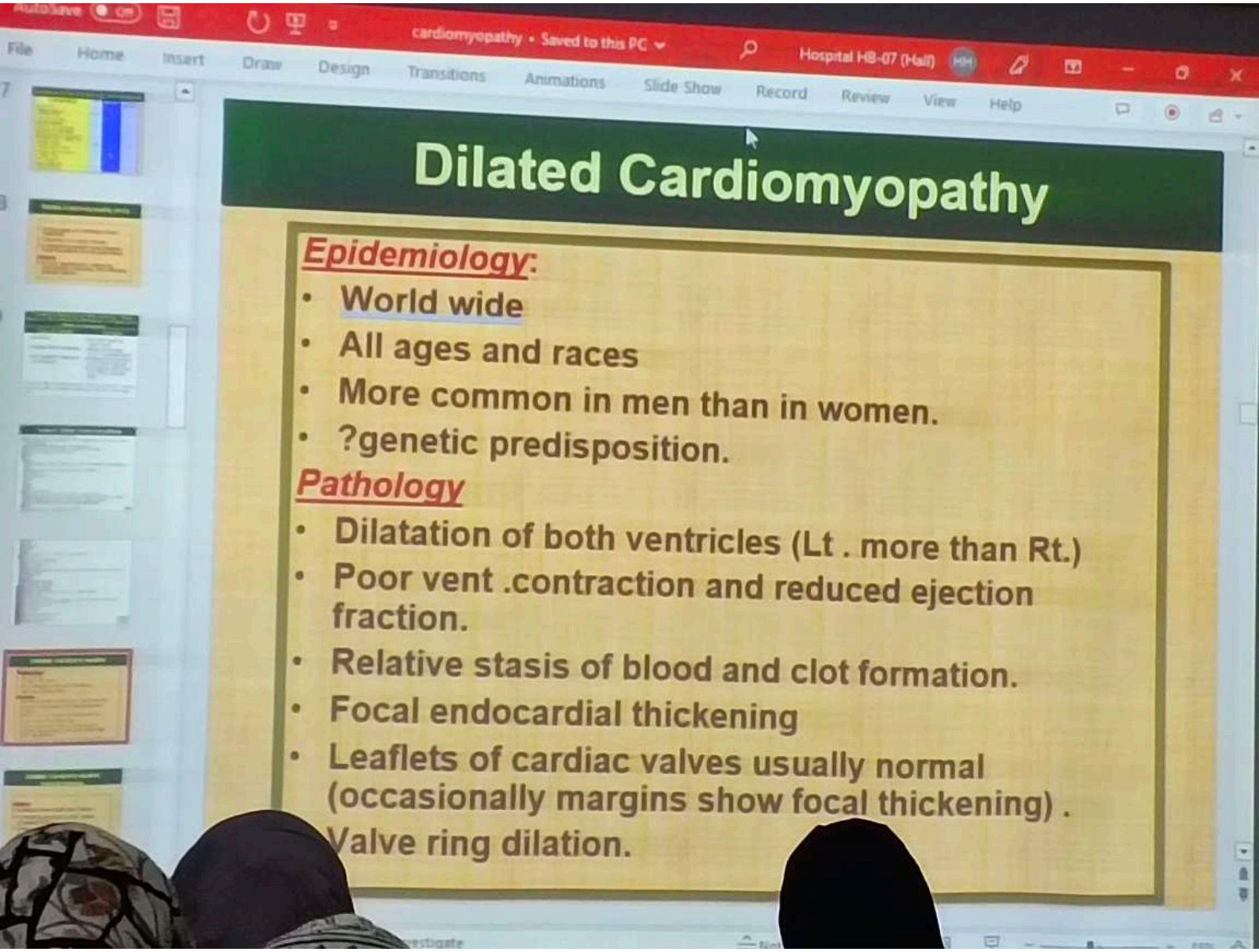
Myotonic dystrophy

Friedreich's ataxia

Emery-Dreifuss muscular dystrophy

- errors of metabolism
- ndrial cardiomyopathies
- rdiomyopathy

Cont.


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help
Dilated Cardiomyopathy
Epidemiology:
• World wide
• All ages and races
• More common in men than in women.
• ?genetic predisposition.
Pathology
• Dilatation of both ventricles (Lt . more than Rt.)
• Poor vent .contraction and reduced ejection fraction.
• Relative stasis of blood and clot formation.
• Focal endocardial thickening
• Leaflets of cardiac valves usually normal (occasionally margins show focal thickening) .
Valve ring dilation.

Dilated Cardiomyopathy

Clinical Manifestations

History

- Insidious onset of left vent. Failure
- Followed by symptoms of Rt. Sided congestive failure
- Chest pain may occur specially with exertion

Presentation

- Progressive congestive cardiac failure.
- Arrhythmias
- Atypical chest pain

Physical examination

- Cardiomegaly
- Gallop rhythm
- C.C.F.
- Varying degree of mitral regurgitation.
- Atrial fibrillation 10-20%.

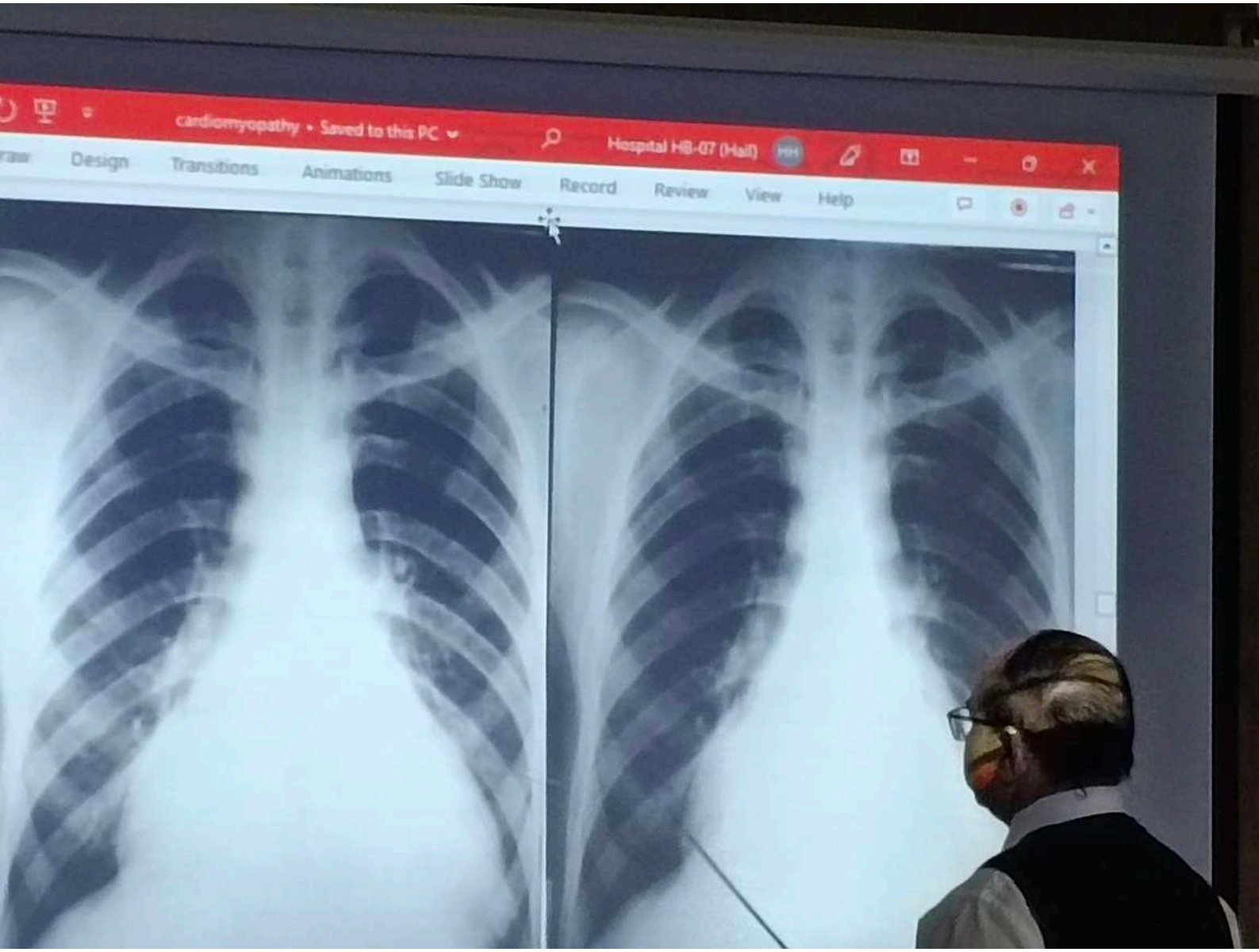
Physical Examination

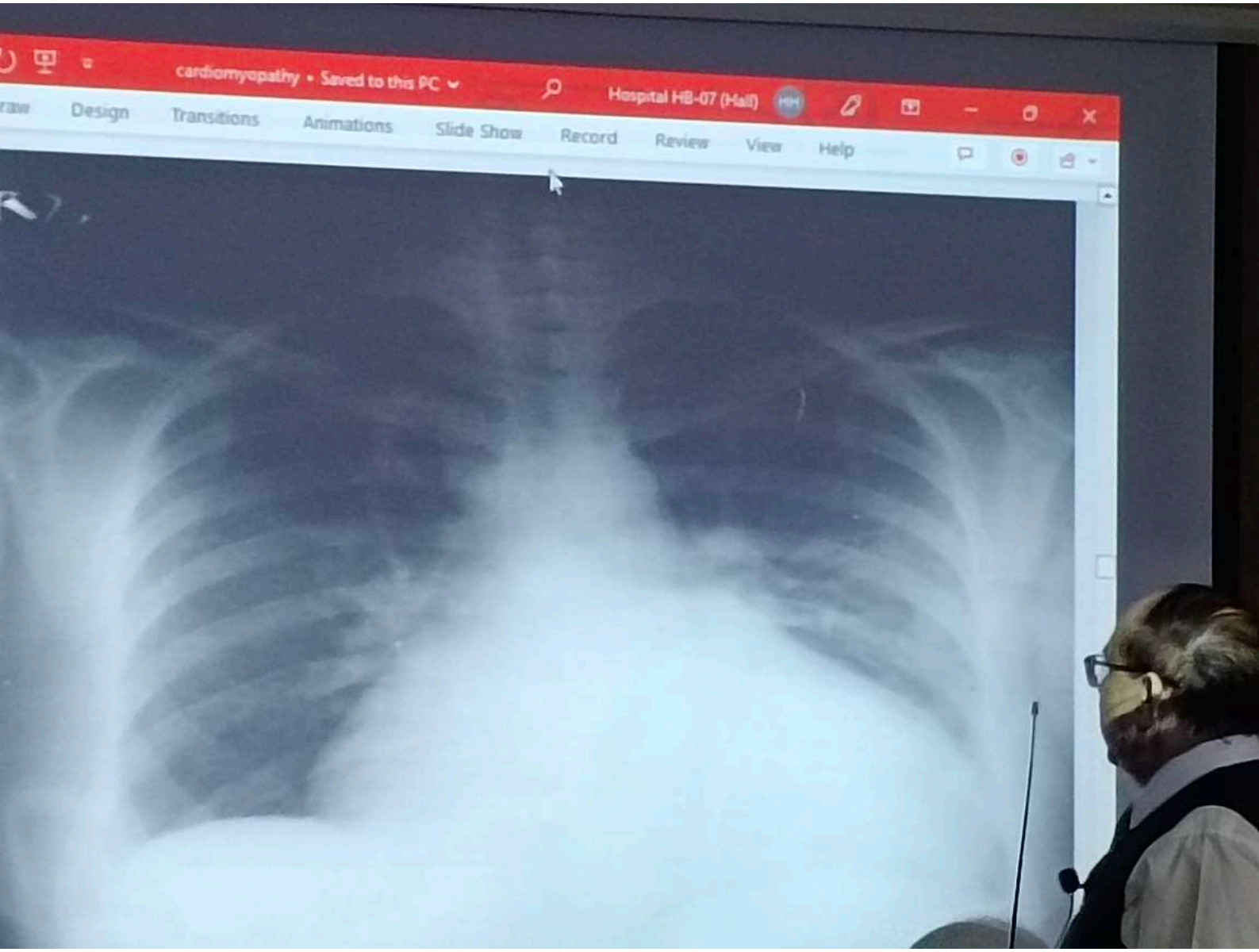
- Signs of C.C.F.
- Skin cold, pale , cyanosed
- Peripheral veins constricted
- Arterial pulse of small volume
- Pulsus alternans
- Tachycardia at rest
- J.V.P. is raised
- Tricuspid regurgitation
- Apex beat displaced out-side mid.C.line
- Rt.V & L.V. pulsation due to dilatations, systolic murmurs of mitral & tricuspid regurgitations
- Gallop rhythm –III H.S.& 4^{th} H.S. P_2loud.
- Reduced pulse pressure
- Pericardial effusion may be present
- Basal crepts in lungs with pleural effusion
- Hepatomegoly & liver may be pulsatile
- Periphral oedema & ascites

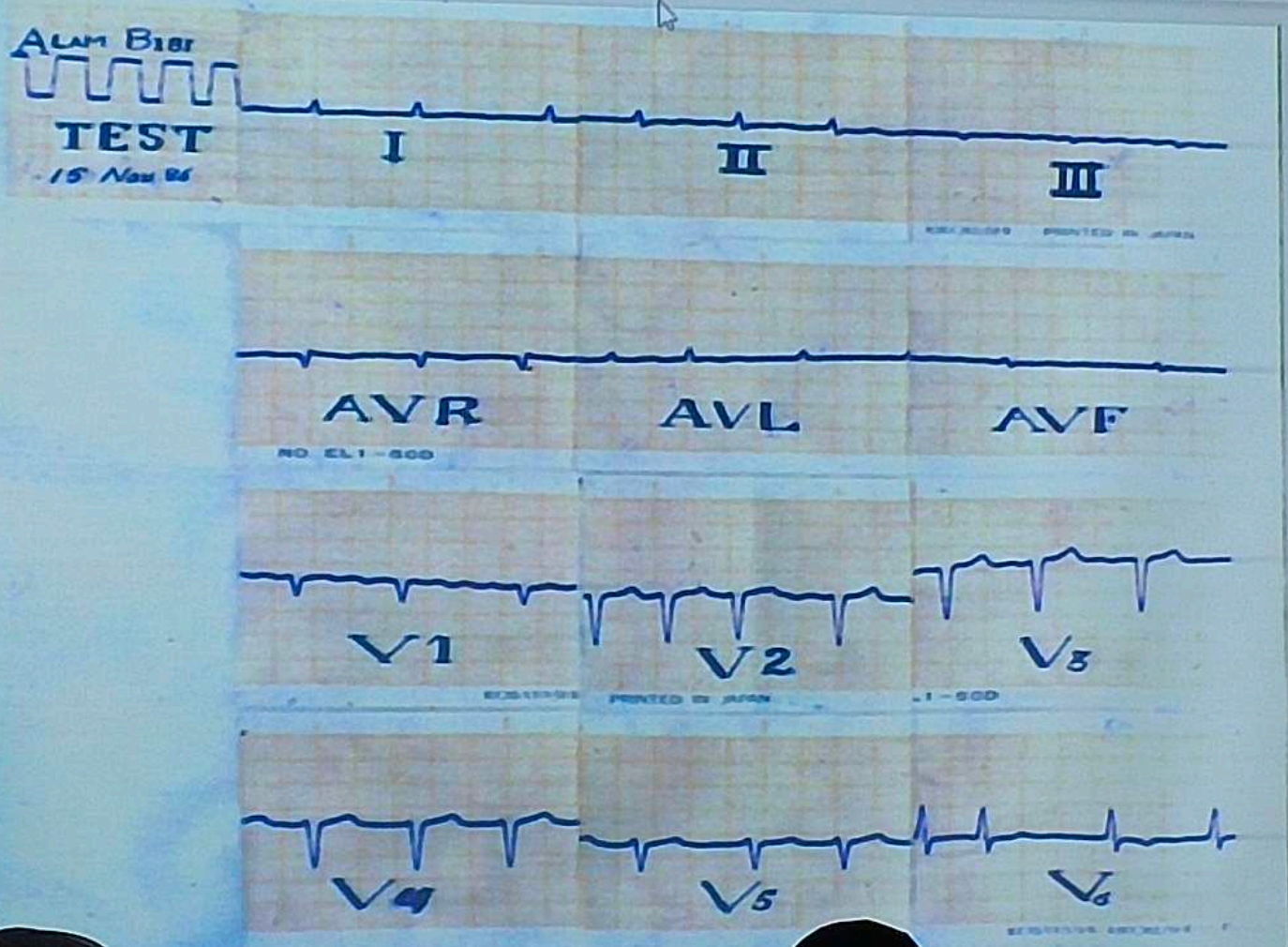
Investigations

1. ***X-ray chest***
- Dilated and enlarged heart
- Pul. Venous hypertension
- Enlarged main Pul. Arteries
- Pleural effusion
- When pericardial effusion water bottle shape heart

2. ***ECG***
- Sinus tachycardia
- Non specific changes flat & inverted T waves
- Atrial fibrillation common
- QRS low voltage &wide
- L.V.H.+
- onductive disturbances

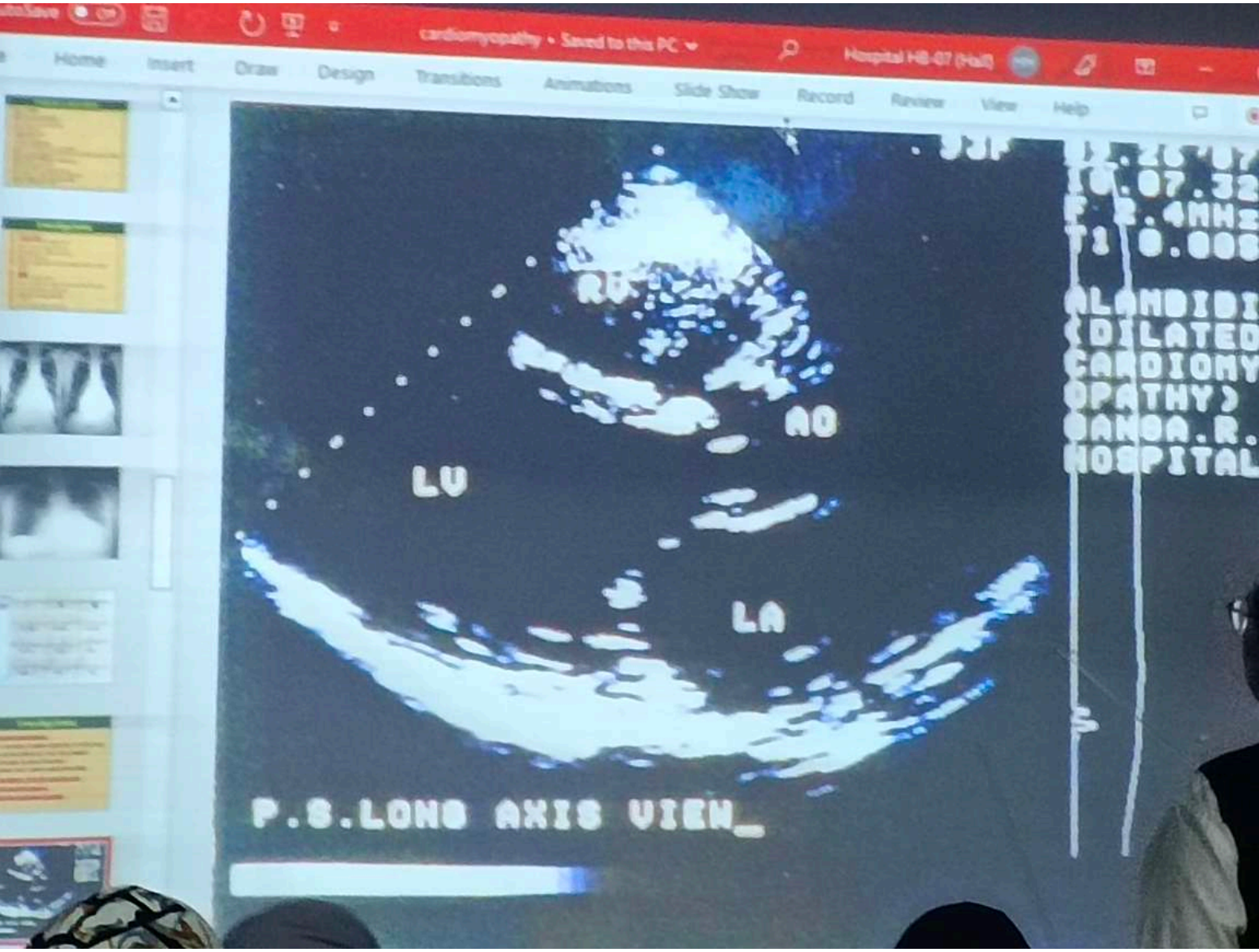

cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Design
Transitions
Animations
Slide Show
Record
Review
View
Help

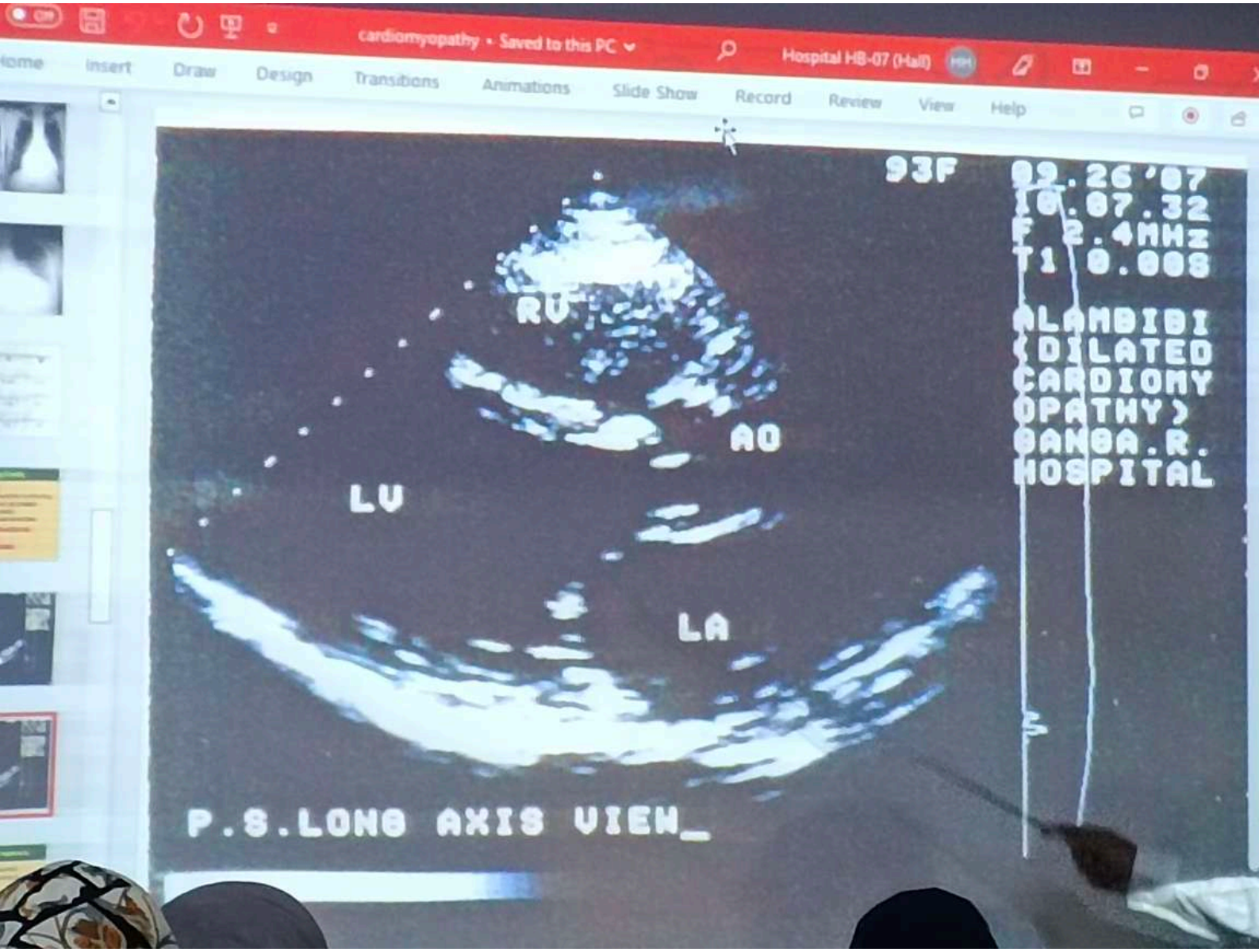

cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Design
Transitions
Animations
Slide Show
Record
Review
View
Help

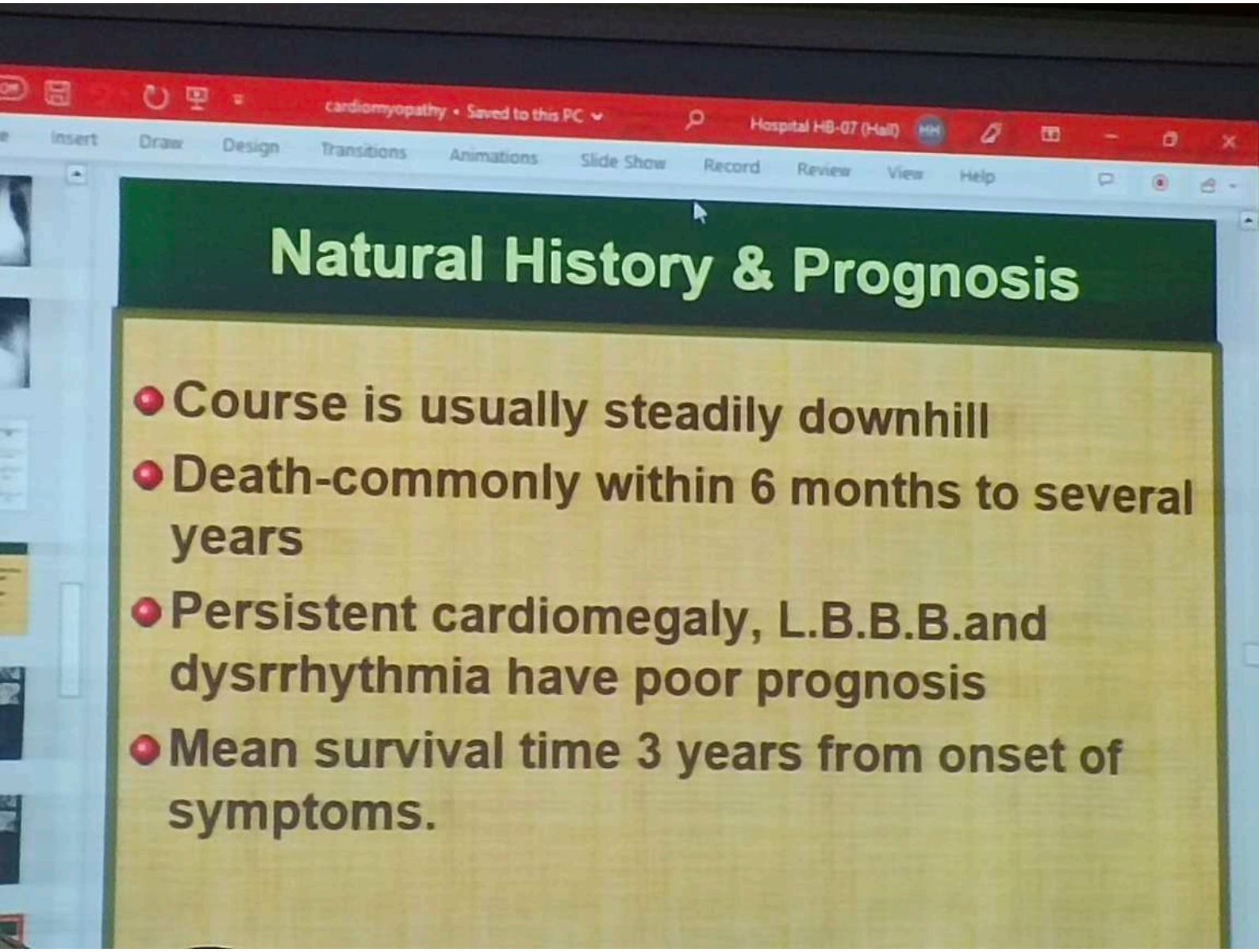


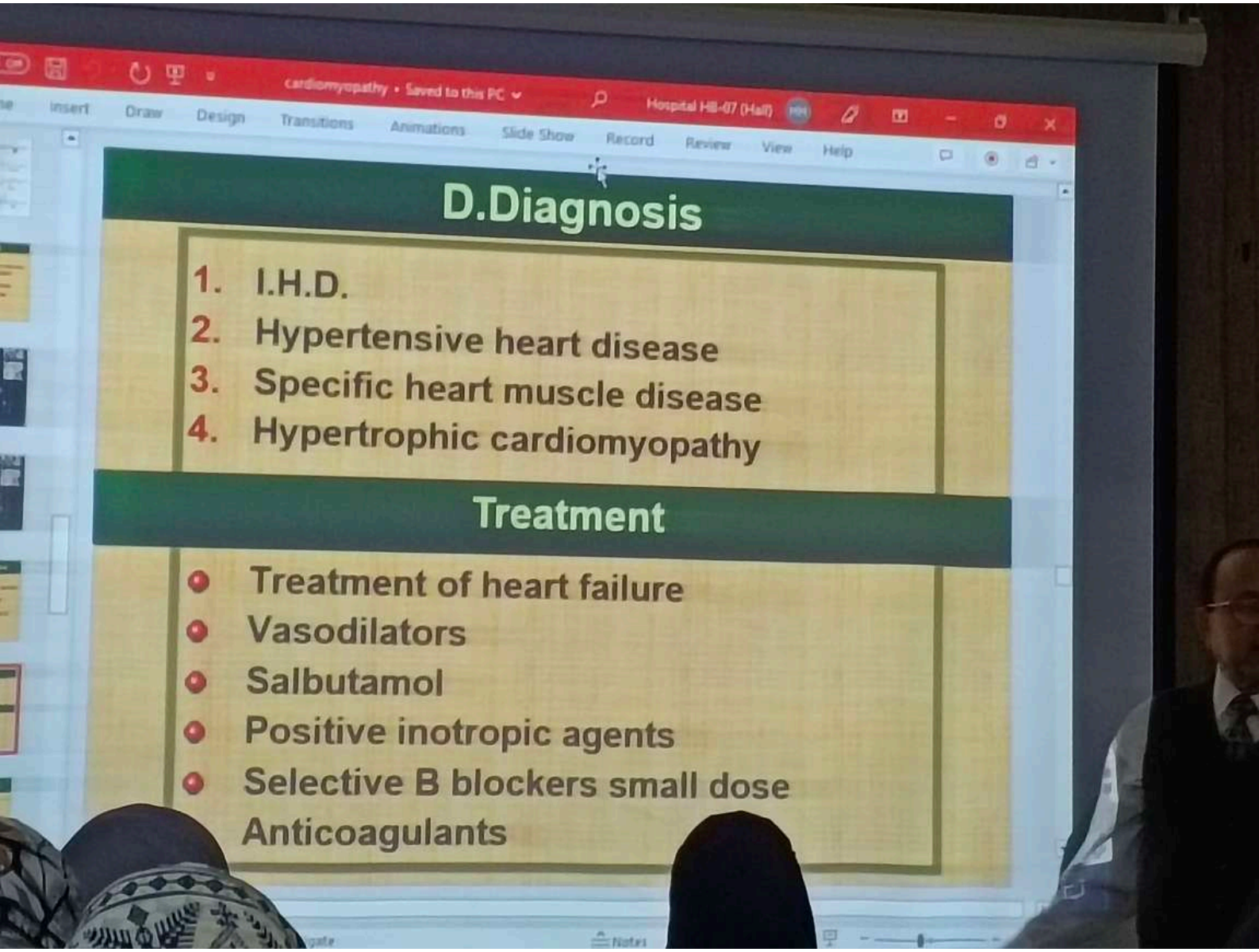
Investigations

3. ***Echocardiography***
   - All chambers dilated &poorly contracting
   - Pericardial effusion may be present
   - Ventricular & atrial thrombi
   - Regional wall motion abnormalities
4. ***Ambulatory E.C.G monitoring***
5. ***Angiocardiography***
6. ***Endo-myocardial biopsy***


cardiomyopathy • Saved to this PC
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
RV
AO
LV
LA
P.S.LONG AXIS VIEW_
ALAMBIDI
(DILATED
CARDIOMY
OPATHY)
JAMOA.R.
HOSPITAL


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
93F
RV
AO
LV
LA
P.S.LONG AXIS VIEW
LAMBIBI
(DILATED
CARDIOMY
OPATHY)
BANGA.R.
HOSPITAL


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hail)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Natural History & Prognosis
Course is usually steadily downhill
Death-commonly within 6 months to several years
Persistent cardiomegaly, L.B.B.B.and dysrrhythmia have poor prognosis
Mean survival time 3 years from onset of symptoms.


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
D.Diagnosis
1. I.H.D.
2. Hypertensive heart disease
3. Specific heart muscle disease
4. Hypertrophic cardiomyopathy
Treatment
Treatment of heart failure
Vasodilators
Salbutamol
Positive inotropic agents
Selective B blockers small dose
Anticoagulants

cardiomyopathy • Saved to this PC

Hospital HB-07 (Hall)

Insert Draw Design Transitions Animations Slide Show Record Review View Help

Hypertrophic Cardiomyopathy

- H.O.C.M.
- H.N.O.C.M., A.S.H.
- I.H.S.S.

Etiology

Inheritance H.L.A. typing

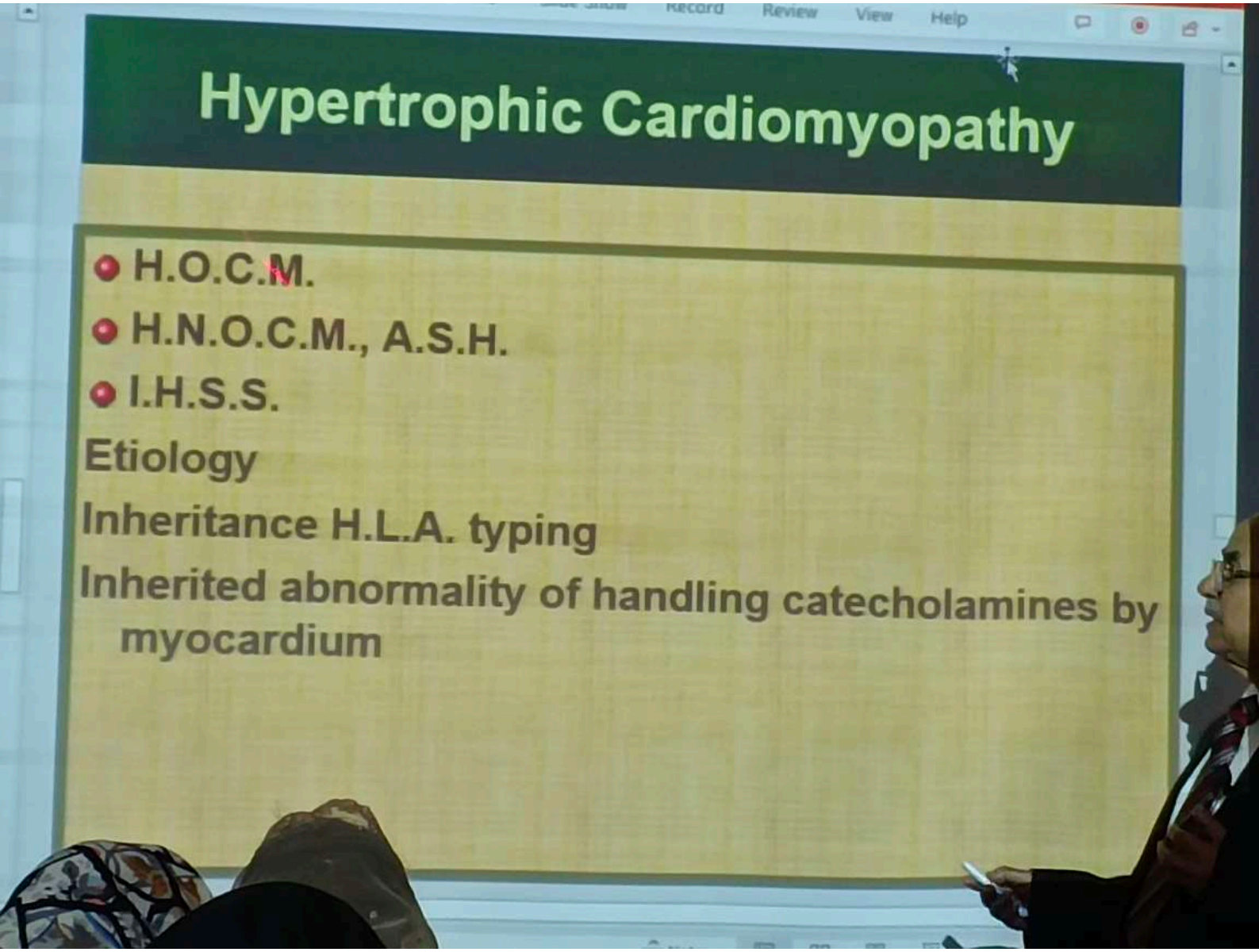
Inherited abnormality of handling catecholamines by myocardium

D.Diagnosis

1. I.H.D.
2. Hypertensive heart disease
3. Specific heart muscle disease
4. Hypertrophic cardiomyopathy

Treatment

- Treatment of heart failure
- Vasodilators
- Salbutamol
- Positive inotropic agents
- Selective B blockers small dose
- Anticoagulants


Record
Review
View
Help
Hypertrophic Cardiomyopathy
H.O.C.M.
H.N.O.C.M., A.S.H.
I.H.S.S.
Etiology
Inheritance H.L.A. typing
Inherited abnormality of handling catecholamines by myocardium

The Multitude of Terms Used to Describe HCM

Asymmetrical hypertrophic cardiomyopathy
Asymmetrical hypertrophy of the heart
Asymmetrical septal hypertrophy
Brock's disease
Diffuse muscular subaortic stenosis
Diffuse subvalvular aortic stenosis
Dynamic hypertrophic subaortic stenosis
Dynamic muscular subaortic stenosis
Familial hypertrophic cardiomyopathy
Familial hypertrophic subaortic stenosis
Familial muscular subaortic stenosis
Familial myocardial disease
Functional aortic stenosis
Functional hypertrophic subaortic stenosis
Functional obstructive cardiomyopathy
Functional obstruction of the left ventricle
Functional obstructive subvalvular aortic stenosis
Functional subaortic stenosis
Hereditary cardiovascular dysplasia
HYPERTROPHIC CARDIOMYOPATHY
Hypertrophic constrictive cardiomyopathy
Hypertrophic hyperkinetic cardiomyopathy
Hypertrophic infundibular aortic stenosis
Hypertrophic nonobstructive cardiomyopathy
Hypertrophic obstructive cardiomyopathy
Hypertrophic stenosing cardiomyopathy
Hypertrophic subaortic stenosis
Idiopathic hypertrophic cardiomyopathy
Idiopathic hypertrophic obstructive cardiomyopathy
Idiopathic hypertrophic subaortic stenosis
Idiopathic hypertrophic subvalvular stenosis
Idiopathic muscular hypertrophic subaortic stenosis
Idiopathic muscular stenosis of the left ventricle
Idiopathic myocardial hypertrophy
Idiopathic stenosis of the flushing chamber of the left ventricle
Idiopathic ventricular septal hypertrophy
Irregular hypertrophic cardiomyopathy
Left ventricul muscular stenosis
Low subvalvular aortic stenosis
Muscular aortic stenosis
Muscular hypertrophic stenosis of the left ventricle
Muscular stenosis of the left ventricle
Muscular subaortic stenosis
Muscular subvalvular aortic stenosis
Non-dilated cardiomyopathy
Nonobstructive hypertrophic cardiomyopathy
Obstructive cardiomyopathy
Obstructive hypertrophic aortic stenosis
Obstructive hypertrophic cardiomyopathy
Obstructive hypertrophic myocardiopathy
Obstructive myocardiopathy
Pseudoaortic stenosis
Stenosing hypertrophy of the left ventricle
Stenosis of the ejection chamber of the left ventricle
Subaortic hypertrophic stenosis
Subaortic idiopathic stenosis
Subaortic muscular stenosis
Subvalvular aortic stenosis of the muscular type
Teare's disease

Clinical Manifestations

History

1. Dyspnoea
2. Chest pain
3. Palpitations
4. Dizziness
5. Syncope

Physical signs

- A late onset systolic murmur
- Arterial pulse is abrupt, ill-sustained & jerky
- Cardiac apical impulse, powerful but ill-sustained

Slide Show Record Review View Help

Possible Mechanism for Ischemia in Hypertrophic Cardiomyopathy	
Increased myocardial oxygen demand	**Reduced myocardial perfusion**
Myocardial hypertrophy Diastolic dysfunction	Small vessel disease
Myocyte disarray	Abnormal vascular responses
Left ventricular outflow obstruction	Myocardial bridges
arrhythmias	Increased coronary vascular resistance

cardiomyopathy • Saved to this PC

Hospital HB-07 (Hall)

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help

35

36

37

38

39

40

41

Investigations

A. X-ray chest

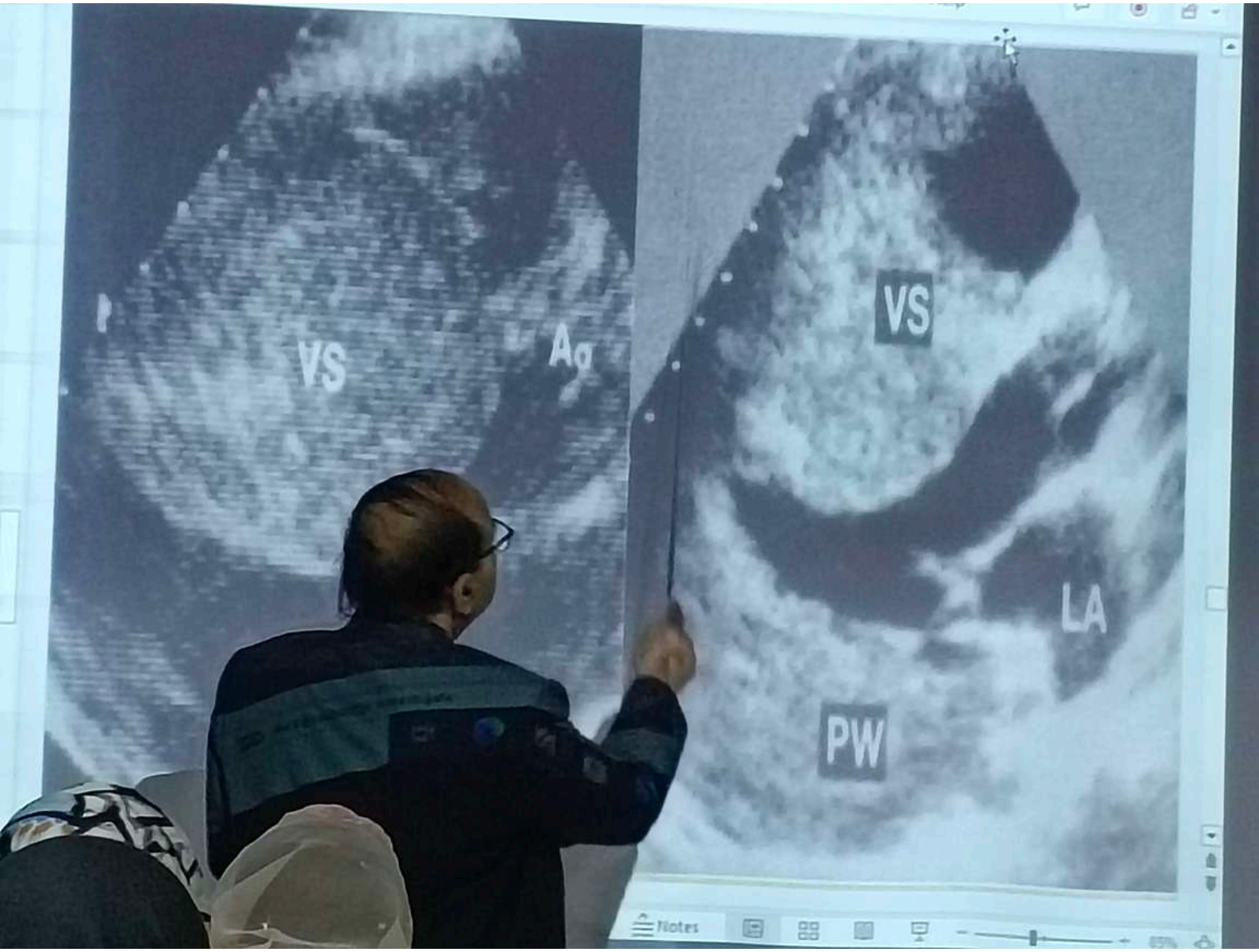
A. E..C.G
- L.V.H.
- Lt. Ant. Hemiblock
- Q waves in inferior and Lt. Precordial leads
- R.V.H. may occur
- Giant inverted T waves and high precordial QRS

C. ECHOCARDIOGRAPHY
- A.S.H.
- Poor septal contraction
- Reduced systolic dimension of L.V. cavity
- S.A.M.

D. Radionuclide imaging

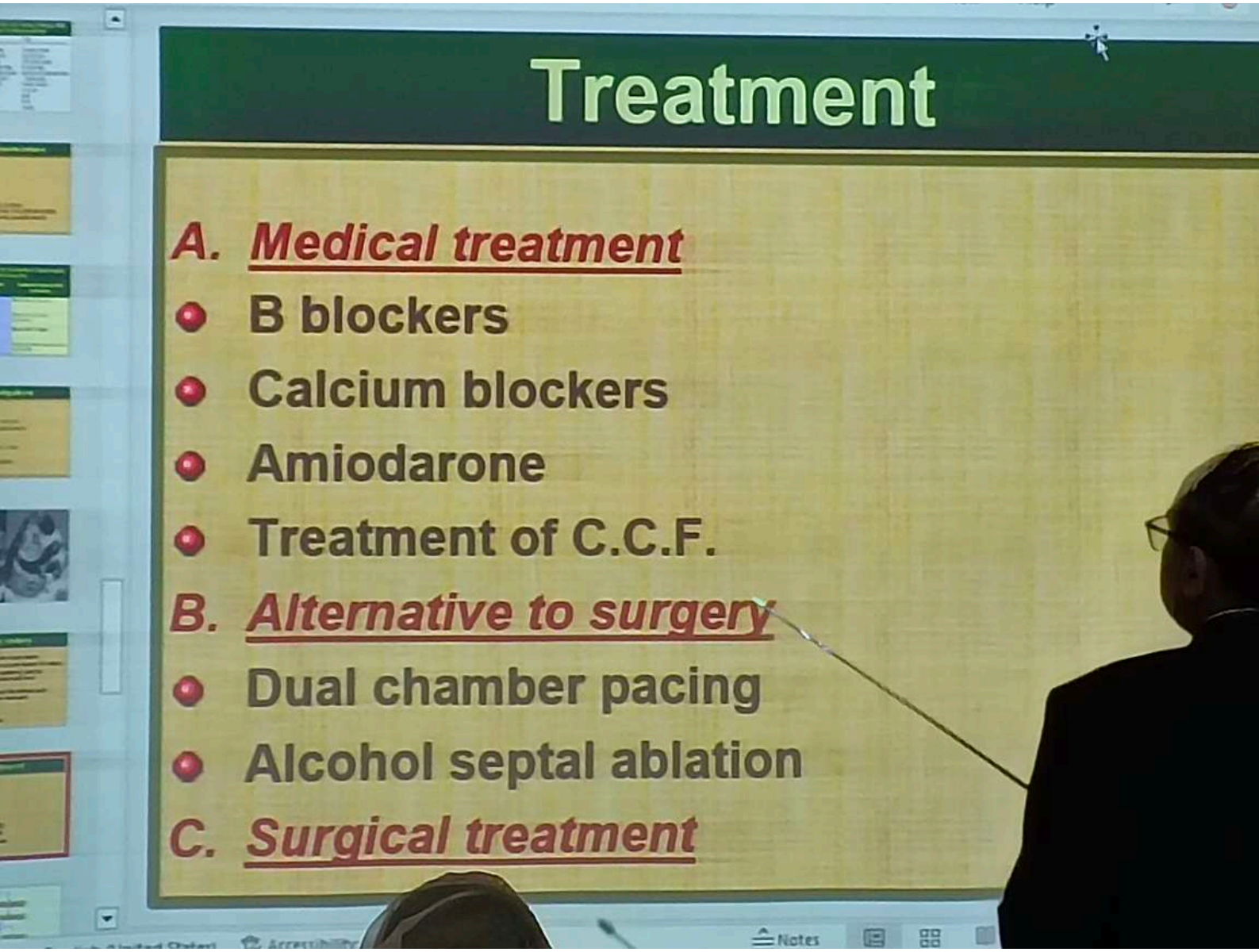
E. Cardiac catheterization & angiography

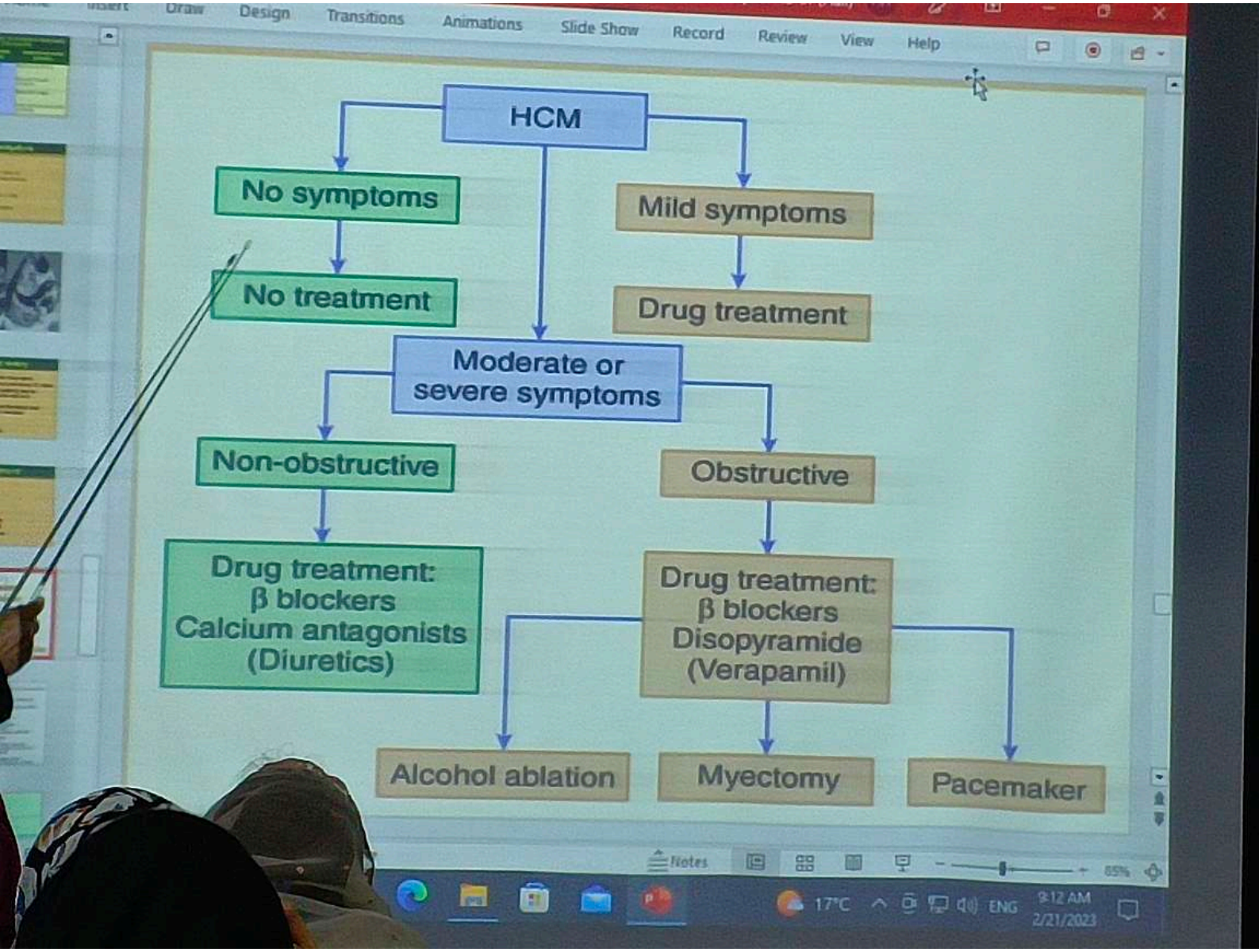
F. Endomyocardial biopsy

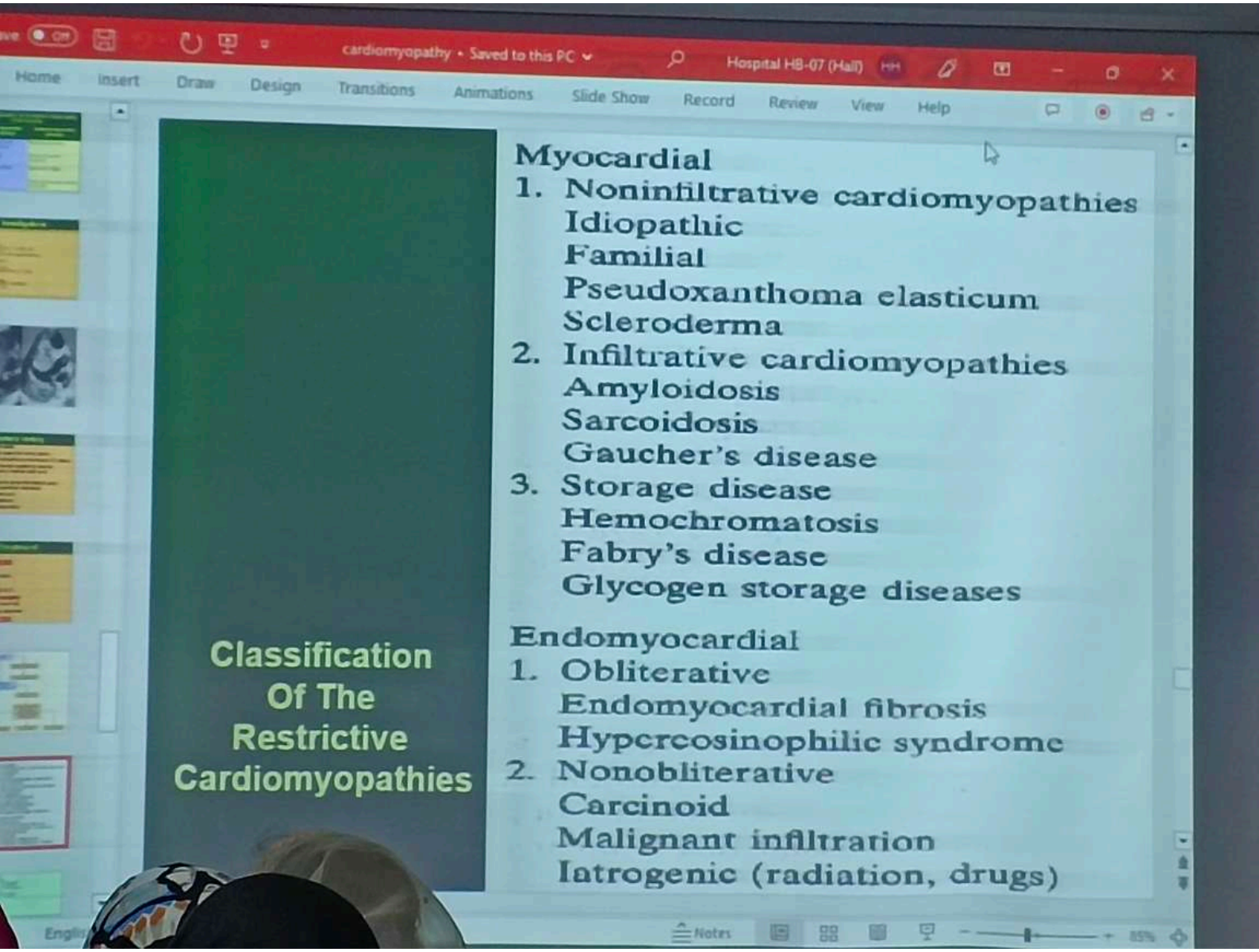

VS
Ao
VS
LA
PW
Notes

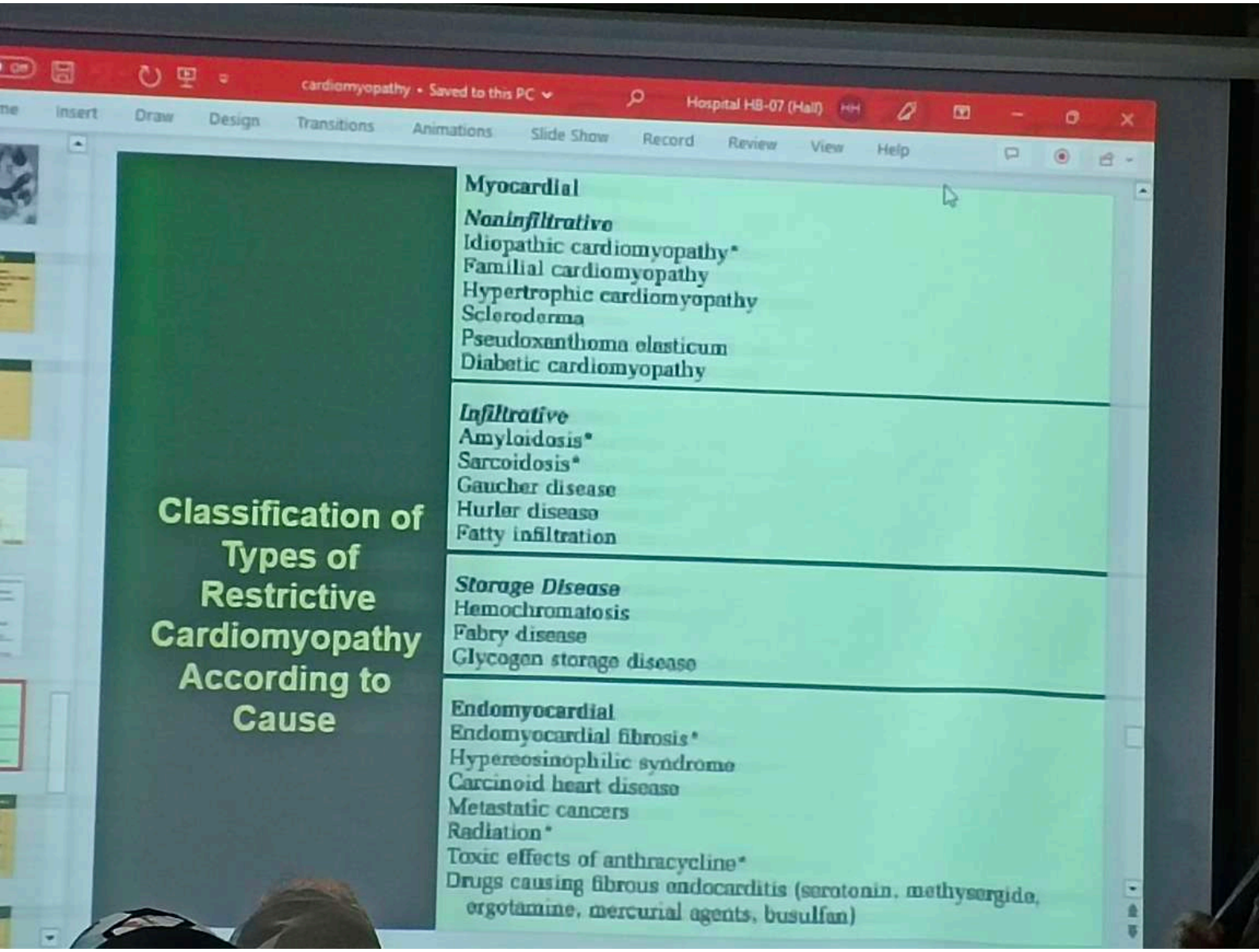
Natural History

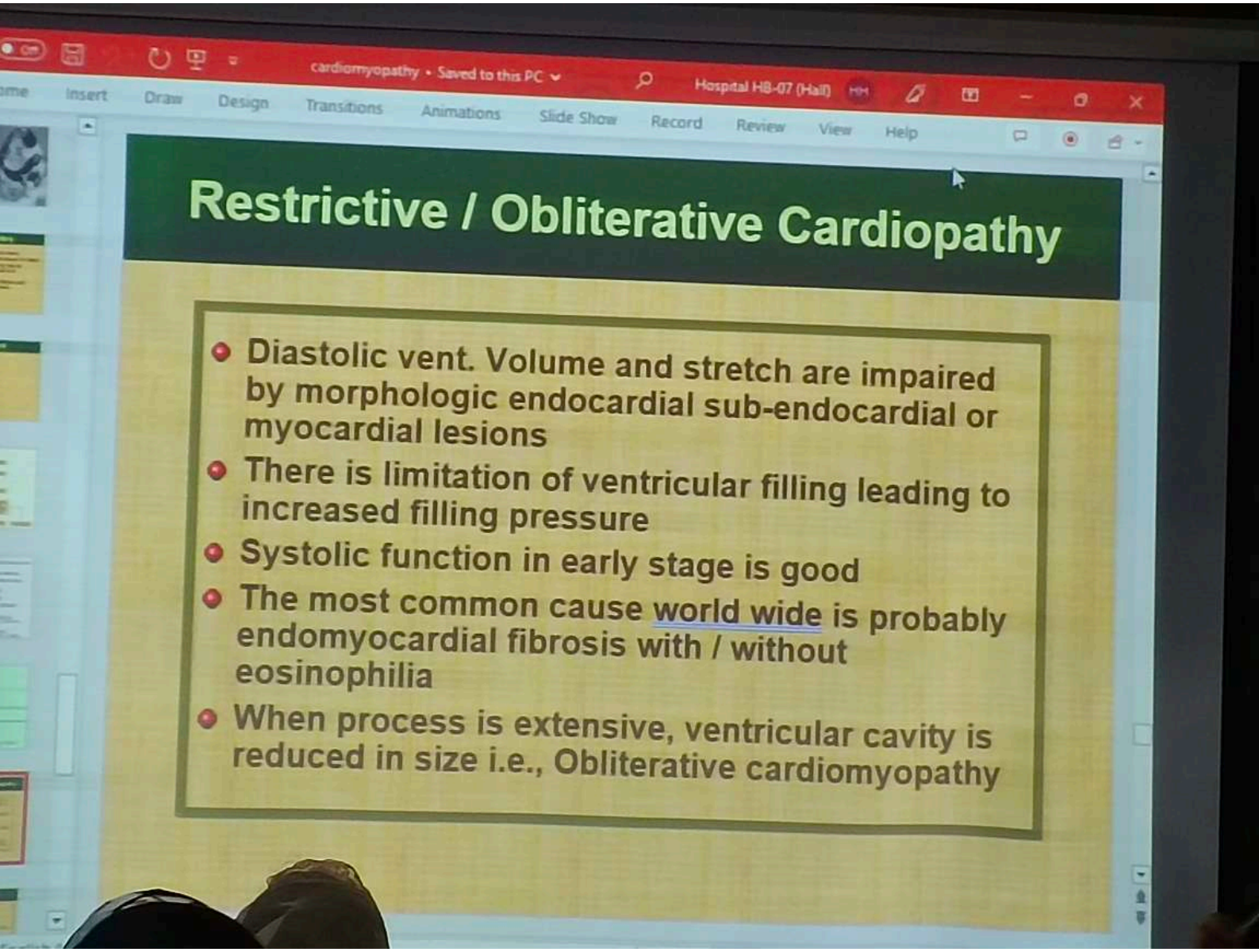
- Extremely variable
- Life span-few years to many years
- Most patients-stable course about 10 years
- Half of patients die suddenly due to haemodynamic (mechanical) and arrhythmias
- C.C.F.- related to atrial fibrillation and extensive myocardial necrosis
- Systemic embolism
- Mitral regurgitation
- Infective endocarditis

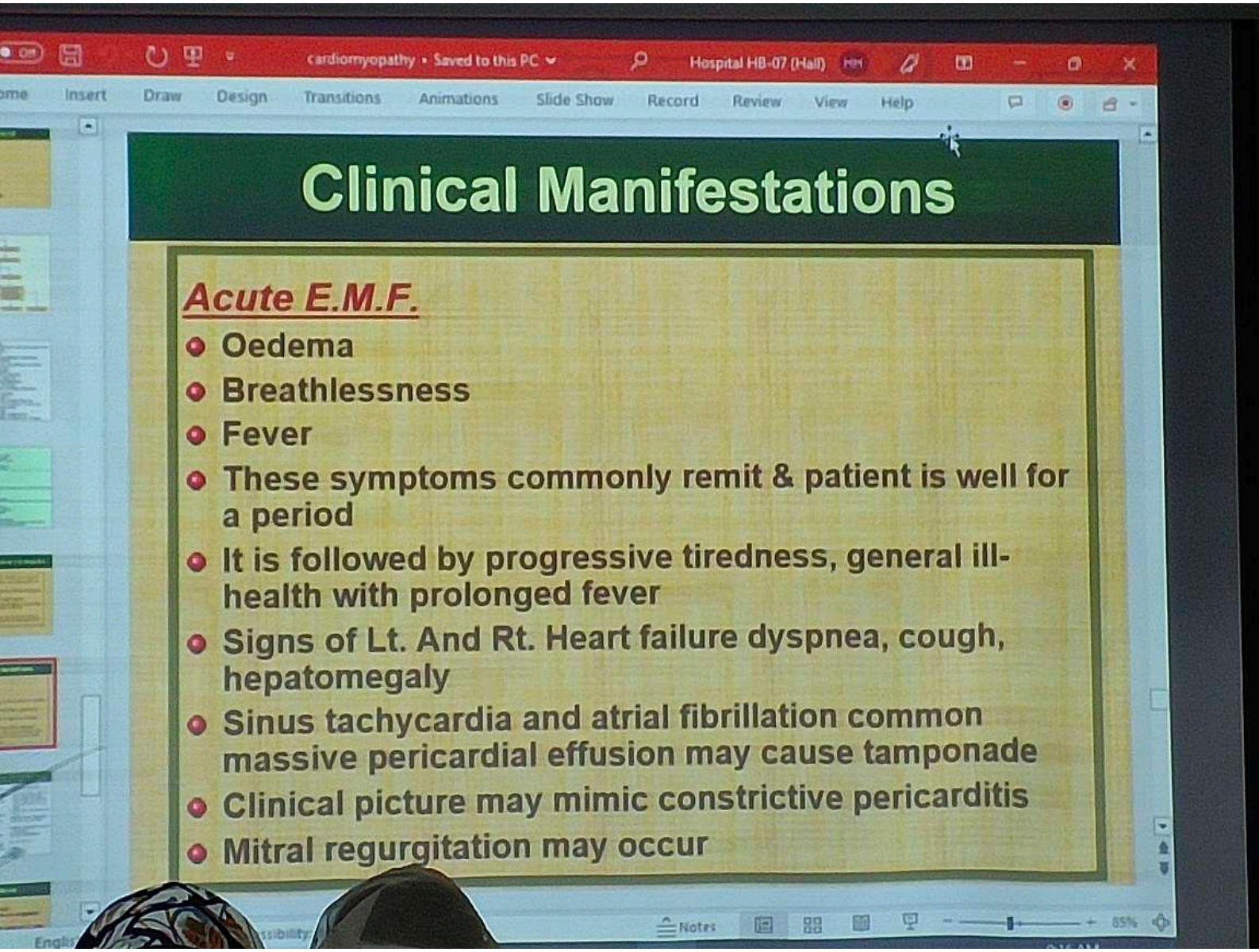

Treatment
A. Medical treatment
B blockers
Calcium blockers
Amiodarone
Treatment of C.C.F.
B. Alternative to surgery
Dual chamber pacing
Alcohol septal ablation
C. Surgical treatment

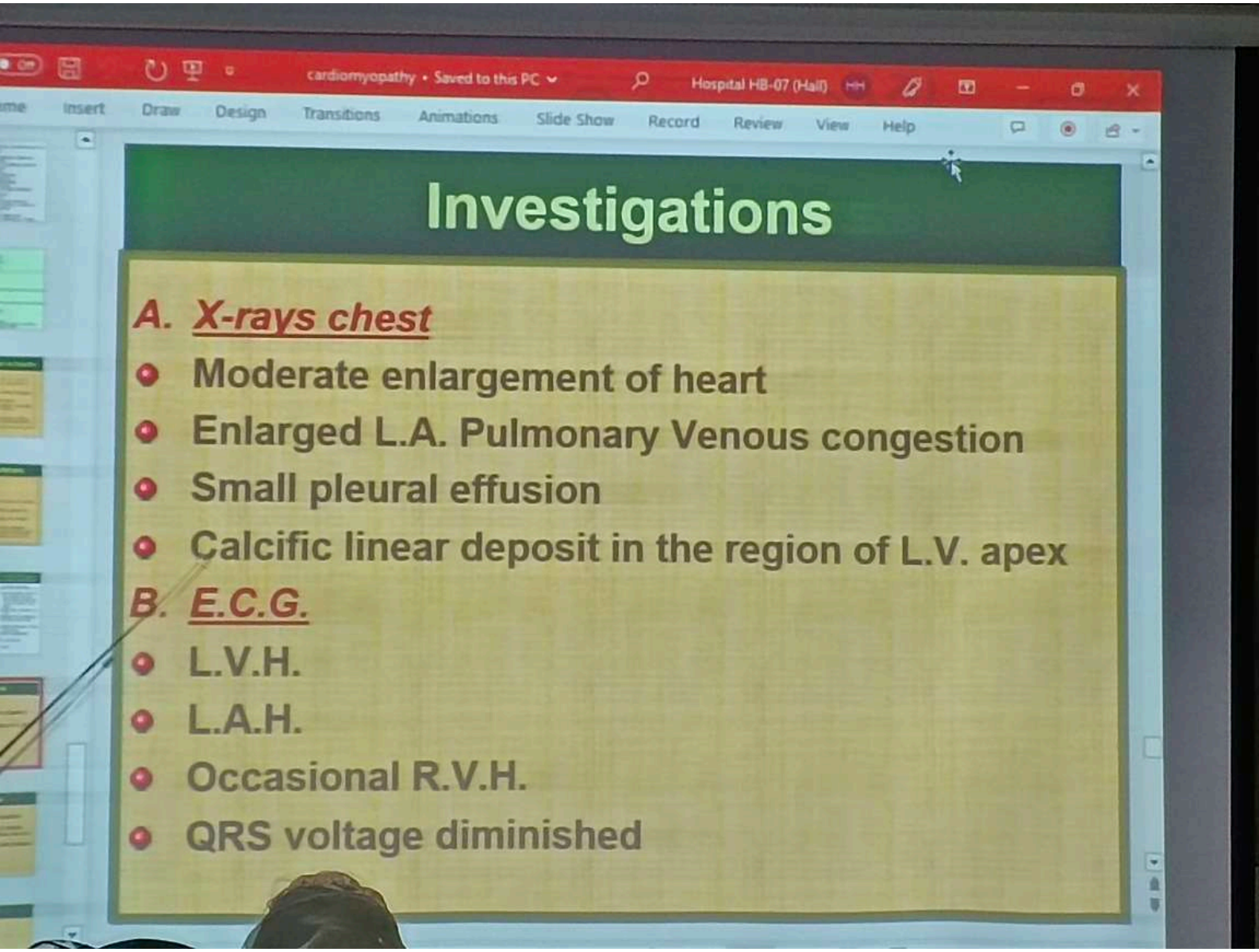

HCM
No symptoms
No treatment
Mild symptoms
Drug treatment
Moderate or severe symptoms
Non-obstructive
Drug treatment: β blockers Calcium antagonists (Diuretics)
Obstructive
Drug treatment: β blockers Disopyramide (Verapamil)
Alcohol ablation
Myectomy
Pacemaker

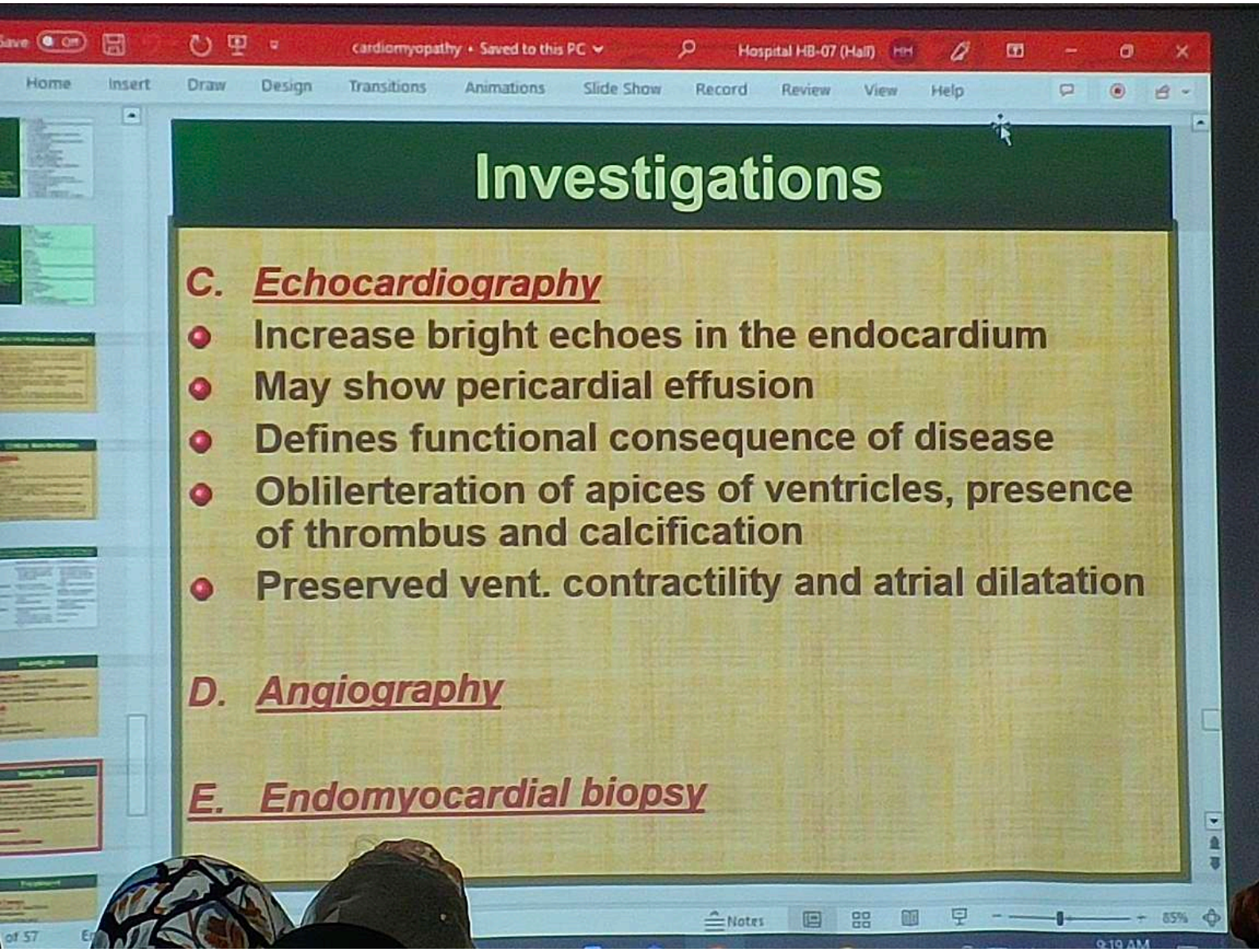

cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Classification Of The Restrictive Cardiomyopathies
Myocardial
1. Noninfiltrative cardiomyopathies
Idiopathic
Familial
Pseudoxanthoma elasticum
Scleroderma
2. Infiltrative cardiomyopathies
Amyloidosis
Sarcoidosis
Gaucher's disease
3. Storage disease
Hemochromatosis
Fabry's disease
Glycogen storage diseases
Endomyocardial
1. Obliterative
Endomyocardial fibrosis
Hypereosinophilic syndrome
2. Nonobliterative
Carcinoid
Malignant infiltration
Iatrogenic (radiation, drugs)
Notes

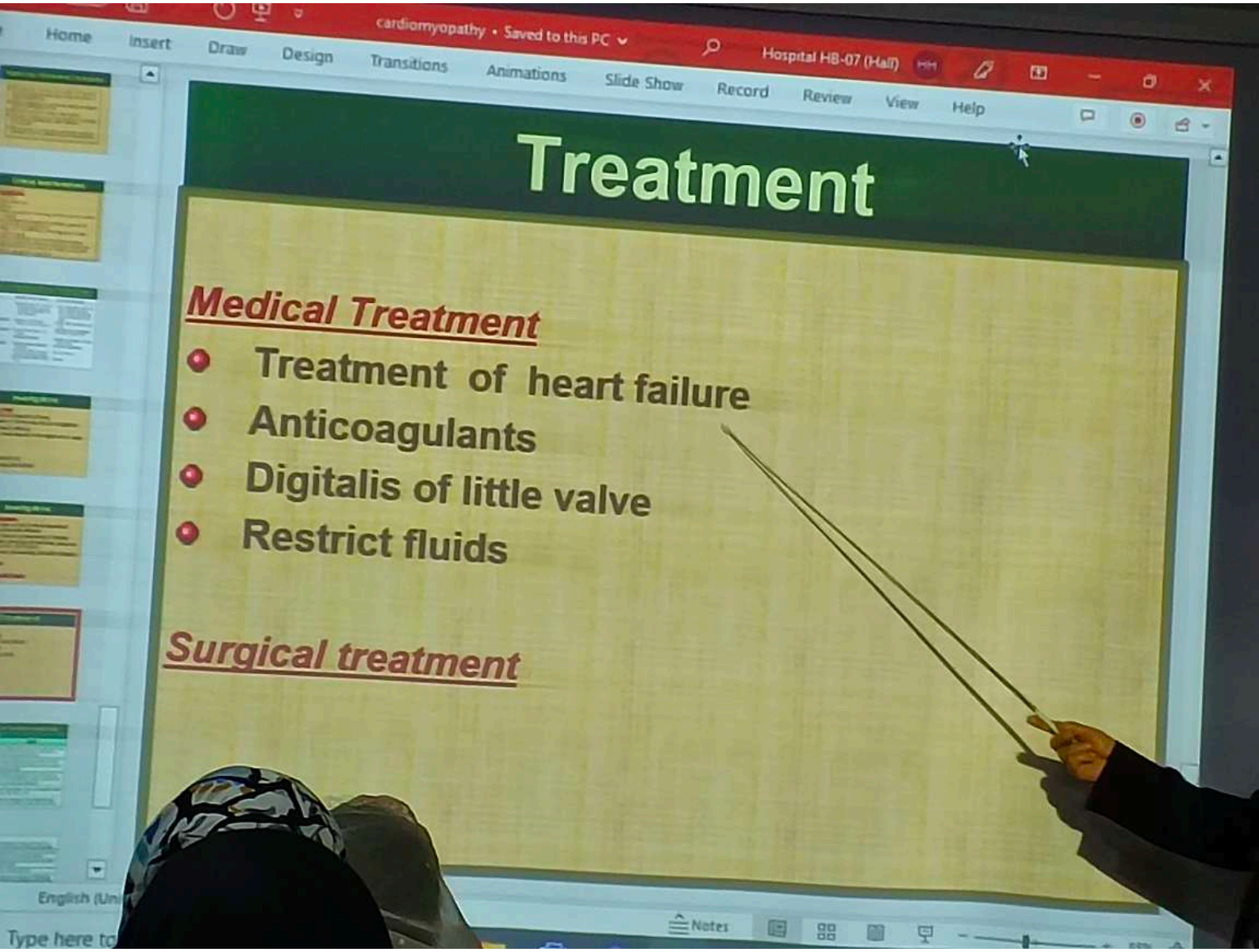

cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Classification of Types of Restrictive Cardiomyopathy According to Cause
Myocardial
Noninfiltrative
Idiopathic cardiomyopathy*
Familial cardiomyopathy
Hypertrophic cardiomyopathy
Scleroderma
Pseudoxanthoma elasticum
Diabetic cardiomyopathy
Infiltrative
Amyloidosis*
Sarcoidosis*
Gaucher disease
Hurler disease
Fatty infiltration
Storage Disease
Hemochromatosis
Fabry disease
Glycogen storage disease
Endomyocardial
Endomyocardial fibrosis*
Hypereosinophilic syndrome
Carcinoid heart disease
Metastatic cancers
Radiation*
Toxic effects of anthracycline*
Drugs causing fibrous endocarditis (serotonin, methysergide, ergotamine, mercurial agents, busulfan)


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Restrictive / Obliterative Cardiopathy
Diastolic vent. Volume and stretch are impaired by morphologic endocardial sub-endocardial or myocardial lesions
There is limitation of ventricular filling leading to increased filling pressure
Systolic function in early stage is good
The most common cause world wide is probably endomyocardial fibrosis with / without eosinophilia
When process is extensive, ventricular cavity is reduced in size i.e., Obliterative cardiomyopathy


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Clinical Manifestations
Acute E.M.F.
Oedema
Breathlessness
Fever
These symptoms commonly remit & patient is well for a period
It is followed by progressive tiredness, general ill-health with prolonged fever
Signs of Lt. And Rt. Heart failure dyspnea, cough, hepatomegaly
Sinus tachycardia and atrial fibrillation common massive pericardial effusion may cause tamponade
Clinical picture may mimic constrictive pericarditis
Mitral regurgitation may occur
Notes
85%


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hail)
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Investigations
A. X-rays chest
Moderate enlargement of heart
Enlarged L.A. Pulmonary Venous congestion
Small pleural effusion
Calcific linear deposit in the region of L.V. apex
B. E.C.G.
L.V.H.
L.A.H.
Occasional R.V.H.
QRS voltage diminished


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Investigations
C. Echocardiography
Increase bright echoes in the endocardium
May show pericardial effusion
Defines functional consequence of disease
Oblilerteration of apices of ventricles, presence of thrombus and calcification
Preserved vent. contractility and atrial dilatation
D. Angiography
E. Endomyocardial biopsy
Notes
85%


cardiomyopathy • Saved to this PC
Hospital HB-07 (Hall)
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Record
Review
View
Help
Treatment
Medical Treatment
Treatment of heart failure
Anticoagulants
Digitalis of little valve
Restrict fluids
Surgical treatment
Notes

Classification of Cardiomyopathies

Classification of the Cardiomyopathies

Disorder	Description
Dilated cardiomyopathy	Dilation and impaired contraction of the left or both ventricles. Caused by familial-genetic, viral, and/or immune, alcoholic-toxic, or unknown factors or is associated with recognized cardiovascular disease.
Hypertrophic cardiomyopathy	Left and/or right ventricular hypertrophy, often asymmetrical, which usually involves the interventricular septum. Mutations in sarcoplasmic proteins cause the disease in many patients.
Restrictive cardiomyopathy	Restricted filling and reduced diastolic size of either or both ventricles with normal or near-normal systolic function. Is idiopathic or associated with other disease (e.g., amyloidosis, endomyocardial disease).
Arrhythmogenic right ventricular cardiomyopathy	Progressive fibrofatty replacement of the right, and to some degree left, ventricular myocardium. Familial disease is common.
Unclassified cardiomyopathy	Diseases that do not fit readily into any category. Examples include systolic dysfunction with minimal dilation, mitochondrial disease, and fibroelastosis.

Functional Classification of Cardiomtopathies

Functional Classification of the Cardiomyopathies

Dilated	Restrictive	Hypertrophic
Symptoms		
Congestive heart failure, particularly left sided Fatigue and weakness Systemic or pulmonary emboli	Dyspnea, fatigue Right-sided congestive heart failure Signs and symptoms of systemic disease, e.g., amyloidosis, iron storage disease	Dyspnea, angina pectoris Fatigue, syncope, palpitations
Physical Examination		
Moderate to severe cardiomegaly; S_3, S_4 Atrioventricular valve regurgitation, especially mitral	Mild to moderate cardiomegaly; S_3 or S_4 Atrioventricular valve regurgitation; inspiratory increase in venous pressure (Kussmaul sign)	Mild cardiomegaly Apical systolic thrill and heave; brisk carotid upstroke S_4 common Systolic murmur that increases with Valsalva maneuver
Chest Roentgenogram		
Moderate to marked cardiac enlargement, especially left ventricular	Mild cardiac enlargement Pulmonary venous hypertension	Mild to moderate cardiac enlargement Left atrial enlargement

51 52 53 54 55 56 57

Electrocardiogram		
Sinus tachycardia	Low voltage	Left ventricular hypertrophy
Atrial and ventricular arrhythmias	Intraventricular conduction defects	ST segment and T wave abnormalities
ST segment and T wave abnormalities	Atrioventricular conduction defects	Abnormal Q waves
Intraventricular conduction defects		Atrial and ventricular arrhythmias
Echocardiogram		
Left ventricular dilation and dysfunction	Increased left ventricular wall thickness and mass	Asymmetrical septal hypertrophy (ASH)
Abnormal diastolic mitral valve motion secondary to abnormal compliance and filling pressures	Small or normal-sized left ventricular cavity	Narrow left ventricular outflow tract
	Normal systolic function	Systolic anterior motion (SAM) of the mitral valve
	Pericardial effusion	Small or normal-sized left ventricle
Radionuclide Studies		
Left ventricular dilation and dysfunction (RVG)	Infiltration of myocardium (^{201}Tl)	Small or normal-sized left ventricle (RVG)
	Small or normal-sized left ventricle (RVG)	Vigorous systolic function (RVG)
	Normal systolic function (RVG)	Asymmetrical septal hypertrophy (RVG or ^{201}Tl)
Cardiac Catheterization		
Left ventricular enlargement and dysfunction	Diminished left ventricular compliance	Diminished left ventricular compliance
Mitral and/or tricuspid regurgitation	"Square root sign" in ventricular pressure recordings	Mitral regurgitation
Elevated left- and often right-sided filling pressures	Preserved systolic function	Vigorous systolic function
	Elevated left- and right-sided filling pressures	Dynamic left ventricular outflow gradient