



Differential Diagnosis of Mitral Regurgitation

Disease	Notes
Ruptured chordae tendineae	Prone to rupture in patients with endocarditis, myxomatous degeneration, and fibroelastic deficiency causing acute or chronic mitral regurgitation.
Myxomatous degeneration	Often detected by echocardiogram showing thickened leaflets that prolapse above the level of the annulus. Myxomatous degeneration can result in chordal rupture and acute mitral regurgitation.
Infective endocarditis	Evidence of systemic infection with fevers, an elevated leukocyte count and positive blood cultures. Osler's nodes (small, tender nodules on the toe or finger pads), Janeway lesions (small nontender hemorrhages on palms and soles) and Roth spots (small retinal hemorrhages with a clear center), petechiae, splinter hemorrhages, splenomegaly, or other evidence of systemic emboli may be present. Hematuria is common. The echocardiogram may show valvular vegetations. Can result in acute mitral regurgitation.
Myocardial ischemia	The papillary muscles are supplied by the terminal portion of the coronary arterial tree and, as such, are vulnerable to ischemia. This can lead to papillary muscle rupture and acute or chronic mitral regurgitation.
LV dysfunction	Acute or chronic dilatation of the left ventricle results in geometric changes that separate the papillary muscles, thus not permitting normal coaptation of the mitral valve leaflets and can cause acute or chronic mitral regurgitation.
Mitral valve prolapse	Mitral valve prolapse is the most common etiology of chronic mitral regurgitation. Exam may reveal systolic click with or without a late systolic murmur (organic mitral regurgitation). Cause of chronic mitral regurgitation.
Mitral annular calcification	More common in women. Calcification of the mitral annulus can alter the normal function of the mitral leaflets during both systole and diastole. Mitral annular calcification can be seen in hypertension, aortic stenosis, renal failure with

	secondary hyperparathyroidism, and diabetes, as well as Marfan and Hurler syndromes. Cause of chronic mitral regurgitation
Rheumatic heart disease	Rheumatic heart disease commonly affects the mitral valve, and may cause mitral stenosis, mitral regurgitation, or a combined lesion. Mitral regurgitation is typically caused by inflammation and scarring of the leaflets and chordae with subsequent retraction of one or both leaflets. Cause of chronic mitral regurgitation.
Marfan syndrome	Mitral valve prolapse is present in 60%-80% of Marfan cases. The syndrome is characterized by skeletal abnormalities, including long, thin extremities, arachnodactyly, pectus excavatum or pectus carinatum, and scoliosis. Other common findings include ectopia lentis and aortic dilatation/aneurysms. Cause of chronic mitral regurgitation.
Hypertrophic cardiomyopathy	Hypertrophic obstructive cardiomyopathy is a genetic disorder of myocardial contractile proteins. The myocardium is profoundly hypertrophic with asymmetric septal hypertrophy. Mitral regurgitation is common in this condition secondary to the altered geometry of the left ventricle, as well as the high velocity of blood flow across the LV outflow tract, causing systolic anterior motion of the mitral valve. Cause of chronic mitral regurgitation.
Fenfluramine-phentermine	These anorectic drugs have been implicated in the development of valvular insufficiency. It appears that these agents may increase the likelihood of mild mitral regurgitation. Cause of chronic mitral regurgitation.
Ergot-derived headache medications (e.g., ergotamine, dihydroergotamine, and caffeine and ergotamine) and ergot-derived, dopamine-agonist antiparkinsonian agents (e.g., pergolide and cabergoline)	These medications stimulate serotonin receptors in the valves and, thus, may cause proliferation of tissue, thickening, and malcoaptation, leading to mitral regurgitation. Cause of chronic mitral regurgitation.

CAD = coronary artery disease; LV = left ventricular.

Table adapted from Physicians Information and Education Resource (PIER), Mitral Regurgitation module.