

شرح حال و معاینه قلب

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COMMON TERATOGENS AND THEIR ASSOCIATED CARDIAC DEFECTS

Alcohol

ASD, VSD

Lithium

Ebstein's anomaly

Retinoic acid

Conotruncal abnormalities

Valproic acid

ASD, VSD, AS, PA/IVS, CoA

Congenital infections



Family History



Family History (syndromes)



Timing

- For example, **ductal-dependent** left-sided obstructive lesions usually present in the **first 2 weeks** of life as the ductus arteriosus closes. This results in a marked decrease in cardiac output and signs of shock, or severe cyanosis.

Timing

- On the other hand, children with significant **left-to-right shunt** lesions typically are asymptomatic until **4 weeks of age** when pulmonary vascular resistance decreases to near normal levels and heart failure ensues .

Feeding



Cyanosis

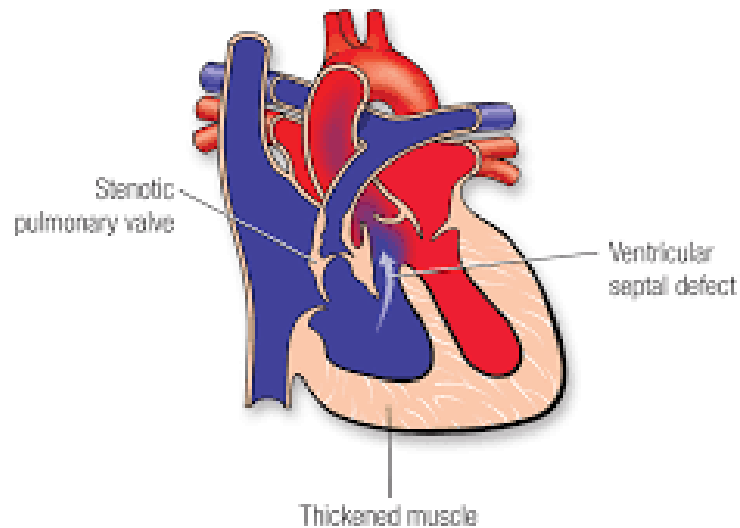
- **Acrocyanosis**
- **Central cyanosis**



Central cyanosis



Tetralogy of Fallot



Red Blood Cells

Breathing

- The infant's **breathing patterns** should be documented. **Unlabored tachypnea** often accompanies cyanotic heart disease, whereas **grunting and dyspnea** are associated with left-sided obstructive lesions or respiratory illness.

Chest Pain

- **Chest pain** is a common reason for referral and anxiety.

The patient should describe the **location**, **quality**, and **timing** of the pain. The clinician should ask what **relieves** the pain.

Is it associated with **exercise**?

Pain associated with chest pounding may indicate an arrhythmia .

Past Medical History

- The **PMH** should include documentation of significant illnesses, previous hospitalization, previous operations, immunization status, and symptoms of poor growth as an infant.

Physical Examination

- The **cardiac physical examination** consists of **five parts**:
Vital signs assessment, inspection, palpation, percussion, and auscultation .

- The order of the examination can be adjusted to obtain the most information. For example, if the child is asleep, **auscultation** should be performed **before palpation**

Vital Sign Assessment

- Heart rate, respiratory rate, and blood pressure are vital to a complete cardiac examination. They should be assessed at each visit.

Blood Pressure Measurement

- On the **initial visit**, blood pressures should be measured in **both upper extremities** and one **lower extremity**. Although many hospitals are phasing out **mercury manometers**, they are the most accurate tools for blood pressure measurement

Inspection

- The examiner should take advantage of the time while interviewing the parent to **inspect the child**.
The physical examination actually starts here .

Inspection

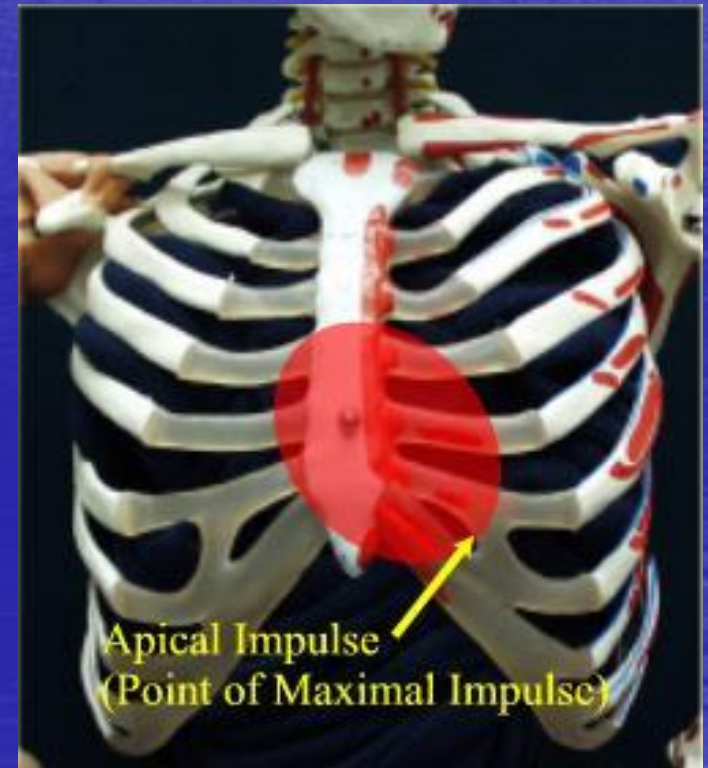
- Each patient should be inspected for general appearance, nutritional status, dysmorphic features, color, and comfort.

Inspection



Inspection

- left fourth intercostal space in the midclavicular line .



Color

- The child's color (i.e., pink, cyanotic, pale) should be noted. True cyanosis requires desaturation of 5 gr of hemoglobin and is difficult to detect unless the arterial saturation is less or equal to 85% in a child with normal hemoglobin levels .

Cyanosis

- In the older child, long-standing cyanosis is usually accompanied by **digital clubbing**. The loss of the angle between the nail and the cuticle area is a consistent finding of clubbing

Cyanosis

- **Acrocyanosis**
- **Central cyanosis**



Cyanosis



Palpation

- Palpation of **peripheral pulses**, the **chest**, **the abdomen**, and **the back** should be included in each cardiac examination

Pulses

- **Pulse rate** should be assessed, noting **regularity** and **quality** of the pulsations. Pulse rate changes with the **age** of the patient.

A **fast pulse rate** for age may indicate arrhythmia or congestive heart failure.

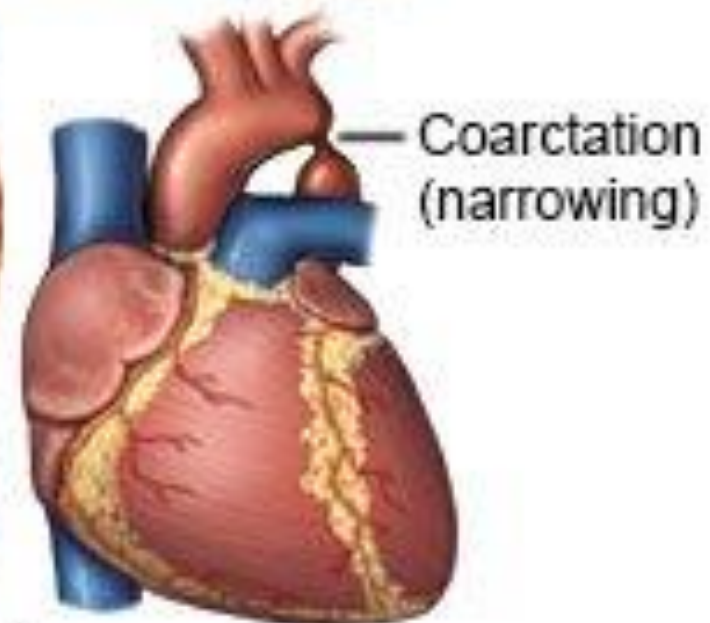
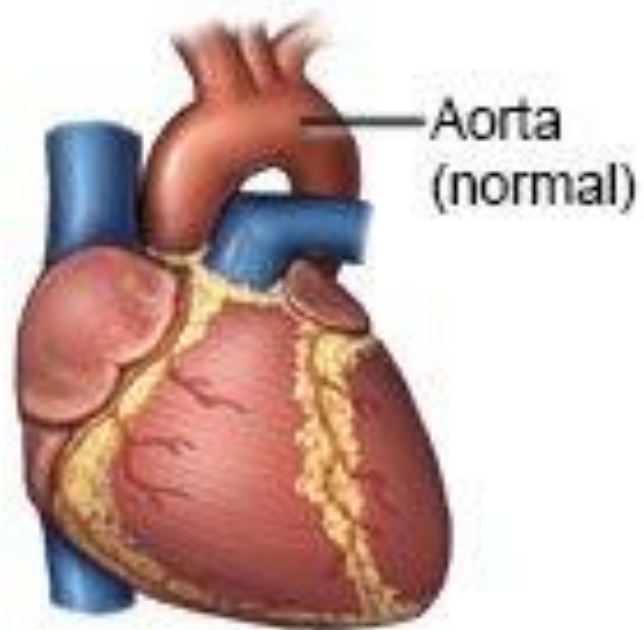
A **slow pulse rate** usually reflects athletic conditioning; however, atrioventricular block or drug effect should be considered .

Pulses

- Irregularity of pulse rate may indicate an **arrhythmia**. However, a change in pulse rate with respiration is normal (sinus arrhythmia).

Pulses





Coarctation of the Aorta

- **Bounding pulses** reflect **aortic runoff** as in aortic regurgitation, PDA, or arteriovenous malformations .



Chest

- The chest should be palpated for the **PMI**, **precordial activity**, and **thrills**. The location of the PMI suggests the ventricular dominance. The chest should be palpated with a fingertip to confirm its location

- With **left ventricular dominance**, the PMI is palpated at the left midclavicular line or apex. A PMI located at the lower left sternal border or xiphoid process suggests **right ventricular dominance**.

Patients with dextrocardia will have a PMI on the right side of the chest .

- **Thrills** are vibrations detected distal to jet lesions. Left precordial thrills are best felt with the **metacarpal heads** of the right hand while the examiner is positioned to the right of the supine patient .



- Gently placing a fingertip in the **suprasternal notch** will allow detection of aortic pulsations and thrills in patients with aortic valve stenosis (AS), pulmonary valve stenosis (PS), aortic insufficiency (AI), PDA, or coarctation of the aorta.

Auscultation

- **Sound** is the organized movement of molecules caused by a vibrating body in some medium. In the case of heart sounds and murmurs, the medium is **blood**.

Auscultation

- The timing of the **first heart sound** corresponds to the closure of the AV valves. The **second heart sound** corresponds to the closure of the semilunar valves.

Heart sounds

- Later in diastole atrial contraction augments ventricular filling. If the ventricle is resistant to further distention, as in cardiomyopathy, the **poorly compliant myocardium** will vibrate, producing a **fourth heart sound**.

Heart Murmurs

- **Turbulence** is described as highly disturbed flow that produces random fluctuations of velocity and pressure within the blood and vibration of the surrounding tissue. Audible vibrations from turbulence are thought to be the cause of **murmurs**.

- **Arteriovenous malformations** may be responsible for unexplained cardiomegaly. In those instances, the clinician should listen for a bruit over the fontanel or liver.

Grading

- Grade I. Barely audible and may require several cycles to detect
- Grade II. Soft, but easily audible
- Grade III. Moderately loud murmur without a thrill
- Grade IV. Loud murmur with a thrill
- Grade V. Loud murmur heard with the stethoscope barely off the chest
- Grade VI. Loud murmur heard without the stethoscope touching the chest

Timing

- Systolic murmurs: ejection and S1 coincident (often holosystolic)
- Diastolic murmurs: early diastolic, middiastolic, and late diastolic/presystolic
- Continuous murmurs

Ejection murmurs

- After S1
- crescendo-decrescendo quality
- Absolute obstruction (AS, PS, PPS, HCMP)
- Relative obstruction (ASD, PI, AI, pregnancy, anemia)

S1-Coincident Murmurs

- Usually last throughout systole and are thus referred to as holosystolic or pansystolic murmurs.
- VSD, TR, MR

Early Diastolic Murmurs

- AI
- PI

Middiastolic Murmurs

- Absolut obstruction (MS, TS)
- Relative obstruction (ASD, VSD, PDA, MR)

Late Diastolic Murmurs

- MVP/MR
- MS, TS

Continuous Murmurs

- AV connections (PDA, AVF)
- Arterial obstructions (COA, PPS)
- Venous obstructions (venous hum)

To-and-fro murmur

- Combination of 2 murmurs
- AS/AI, PS/PI
- MR/MS, TR/TS

Innocent Murmurs

- 80% of children at some time or another, particularly at around 3 or 4 years of age

سیاس از توجه شما