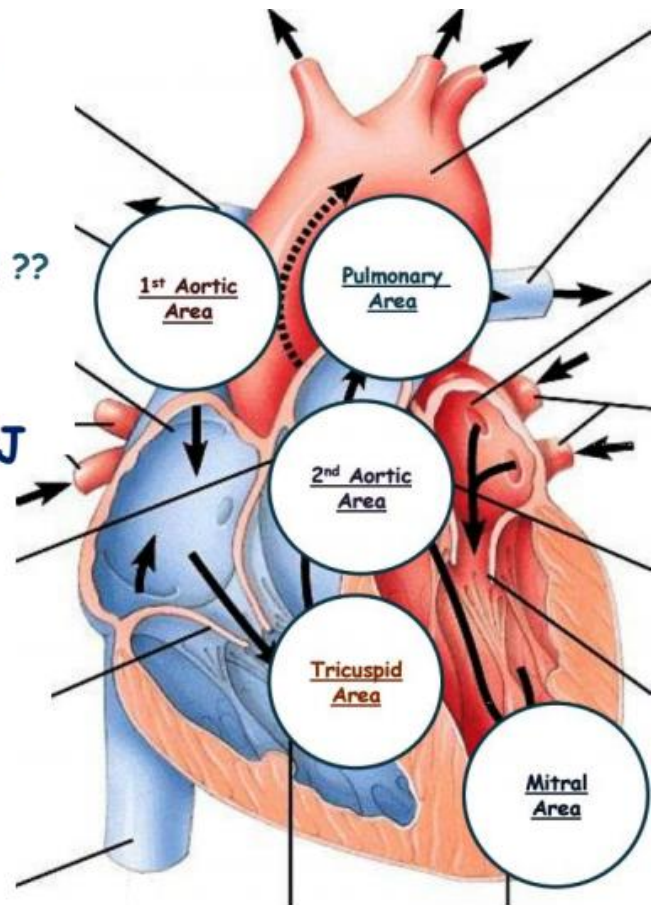


EXAMINATION MEDICINE

- ❖ HOW TO DO EXAMINATION
STEP BY STEP ??
- ❖ HOW TO DO MANEUVERS ??
- ❖ HOW TO PASS CLINIC EXAM ??

BY:
DR. MOHCEN AL. HAJ



CARDIO-VASCULAR SYSTEM CHAPTER

CARDI-VASCULAR SYSTEM (CVS)

The Possible Short Cases in Clinic Exam are:

- 1- Mitral Regurgitation..
- 2- Aortic Stenosis..
- 3- Prosthetic Metallic Valve..

Precordial Examination Means → Examination Of the Heart From Front of the Chest.
Cardio-Vascular Examination Means → Precordial Examination & General Examination Related to Cardio-Vascular System.

PRECORDIAL EXAMINATION:

IN PRECORDIAL EXAMINATION PATIENT HAS TO BE IN 45 DEGREE.

INTRODUCE YOUR SELF,, STAND ON THE RIGHT SIDE OF THE PATIENT & TAKE PERMISSION FROM THE PATIENT FOR EXAMINATION & EXPOSURE.

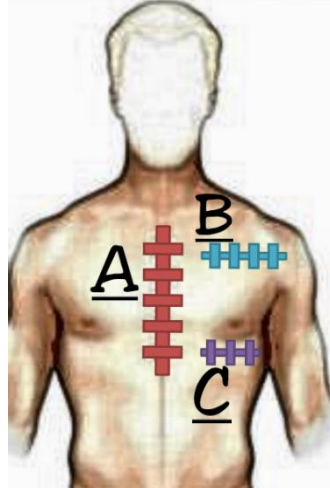
السلام عليكم .. صباح الخير يا حاج .. أني (فلان فلان) طالب سنة خامسة في كلية الطب البشري ..
من بعد إذنك يا حاج نبي اندير كشف على صدرك .. لو سمحت يا حاج ومن بعد إذنك لو تقدر تفتح السوربة
وسامحني كثرت عليك ...

1 ❖ INSPECTION

1- Scars:

Look at the Chest From Front For Any Scar Such as:

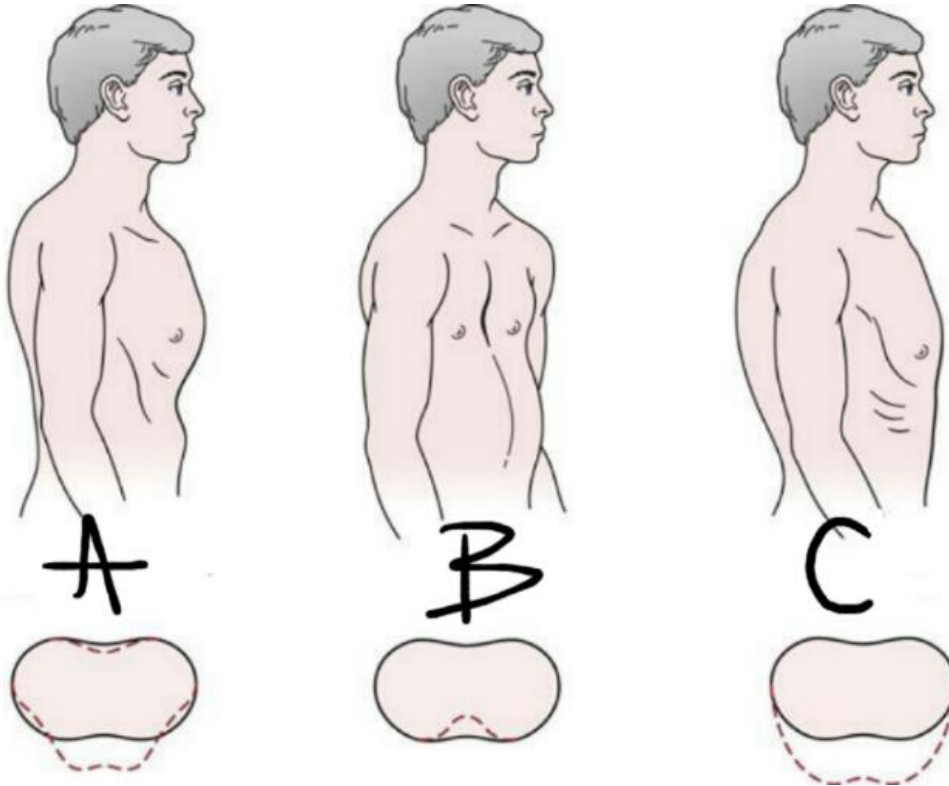
- A- Mid-Line Sternotomy (Thoracotomy) Scar → Indicate Open Heart Surgery; (Valve Replacement OR Coronary Artery Bypass Graft "CABG").
- B- Left Infra-Clavicular Scar → indicates Pacemaker or Implantable Cardiac Defibrillator (ICD).
- C- Left Infra-Mammary Scar → indicates Valvotomy of Mitral Stenosis.



2- Chest Deformity:

Check the Chest From Front and Observe if There is Any Deformity Like:

- A- **Pectus Carinatum** (Pigeon Chest) → Bulging of Sternum (Due to Childhood Asthma OR Rickets).
- B- **Pectus Excavatum** (Funnel Chest) → Depression of Sternum.
- C- **Barrel Chest** (Increase Antero-Posterior Diameter Of Chest) in COPD.



3- Visible Pulsation:

Look at **Apical Area** (Mitral Area) For Any Apical Pulsation Which Indicates **Left Ventricular Hypertrophy** (Forceful Pulse) OR **Cardiomyopathy** (Diffuse Pulse).

Look at **Epigastric Area** For Any Epigastric Pulsation. Which Indicates **Tricuspid Regurgitation** OR **Abdominal Aortic Aneurysm**.

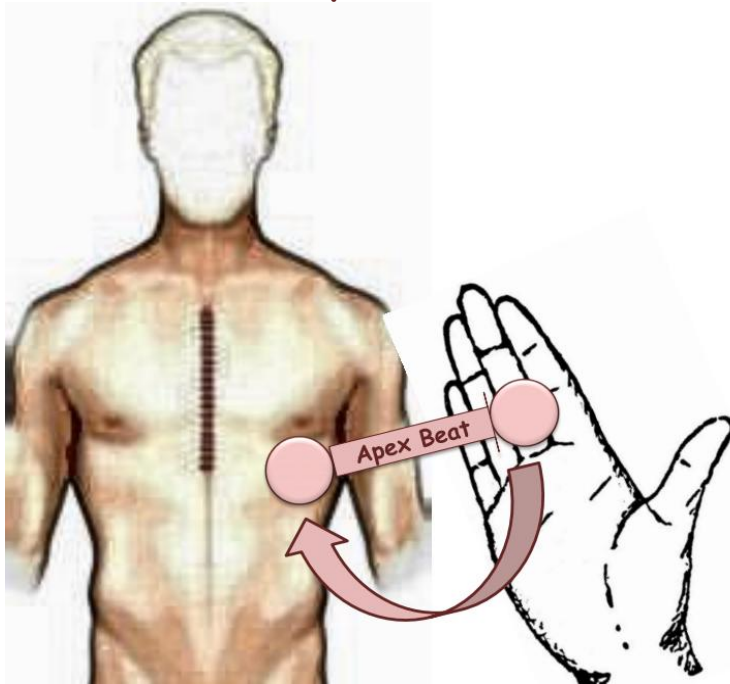
4- OTHERS (S S):

Superficial Dilated Vein → Indicate **Superior Vena Cava Obstruction** in Case of **Apical Lung Tumor**.

Skin Discoloration → Bruises Which Indicates **Warfarin Over Dose** in Case of **Prosthetic Valve** OR **Atrial Fibrillation**.

2 ❖ PALPATION

1- Apex Beat:



Put The **Palm** of Your Hand On **Outer Most, Lower Most** On the Left Side Of the Chest Just **Below the Left Nipple** in **Anterior Axillary Line** (In Left Fifth Intercostal Space) and Displace It Slowly Toward **Mid-Clavicular Line** and Try To Feel Apex Beat;

If You Palpate Apex Beat; **Localize it** By the Examiner's Finger (OR Patient's Finger) Then Try To Find **Angle of Luis** Which is Locate Beside **Second Intercostal Space**, and Then Make Sure that is the Apex Beat In Its Normal Site (**Left Fifth Intercostal Space**) and Comment On:

***Site Of Apex Beat** → Which is Normally in **Left Fifth Intercostal Space, Mid-Clavicular Line**.

Apex Beat is Displaced In Case of → **Mirtal Regurgitation, Tricusped Regurgitation, Heart Failure, Dilated-Cardio-Myopathy (DCM)**.
It May Displace in **Sixth Intercostal Space** OR **Anterior Axillary Line**.

***Character Of Apex Beat** → Which is Normally **Just Lifting Your Finger**.

Abnormal Character May:
Tapping → In Case Of; **Mitral Stenosis**.
Forceful Sustained → In Case Of; **Aortic Stenosis**.
Forceful Non-Sustained → In Case Of; **Aortic Regurgitation**.

Note:

If You Couldn't Palpate Apex Beat; Put the Patient in Left Lateral Position and Try to Palpate Apex Beat Again.

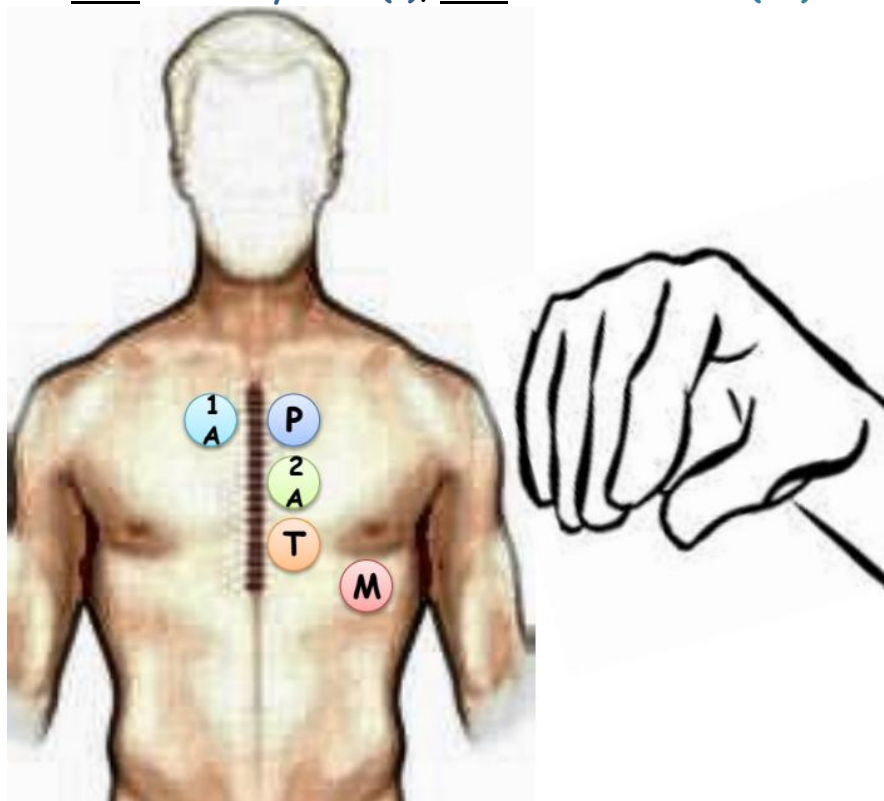
Differential Diagnosis of Non-Palpable Apex Beat:

1. Obese Patient.
2. Under the Rib.
3. Hyper-Inflated Chest.
4. Pleural Effusion.
5. Pericardial Effusion.
6. Dextro-Cardia.

2- Thrill (Palpable Murmur):

Use Tip of Your Fingers & Put Them at Clinical Sites of Valves as in the Picture and Try to Palpate Any Thrill (Feels Like Shivering Back of Cat).

Start with Mitral Area (M), Then Tricuspid Area (T), Then 2nd Aortic Area (2A), Then Pulmonary Area (P), Then 1st Aortic Area (1A):

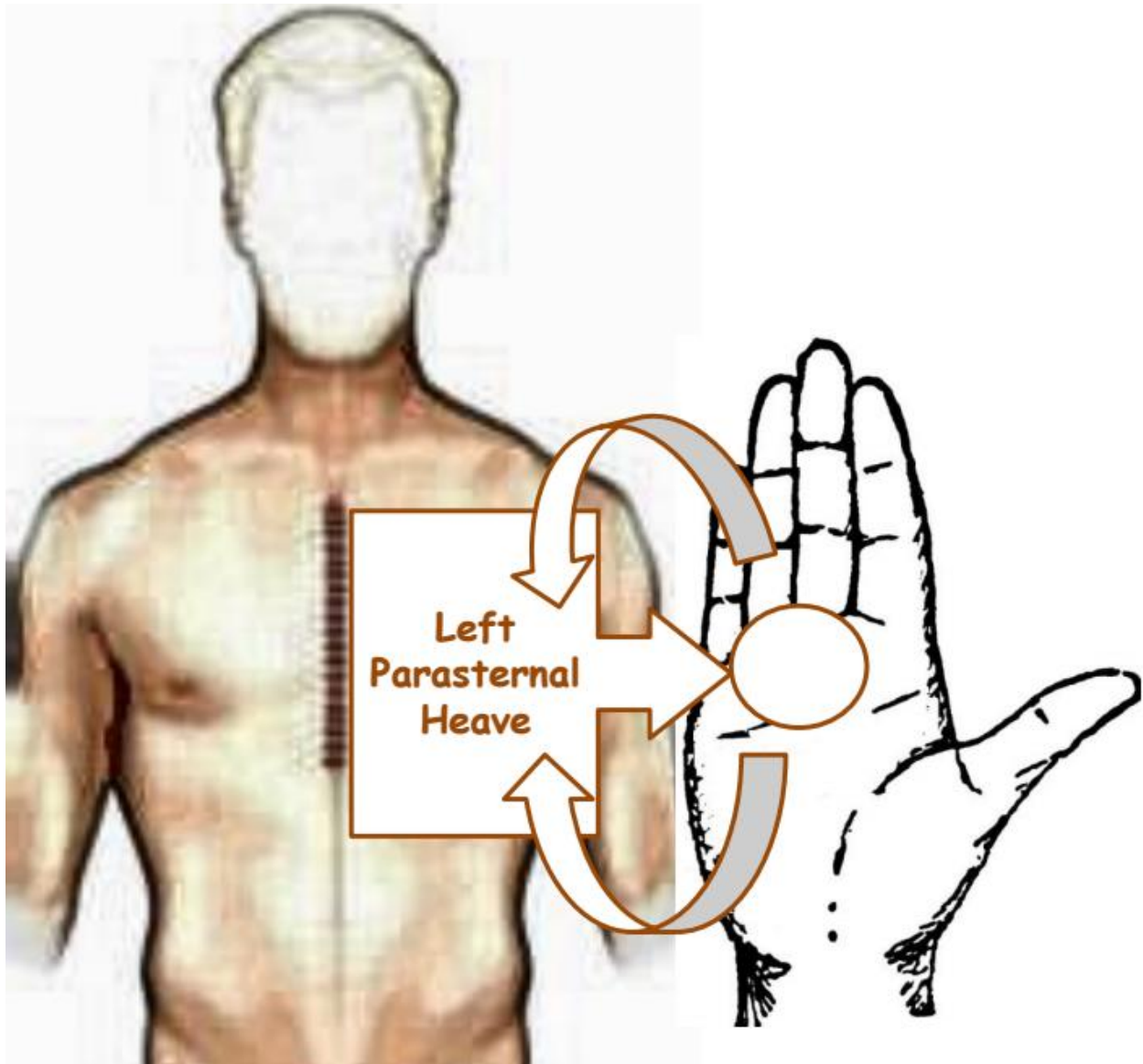


3- Left Parasternal Heave:

Put The **Palm** of Your Hand On Left Parasternal Area as in the Picture & Try to Palpate Any Heave

(Heave = Feeling of the Hand Slightly Moving).

Left Parasternal Heave Indicate → Right Ventricular Hypertrophy



3 ❖ AUSCULTATION

Introduction About What You are Going to Auscultate:

1- S1 & S2:

S1: Closure of **Mitral & Tricuspid Valve**, Heard With Pulse (Systole),
Normally Best Heard Over **Mitral & Tricuspid Area**.

S2: Closure of **Aortic & Pulmonary Valve**, Heard After Pulse (Diastole),
Normally Best Heard Over **Aortic & Pulmonary Area**.

S1		S2	
Loud in:	Muffled in:	Loud in:	Muffled in:
*Mitral Stenosis.	*Mitral Regurgitation.	*Systemic HTN.	*Aortic Stenosis.
*Hyperdynamic Circulation.	*Heart Failure.	*Pulmonary HTN.	*Aortic Regurgitation.
			*Pulmonary Stenosis.

2- Murmur:

It is a Sound Heard Due to Turbulence of Blood Flow Across Valve Lesion.
Can Be Heard In All Clinical Sites of Valves.

If You Heard Any Murmur You Have to **Comment On:**

1. Site of Murmur:

Best Heard Site.

2. Timing of Murmur:

Do Timing with **Carotid OR Radial Artery** To Recognize If the Murmur **Systolic OR Diastolic**;
Systolic Murmur Heard with Pulse,
Diastolic Murmur Heard After Pulse.

3. Grade of Murmur:

Grade 1, 2 & 3 Are **Diastolic Murmur**, Difficult to Determine By Students.
Grade 4, 5 & 6 Are **Systolic Murmur**, Can Be Determined By Students, and Accompanied By **Thrill**.

4. Radiation of Murmur:

Mitral Regurgitation Radiate On the Axilla,
Aortic Stenosis Radiate On the Carotid Artery,
Tricuspid Regurgitation Radiate On the Epigastric Area.

5. Variation of Murmur:

Murmur of Left Side Valves Increased By → Expiration.
Murmur of Right Side Valves Increased By → Inspiration.

Systolic Murmur (Grade 4,5,6)		Diastolic Murmur (Grade 1,2,3)	
Pan Systolic	Ejection Systolic	Mid Diastolic	Early Diastolic
*Mitral Regurgitation. *Tricuspid Regurgitation.	*Aortic Stenosis. *Pulmonary Stenosis.	*Mitral Stenosis. *Tricuspid Stenosis.	*Aortic Regurgitation. *Pulmonary Regurgitation.

Valve Lesions That Need Special Maneuvers:	
Mitral Stenosis	Aortic Regurgitation
(Mid-Diastolic Murmur)	(Early Diastolic Murmur)
But the Patient On Left Lateral Position & Use Bell of Your Stethoscope.	But the Patient On Sitting Position & Leaning Forward , Then Patient Hold Expiration .

3- Added Sound:

1- S3:

Due to **Rapid Ventricular Filling** in Diastole,
Heard At **Early Diastole** By **Bell**, Best Heard Over **Mitral Area**.

***Causes of S3:**

Physiological: Children, Young & Hyperdynamic Circulation.

Pathological: Heart Failure, Mitral Regurgitation & Tricuspid Regurgitation.

***Note** → S1 + S2 + S3 + Tachycardia = Gallop Rhythm.

2- S4:

Due to **Strong Atrial Contraction**,
Heard At **Late Diastole** By **Bell**, Best Heard Over **Mitral Area**.

***Causes of S4:**

Always Pathological: Heart Failure, Left Ventricular Hypertrophy & Aortic Stenosis.

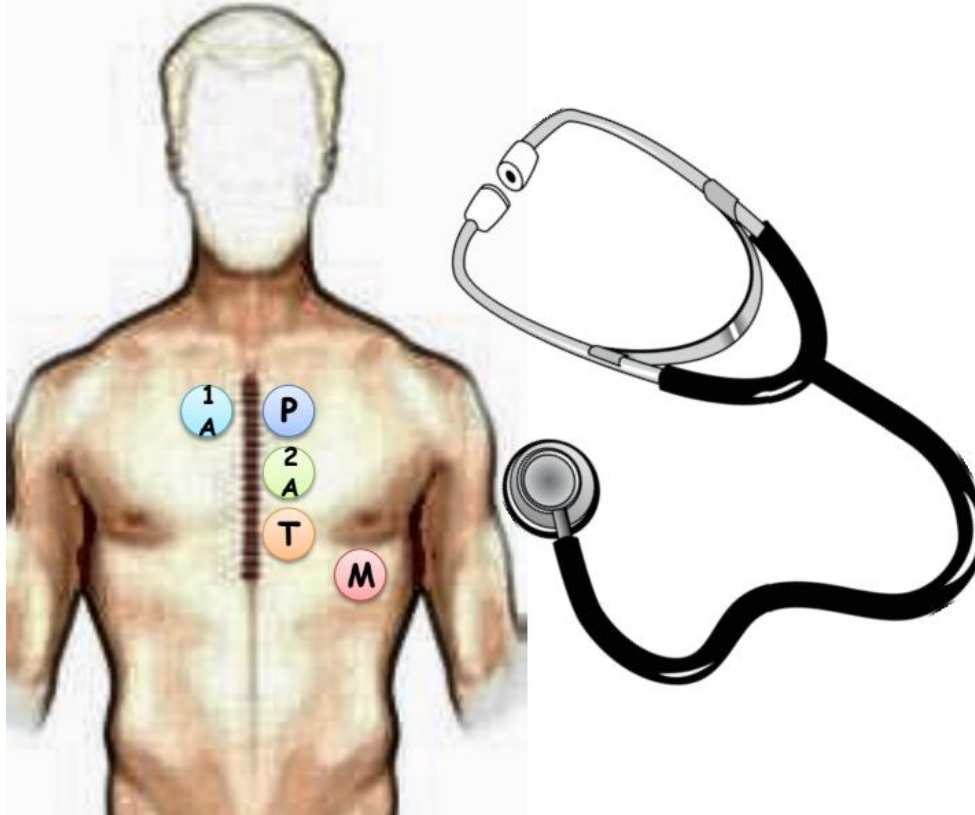
3- Opening Snap:

Due to **Sever Mitral Stenosis**, Heard At **Early Diastole**.

4- Prosthetic Metallic Click:

Occurs Due to **Valve Replacement**.

What You are Doing During Auscultation in Exam:



Follow This Steps One By One:

- * Patient Still On 45 Degree Position.
- * Warm Diaphragm of Your Stethoscope.
- * Steps to Auscultate Mitral Area (M):

1. Put Your Stethoscope On **Mitral Area** as In the Picture (**M**).
2. Use Your Other Hand to Palpate the **Pulse** Via **Carotid Artery** OR **Radial Artery** For **Timing**, (If You are Going to Do **Timing** By **Carotid Artery**; You Have to **Auscultate** Carotid Artery Before You Palpate The Pulse; For Carotid **Bruit** → To Exclude Presence of Carotid Artery **Atheroma**).
3. Now Try to Hear **S1 & S2** and Do **Timing** with **Pulse**.
4. Try To Hear Any **Murmur**.
5. If You Heard **Murmur**; Do **Timing** to Make Sure If the Murmur Heard with **Pulse** (Systolic), Then Move Your Stethoscope Toward Axilla To Hear **Radiation** (In Case of **Mitral Regurgitation**).
6. Now Use the **Bell** of Your Stethoscope, Then Ask The Patient to Turn in **Left Lateral Position** & Try To Hear If There is Any **Diastolic Murmur** For **Mitral Stenosis**.
7. While You are Using Your Bell; Try to Hear Any **Added Sound (S3, S4)**.

***Steps to Auscultate Tricuspid Area (T):**

1. But Your Stethoscope On **Tricuspid Area** as In the Picture (T).
2. Try To Hear Any **Murmur**.
3. If You Heard Any **Murmur** Do **Timing** By **Carotid Artery** OR **Radial Artery**.

***Steps to Auscultate Pulmonary Area (P):**

1. But Your Stethoscope On **Pulmonary Area** as In the Picture (P).
2. Try To Hear Any **Murmur**.
3. If You Heard Any **Murmur** Do **Timing** By **Carotid Artery** OR **Radial Artery**.

***Steps to Auscultate 1st Aortic Area (1A):**

1. But Your Stethoscope On **1st Aortic Area** as In the Picture (1A).
2. Use Your Other Hand to Palpate the Pulse Via **Carotid Artery** OR **Radial Artery** For **Timing**, (If You are Going to Do **Timing** By **Carotid Artery**; You Have to **Auscultate** Carotid Artery Before You Palpate The Pulse; For **Carotid Bruit** → To Exclude Presence of **Carotid Artery Atheroma**).
3. Now Try to Hear **S1** & **S2** and Do **Timing** with Pulse.
4. Try To Hear Any **Murmur**.
5. If You Heard **Murmur**; Do **Timing** to Make Sure if the **Murmur** Heard with **Pulse (Systolic)** & But Your Stethoscope On **Carotid Artery** To Hear **Radiation** (In Case of **Aortic Stenosis**).

***Steps to Auscultate 2nd Aortic Area (2A):**

1. But the Patient on **Sitting Position** & Ask the Patient to **Leaning Forward**.
2. But Your Stethoscope On **2nd Aortic Area** as In the Picture (2A).
3. Ask The Patient To **Hold His Expiration**.
4. Try To Hear Any **Murmur**.
5. If You Heard Any **Murmur** Do **Timing** By **Carotid Artery** OR **Radial Artery**.
6. Ask From The Examiner & Say; **I Would Like to Auscultate Base of Both Lungs From The Back to Hear if There are Any Fine Crackles**.

***Finally: Cover the Patient and Thank The Patient and Say → .. شكرا يا حاج ، سامحني وان شاء الله لابس عليك ..**