

## Heart valve disease in general practice:

### a clinical overview

The burden of heart valve disease is rising in line with increasing life expectancy and the prevalence of moderate or severe disease is 13% in people aged  $\geq 75$  years old.<sup>1</sup> The most common lesions are aortic stenosis (Figure 1) due to calcific disease and mitral regurgitation (Figure 2) as a result of mitral prolapse or secondary to left ventricular dysfunction. Untreated valve disease leads to premature death whereas valve surgery may prolong life.<sup>2</sup> However, patients with valve disease are often not detected or are referred late and there is a large variation in access to valve surgery across the country.<sup>3</sup>

#### WHEN TO SUSPECT VALVE DISEASE

Auscultation is a good screen and should be performed in patients with exertional chest pain, breathlessness, or syncope and also non-specifically reduced exercise capacity. Any first-degree relative of someone with a bicuspid aortic valve has a 10% chance of having either a bicuspid valve or dilated aorta and should be offered echocardiography. Valve disease was thought to be the cause of heart failure in just under one-third of patients in the EuroHeart Failure survey<sup>4</sup> for which echocardiography is already indicated. Anyone from countries with a high prevalence of rheumatic disease (for example, India, Sub-Saharan Africa, or South America) should have auscultation as part of their routine assessment. Similarly, patients aged  $\geq 75$  years are also at high risk and should ideally have auscultation at their annual check.<sup>5</sup>

#### HOW TO INTERPRET AN ECHO REPORT

Mild mitral, tricuspid, and pulmonary regurgitation are never clinically important and mild aortic valve thickening or regurgitation in older people require no further investigation. A subaortic septal bulge is common in older people, although in the majority of cases is not haemodynamically significant. Trivial pericardial fluid is common and usually normal.

In asymptomatic severe valve disease,

surgery is indicated for either left ventricular impairment or raised pulmonary artery pressures.<sup>2</sup> In the presence of significant aortic or mitral regurgitation the ejection fraction should be high because of offloading, and so a left ventricular ejection fraction  $< 60\%$  in severe mitral regurgitation or  $< 50\%$  in severe aortic regurgitation represent left ventricular impairment. Valve disease that appears moderate according to the gradient may still be clinically significant if the left ventricular ejection fraction is low. Therefore, in aortic stenosis the effective orifice area may be more reliable than the gradient because it is relatively independent of flow. Surgery may also be considered for aortic dilatation.<sup>2</sup>

#### FOLLOWING UP PATIENTS

Patients with moderate or severe valve disease should be referred to a cardiologist in a specialist valve clinic.<sup>3</sup> Patients with mild valve disease can be considered for surveillance echocardiograms.

#### TYPES OF SURGICAL INTERVENTION AVAILABLE

In mitral prolapse, repair is preferable to replacement. For aortic valve disease mechanical valves are usually recommended in those aged  $< 60$  years and biological valves in those aged  $> 65$  years. Transcatheter techniques are established for aortic stenosis in patients at excessive risk from conventional valve replacement. Transcatheter mitral replacements and annuloplasty techniques are being developed.

#### WHAT MEDICAL THERAPY IS INDICATED?

No medical therapy reduces the rate of progression of any valve disease.<sup>6</sup> However, there is evidence that beta-blockers or angiotensin-receptor blockers reduce progression and complications of a dilated aorta in Marfan syndrome.<sup>7,8</sup> This treatment is extrapolated to patients with bicuspid aortic valve disease. In inoperable

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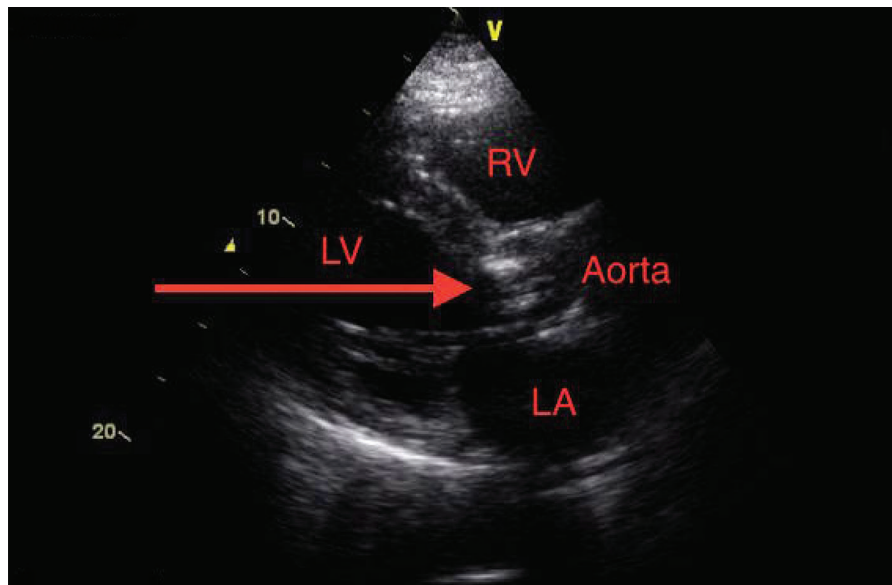
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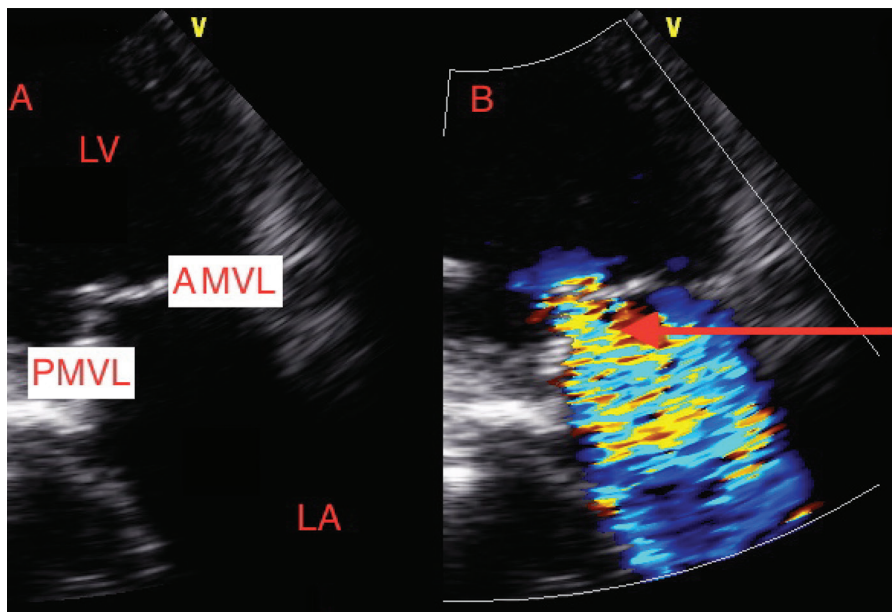
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**Figure 1.** Parasternal long-axis echocardiogram in a patient with severe aortic stenosis. The heavily thickened aortic valve is marked with a red arrow. The left atrium (LA), left ventricle (LV), right ventricle (RV), and aorta are marked.



**Figure 2.** Apical two-chamber echocardiogram in a patient with mitral regurgitation (A) with colour flow — marked with red arrow (B). The left atrium (LA), left ventricle (LV), anterior mitral valve leaflet (AMVL), and posterior mitral valve leaflet (PMVL) are marked.

heart failure secondary to valve disease, angiotensin-converting enzyme inhibitors and beta-blockers are indicated, as for any patient with systolic heart failure. Atrial fibrillation (AF) in mitral valve disease is treated with rate control and, importantly, anticoagulation with warfarin as these patients have a high risk of thromboembolic complications. Anticoagulation should also be considered for patients with severe mitral stenosis and large atria (usually taken as a left atrial diameter >55 mm) even when in sinus rhythm. The novel anticoagulants (dabigatran, apixaban, and rivaroxaban) are

contraindicated in the presence of significant mitral stenosis or replacement heart valves.

### LIFESTYLE ADVICE

Competitive and contact sports are usually not advisable in any patient with moderate or severe valve disease. The only sports categorised as safe in European guidelines are bowling, cricket, golf, and shooting in patients with moderate or severe mitral stenosis, moderate aortic stenosis, or moderate aortic regurgitation without aortic dilatation.<sup>9</sup> These are also safe after valve replacement and repair. Driving is not usually contraindicated in uncomplicated asymptomatic valve disease and travel depends on individual factors including available healthcare provision in the event of decompensation.

### ANTIBIOTIC PROPHYLAXIS

Antibiotics are not needed before dental work in any patients with native valve disease who have not undergone either valve replacement or repair. There is controversy over high-risk patients with previous infective endocarditis and replacement heart valves or valve repair surgery. Although the National Institute for Health and Care Excellence (NICE) does not recommend antibiotics in these high-risk patients, all international guidelines do and most cardiologists and cardiac surgeons follow these rather than NICE. Dental surveillance and optimal oral hygiene should be encouraged in all patients with native or operated heart valve disease.

### WHEN TO SUSPECT INFECTIVE ENDOCARDITIS?

Endocarditis is rare and symptoms are often non-specific, but an unexplained fever, malaise, or weight loss should suggest the diagnosis especially in patients with heart valve disease or pacemakers. High-risk groups are patients with diabetes, HIV, or those having haemodialysis. Fever with stroke or peripheral embolism is strongly suggestive of endocarditis. It is important to take blood cultures before contemplating antibiotics because prior therapy is the cause of about 50% of culture-negative endocarditis.

### CONCLUSION

It is important to consider the possibility of valve disease, particularly in older patients with exertional symptoms. Echocardiography is the definitive first investigation and best practice is to refer cases with moderate or severe valve disease to a specialist valve clinic for further evaluation and advice regarding surveillance or intervention as appropriate.

### Provenance

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### Competing interests

The authors have declared no competing interests.

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## REFERENCES

1. Nkomo VT, Gardin JM, Skelton TN, *et al.* Burden of valvular heart diseases: a population-based study. *Lancet* 2006; **368(9540)**: 1005–1011.
2. Nishimura RA, Otto CM, Bonow RO, *et al.* 2014 AHA/ACC guideline for the management of patients with valvular heart disease: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation* 2014; **129(23)**: 2440–2492.
3. Chambers JB, Ray S, Prendergast B, *et al.* Specialist valve clinics: recommendations from the British Heart Valve Society working group on improving quality in the delivery of care for patients with heart valve disease. *Heart* 2013; **99(23)**: 1714–1716.
4. Cleland JG, Swedberg K, Follath F, *et al.* The EuroHeart Failure survey programme — a survey on the quality of care among patients with heart failure in Europe. Part 1: patient characteristics and diagnosis. *Eur Heart J* 2003; **24(5)**: 442–463.
5. Arden C, Chambers JB, Sandoe J, *et al.* Can we improve the detection of heart valve disease? *Heart* 2014; **100(4)**: 271–273.
6. Boon NA, Bloomfield P. The medical management of valvar heart disease. *Heart* 2002; **87(4)**: 395–400.
7. Shores J, Berger KR, Murphy EA, Pyeritz RE. Progression of aortic dilatation and the benefit of long-term beta-adrenergic blockade in Marfan's syndrome. *N Engl J Med* 1994; **330(19)**: 1335–1341.
8. Yetman AT, Bornemeier RA, McCrindle BW. Usefulness of enalapril versus propranolol or atenolol for prevention of aortic dilation in patients with the Marfan syndrome. *Am J Cardiol* 2005; **95(9)**: 1125–1127.
9. Pelliccia A, Fagard R, Bjornstad HH, *et al.* Recommendations for competitive sports participation in athletes with cardiovascular disease: a consensus document from the Study Group of Sports Cardiology of the Working Group of Cardiac Rehabilitation and Exercise Physiology and the Working Group of Myocardial and Pericardial Diseases of the European Society of Cardiology. *Eur Heart J* 2005; **26(14)**: 1422–1445.