محاضرة ٦

Mitral Regarge

→ Aetiology

بنطبعه عليه كل الأسباب

1. Congenital → "mitral valve prolapse" like marfan syndrome **most common**
   المريض طويل ورفيع وعنده ارتخاء في العظام وطويل العظام
   30% of marfan syndrome has mitral valve prolapse

   Prolapse → في عند المريض prolapse لكن ماني دم برجع
   Regarge → في prolapse وفي دم برجع على atrium

2. Rhumatic heart disease → Should be with mitral stenosis
   Called combined
   the valve thick, calcified (ما بتمرن), unpliable, not open or close so causes regarge

3. Inflammatory → Infective endocarditis cause vegetation on Valve

4. Collagen → SLE "most common" كل فترة بيجي مريض SLE بيعمل follow up

5. Ischemic → In inferior MI cause distunction in papillary m.

6. Iatrogenic → In ballooning

7. Secondary dilatation → in dilated cardiomyopathy
   regarge بتوسع نسيج ring ←

8. HTN
9. Infiltrative
10. Degenerative

→ Pathophysiology

جزء من الدم راح يرجع من Lt vent. لل Lt atrium فتلقائياً بقل Cardiac output
فال atrium اجاه في systol دم من Ventr. و في diastol اجا من Pul. veins
فال atrium بتضخم زي mitral stenosis، وهلا في ventr. في diastol راح ياخذ
دم كتير (الدم الي رجعوا + الدم الي من pulm. v) فراح يصير Volume overload
عند Lt. vent. فراح اسمع shifted apex beat localized

* Comblications
1. Dilatation of Lt. vent
2. Heart failure → ~~[illegible]~~ eccentric hypertrophy
3. Volume overload

* Eccentric → Volume overload disease [a. regerge, m. regerge,]
→ muscle thin and tall < 7, irreversable

* Concentric → pressure overload diseases [a. stenosis, m. stenosis, HTN]
→ muscle fibers short and thick > 7

→ Clinical picture

All types of dyspnea, pulmonary edema, atrial fibrlation → loss of atrial kick, thrombosis in appendge, heart failure → Rt side

→ Diagnosis

[I] Examination

- G. Inspection
  - → malar flush
  - → pulse
    - → Irregular with AF
    - → regular if there is not AF
- L. Inspection
  - Pericardial examination: Shifted apex beat "localized"
- Palpation
  - → Shifted apex beat "localized"
  - → thrill if there is regarge grade
  - → Lt parasternal heave if Rt side heart failure

Auscultation

* Phonocardiography

على طول ال systole
→ lub ShShSh Dub

(1) muffed S_1 (M stenosis عكس) followed by (2) pansystolic murmur "holosystolic"

لما يفتح mitral V. راح يرجع الدم بشكل ظليع من atrium

* بسمعه من apex وبروح على axilla سؤال امتحان

(3) added sounds S_3

S_3 → Volume overload → as mitral regurge, aortic reg. → صوت الدم الكثير الراجع

S_4 → pressure overload → as mitral stenosis, aortic Ste. → صوت حركة العضلة نفسها

gallop rythm "Lub dub dub" cause heart failure

↳ it is S_1 or S_2 or both with tachycardia

→ Investigations

[1] Chest X-ray → Cardiomegaly
→ mitralization
→ loss of cardiac waist
→ Congestion symptoms as in MS

[2] ECG → Sign of Lt ventricle hypertrophy

deep narrow S wave in V_1+V_2, tall R wave in V_5+V_6 → strain pattern

* Sum of S+R > 35 or R in V_5 > 25 in children > 45
⇓
(Sokolow-lyon criteria idex)

[3] Echo doppler gold standard
→ mitral valve prolapse
→ dilated Lt vent.
→ ejection fraction < 55
→ in color dopler appears as mosaic اختلاط الدم

→ Treatment

- asymptomatic → no need to treat → follow up every 6 months
- HF → anti failure drugs "B blocker, lasixe"
- AF → anti coagulant drugs [illegible] "NOAC" → Rivaroxaban
  → Debigatran

* Warfarin undesirable because wants. INR montoring and many drug drug interaction and food drug interaction

* What are warfarin failure and W. resistance?

Resistance → انا بعطيه في weekly dose لكن ما بصل لل target INR

failure → قدرت اصل لل target INR لكن بصير عنده bleeding, thrombosis

* NOAC مشكلته غالي

→ Indication for surgery

1. Sevor symptoms dispited ttt
2. other cardiac surgery
3. Pulmonary HTN > 50
4. dimentions > 4.5 cm → 45 mm
5. Ejection fraction < 55

→ Surgical ttt

1. Valvoplasty
2. Mitral valve replacement
3. mitral valve clebing — تغيير الصمام بالقسطرة غالي

~~* mitral Stenosis and~~

* mechanical valve and mitral Stenosis → Warfarin

Aortic Stenosis

تكلس في الصمام يسمى aortic sclerosis

→ Aetiology

1. Degenerative **most common**
2. Congenital "bicuspid aortic valve"
3. Rhematic → comes with mitral stenosis
4. Inflammatory → vegetation
5. Collagen disease

→ Pathophysiology

مافي فرق ضغط بين Lt vent. و aorta "120" فلما يصير stenosis سرعة الدم
راح تزيد فيصير فرق الضغط راح يزيد فكل ما زادت severity of stenosis زاد فرق الضغط
فراح يصير تضخم في العضلة Lt vent. مع الوقت ←

concentric hypertrophy → pressure over load → S_4
↳ compensatory mechanism to overcome resistance within limit

عند حد معين بيقطل قادر يتحمل الضغط فراح اشوف
eccentric hypertrophy → HF → S_3

★ من علامات severity of aortic Ste. اني اسمع S_3 ★
ولانها تضخمت العضلة راح يصير shifted لل apex beat لكن localized
عن 6th rib .
وايضاً راح يقل cardiac output لان الصمام ضيق وصعب يوصل الدم لكل الجسم
★ اكثر مرض بعمل ↓ cardiac O. هو AS ★
فهلا لما زاد pressure في Lt vent. الدم اللي جاي من atrium راح يلاقي resistant
فراح يزيد الضغط في atrium وراح ينعكس على widge pressure وكل Rt side
ال atrium لما يكبر احتمال يصير atrial fibrilation
← Lt vent. بتحمل الضغط بشكل كبير فراح يصير هادا الكلام مع الوقت

→ Clinical picture

أول الامتحان (margin note) 3 symptoms has relation with life expectancy

[1] **Chest pain** "angina" dies in 5 y if not treated

كأنها ا angina لانه hypertrophy اخرج مع تكون new vessels خبيبه

كأنه فيها ischemia المريض بيجي يشكي مع حرقان بصدره بسبع كل اليد الشمال

ويرتاح بس يرتاح وبكون فوق 80y خالنا صنا بسبع الـ carotid ويقول

عنده AS مش MI

[2] **Syncope** "low CO symptoms" dies in 3 y if not treated

[3] **Dyspnea** "the worst" dies in 2y if not treated

في كل اشكالها

Other symptoms

palptation, ↓ cardiac out put symptoms "dizziness, vertigo, near syncope blurred vision, oligourea, sweaty", immobilisation, Strock, HF, arrythmea

→ Diagnosis

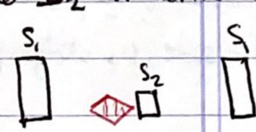
Scenario: 80 y old male patient retired doctor has chest pain when he walks, he is in coma alot of time, syncope.

what is the diagnosis? "aortic stenosis" → degenerative

[1] history — Chest pain + syncope

[2] examination — murmur at apex, heared at carotid "delay"

* auscultation
  - → pulsus parvus et tardus "sign of severity"
  - → muffled 2nd heart sound S_2 at aortic area 1st goes to carotic
  - → midsystolic murmur → ejection systolic
  - → Crescendo-decrescendo



فرق الضغط مش كبير بين الـ LV و aorta [120] بالأول لكن بعدين الضغط راح يزيد في aorta

و pressure gradient راح يقل فال murmar راح يخف

★ Sings of severty

1. muffling S_2 "absence"
2. Very load murmur
3. S_3
4. pulsus tardus
5. Gallavordin phenomenon →
   بنسمع murmur قبل areas لكن اقوى شي عند 1st aortic

* Palpation

→ Investigations

ECG → sever LV hypertrophy

Chest-x ray → Cardiomegaly , LV cardiothorasic ratio, Congestion

ECHO → thick , calcified [redacted] aortic valve

→ Indication for Surgery

1 2 3 → زي الي قبل

4. $\Delta P > 40$ mm
5. aortic area < 1

لو اجتنا مريضة عمرها بالعشرينيات بعدها تحمل بركبلها biological valve عشان ما تولد
لأنه mechanical لازمه warfarin , والـ W بكون teratogenic

→ Treatment

Valve replasment

* هلا بغيروه بالقسطرة *

* Aortic regurge

كل اسباب AS

→ **Aetiology**

- → congenital : Marfan , EDS (mc)
- → rheumatic : mixed with mitral
- → Collagen diseas: RA , SLE
- → Iatrogenic

→ **Pathophysiology**

In diastolic there is LV volume overload

راح يصير eccentric hypertrophy → ↓ ejection fraction <55 + aortic area >55

* اكثر اشي volume over بعمل

→ **Clinical picture** → "AF , thrombosis, dyspnea, orthopnea, congested neck veins" (mc)

■ Hyperdynamic circulation symptoms → Volume over load symptoms

يجي المريض يحكي انه سامع نبضه في راسه

مهم للامتحان

- → nodding head with each beat → De Musset's Sign
- → visible carotid pulsation → Corrigan's pulse or sign
- → Uvular pulsation → Müller's sign
- → Capillary pulsation → quincke's sign
- → pressure gradient between LL , UL → hill's Sign
- → * (characteristic) diastolic and systolic murmur at femoral a. → double duroziez murmur

* لو ضغطت على اي artery راح تسمع systole لكن هنا بتسمع التنين

→ **Diagnosis**

Examination → water hummer pulse "prolapsing pulse"

→ Shifted apex at 7th ICS in anterior axillary line

→ early diastolic murmur at 2nd aortic area

→ **Indication of surgery**

[1] [2] [3]

[4] aortic area > 55 [5] ejection fraction < 55