

Abnormal heart sounds and murmurs

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Rationale

Murmurs and abnormal heart sounds may be detected on physical examination. Although systolic murmurs are often "innocent" or physiologic, diastolic murmurs are virtually always pathologic. A thorough history and physical examination almost always identify which patient cases require further investigation and management.

Causal Conditions

(list not exhaustive)

- Abnormal heart sounds
 - a. S_1 (e.g., mitral stenosis, atrial fibrillation)
 - b. S_2 (e.g., hypertension, aortic stenosis)
 - c. S_3 (e.g., heart failure)
 - d. S_4 (e.g., hypertension)
 - e. Abnormal splitting (e.g., atrial septal defect)
- Systolic murmurs
 - a. Ejection murmurs (e.g., physiologic, aortic stenosis)
 - b. Pansystolic murmurs (e.g., mitral regurgitation)
- Diastolic murmurs
 - a. Early (e.g., aortic regurgitation)
 - b. Mid-diastolic (e.g., mitral stenosis)
- Pericardial friction rubs

Key Objectives

Given a patient with a murmur or abnormal heart sounds, the candidate will differentiate innocent from pathologic conditions; diagnose the cause, severity, and complications; and initiate an appropriate management plan.

Enabling Objectives

Given a patient with a murmur or abnormal heart sounds, the candidate will

- list and interpret critical clinical findings, including
 - a. the origin of the abnormal sound and/or murmur; and
 - b. results of an appropriate history and physical examination aimed at determining the underlying pathological condition, including severity and complications (e.g., heart failure, endocarditis);
- list and interpret critical investigations, including
 - a. diagnostic screening for cardiac arrhythmia by means of clinical findings and electrocardiogram; and
 - b. appropriate diagnostic imaging, including echocardiography, for further investigation of the murmur or abnormal heart sounds; and
- construct an effective initial management plan, including
 - a. initiating management for the underlying condition and its complications (e.g., heart failure, atrial fibrillation, endocarditis);
 - b. recommending endocarditis prophylaxis if indicated; and
 - c. determining whether the patient requires specialized care.