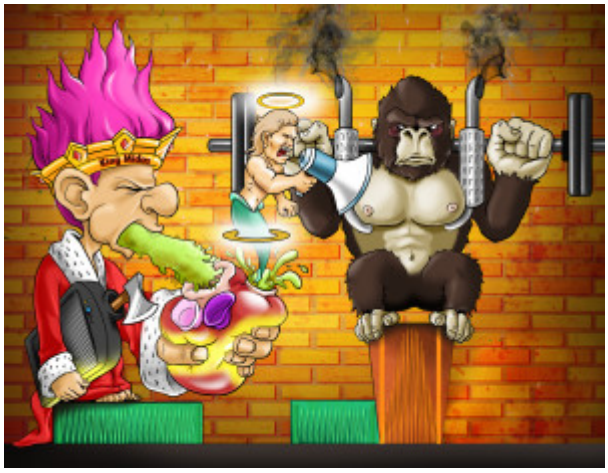
Mitral Regurgitation

Mitral regurgitation, also called mitral insufficiency, is a heart disorder in which the mitral valve does not properly close when the heart pumps blood. The mitral valve is a bicuspid valve that lies between the left atrium and the left ventricle. During diastole, the mitral valve normally opens allowing the left ventricle to fill with blood. At the end of diastole, the mitral valve closes to prevent reversal of blood flow back into the left atrium. Mitral regurgitation is characterized by a faulty mitral valve that cannot fully close during systole, which allows blood to flow back into the left atrium rather than being pumped forward through the aorta. The regurgitant blood flow causes a characteristic holosystolic blowing heart murmur that is heard loudest at the apex of the heart with radiation towards the axilla. This murmur is increased when there is increased total peripheral resistance like during squatting or hand grip due to higher pressures that the left ventricle must pump against resulting in increased regurgitant blood flow. This left sided valvular disease can be distinguished from right sided tricuspid regurgitation because it becomes louder during expiration due to increase in venous return from the pulmonary veins to the left heart resulting in a large volume of blood that flows back to the left atrium. Mitral regurgitation is often a congenital condition or a consequence of rheumatic heart disease, marked left ventricular dilatation, or papillary muscle dysfunction secondary to myocardial infarction.



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Characteristics

Holosystolic
Halo-heart-squeeze
Mitral regurgitation is characterized by a holosystolic murmur that begins from S1 and continues to S2. This murmur is holosystolic because a faulty mitral valve allows blood to flow backwards to the left atrium during all of systole.

Blowing Murmur
Blow-horn Merman
The murmur caused by mitral regurgitation is classically described as having a blowing quality.

Loudest at Apex
Ape
This murmur is heard loudest at the apex of the heart, which is the lowest superficial part of the heart. On physical exam, the apex lies behind the fifth left intercostal space, usually 8-9 cm from the mid sternal line.

Radiates toward Axilla
Radiator holding Ax under armpit
This murmur characteristically radiates towards the patient's left axilla and can help distinguish the murmur of mitral regurgitation from other heart murmurs.

Louder by Squatting
Squatting
This murmur is increased when there is increased total peripheral resistance like during squatting due to higher pressures that the left ventricle must pump against resulting in increased regurgitant blood flow.

Hand Grip
Exaggerated Hand Grip on bar
This murmur is increased when there is increased total peripheral resistance like during hand grip due to higher pressures that the left ventricle must pump against resulting in increased regurgitant blood flow.

Expiration
Exhaust pipe
This left sided valvular disease can be distinguished from right sided tricuspid regurgitation because it becomes louder during expiration due to increase in venous return from the pulmonary veins to the left heart resulting in a large volume of blood that flows back to the left atrium.