

	Hepatopulmonary syndrome	Portopulmonary syndrome	Hepatic hydrothorax
What is it?	Oxygenation defect caused by the development of intrapulmonary vascular dilatation in patients with advanced liver disease or portal hypertension	Pulmonary arterial hypertension that occurs in the setting of portal hypertension, with or without advanced liver disease	Complication of portal hypertension, characterized by transudative pleural effusion in the absence of underlying cardiac or pulmonary disease
Diagnostic criteria	1. Liver disease 2. Pulmonary vascular dilatation 3. Impaired oxygenation	1. Portal hypertension 2. mPAP > 25 mmHg at rest, PCWP < 15 mmHg, PVR > 240 dyn/s/cm ² or > 3 Wood units, exclusion of other causes of pulmonary hypertension	Thoracentesis - serum-pleural albumin gradient (SPAG) > 1.1 - pleural fluid total protein < 2.5 g/dL - PMN < 250 cells/mm ³
Symptoms	Dyspnea at rest or with exertion Platypnea-orthodeoxia syndrome	Dyspnea on exertion Fatigue Weakness Orthopnea	Cough Dyspnea Chest discomfort Hypoxia
Clinical and imaging findings	Digital clubbing Cyanosis	Elevated JVD Accentuated P2 of the second heart sound Holosystolic murmur CXR – cardiomegaly prominent main pulmonary artery	CXR - pleural effusion (usually R sided)
Diagnostic tools	- ABG (A-a gradient > 15 mmHg if < 65 yo or > 20 mmHg if > 65 yo OR PaO ₂ < 80 mmHg) - Contrast enhanced TTE (bubble study) - Radionuclide lung perfusion scan (technetium-labeled albumin scan)	- TTE (RVSP > 40 mmHg warrants further workup) - R heart catheterization (gold standard)	
Treatment	Oxygen supplementation Liver transplant	Vasodilators Liver transplant (if mild to moderate)	Salt restriction Diuretics Thoracentesis/paracentesis TIPS Pleurodesis