An Approach to Chronic Dyspnea

Diagnostic Framework

Pulmonary	Cardiovascular	Miscellaneous
Pleura Pleural effusion **Airways** COPD* Asthma **Alveoli** Chronic Pneumonia (e.g. fungal, mycobacterial) **Interstitium** Interstitial lung disease **Vessels** Pulmonary hypertension Pulmonary AVM	**Pericardium** Constrictive pericarditis **Myocardium** Heart failure* **Valves** Any valvular disease, if severe enough **Conduction system** Bradyarrhythmias Tachyarrhythmias **Vessels** Coronary artery disease ("angina-equivalent")	Anemia (moderate-severe) Neuromuscular disease Kyphoscoliosis Renal failure Obesity Deconditioning

* Most common causes in the US

How to assess a patient with chronic dyspnea?

HPI, PMH, medications, social history
(including exposure history: animals, occupation, hobbies, travel)

Vitals (including ambulatory O_2 sat)

Focused physical exam
(e.g. cardiac, pulmonary, extremity, and basic neuro exams)

Labs: CBC

Chest X-ray

ECG

Depending on situation, additional data could include:

Additional physical exam maneuvers

Labs: Chemistry panel, BNP

Formal echocardiogram

Limited PFTs (i.e. spirometry)

CT thorax

Right and/or left heart catheterization

Diagnostic Features
(Pulmonary Diseases)

	Physical Exam	Chest X-ray	Additional Supportive Features From Initial Evaluation	Diagnostic Next Steps
Pleural Effusion	• Unilateral dullness to percussion • Unilaterally decreased breath sounds	Large pleural effusion	N/A	Thoracentesis
COPD	Bilaterally decreased breath sounds	Hyperinflation (e.g. hyperlucent lung fields, flattened diaphragms)	• Chronic cough • Smoking history	Limited PFTs (e.g. spirometry)
Chronic, infectious pneumonia (e.g. fungal, mycobacterial)	Focal crackles and decreased breath sounds and/or exam consistent with pleural effusion	Various, depending on specific organism	Chronic cough, weight loss, fevers For TB: History of travel to endemic area, homelessness, incarceration, close contact with patient known to have TB For fungus: History of travel to endemic area	For TB: Respiratory isolation, serial sputum collections for AFB smear and culture; thoracentesis if effusion present For fungus: Sputum collection for direct examination and fungal culture, serology
Interstitial lung disease	Diffuse fine crackles	Diffuse interstitial opacities	Significant exposure history (e.g. animals, organic dust, occupational exposure, certain medications)	• Chest CT • Full PFTs
Pulmonary hypertension	• Loud P2 • Right ventricular heave • Elevated JVP	Large pulmonary arteries	RVH on ECG	• Echocardiogram • Chest CT • Full PFTs • V/Q scan • Consider autoantibodies • Consider right heart catheterization

Diagnostic Features
(Cardiac Diseases)

	Physical Exam	Chest X-ray	Additional Supportive Features From Initial Evaluation	Diagnostic Next Steps
Constrictive pericarditis	• Elevated JVP • Lower extremity edema • Pericardial knock (early diastolic sound) • Kussmaul's sign (lack of inspiratory drop in JVP)	Pericardial calcifications	History of acute pericarditis, or other predisposing condition	• CT or MRI • Consider right heart catheterization
Heart failure	• Elevated JVP • Diffuse coarse crackles • Lower extremity edema • S3 (early diagnostic sound)	• Cardiomegaly • Bilateral pleural effusions • Bilateral alveolar/airspace opacities • Kerley B lines	• Cardiovascular risk factors • Elevated BNP	• Echocardiogram • Ischemia evaluation (e.g. stress test vs. left heart catheterization)
Valvular heart disease	Pathologic murmur	No specific findings, unless concurrent heart failure present	None specific	Echocardiogram
Arrhythmia	• Fast/slow heart rate • Irregular rhythm	No specific findings, unless concurrent heart failure present	• History of palpitations • Arrhythmia on ECG	• Ambulatory ECG monitor (if arrhythmia suspected, but not currently present on ECG) • Consider echocardiogram
CAD	No specific findings, unless concurrent heart failure present	No specific findings, unless concurrent heart failure present	• Exertional chest pain • Cardiovascular risk factors • Evidence of ischemia on ECG	Stress test vs. left heart catheterization