Echocardiographic cases of RHD and their differential diagnosis

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Disclosure

None
World Heart Federation criteria for echocardiographic diagnosis of rheumatic heart disease—an evidence-based guideline

Nat. Rev. Cardiol. 9, 297–309 (2012)
Echocardiographic criteria for individuals aged ≤20 years

**Definite RHD** (either A, B, C, or D):
- A) Pathological MR and at least two morphological features of RHD of the MV
- B) MS mean gradient ≥4 mmHg*
- C) Pathological AR and at least two morphological features of RHD of the AV‡
- D) Borderline disease of both the AV and MV§

**Borderline RHD** (either A, B, or C):
- A) At least two morphological features of RHD of the MV without pathological MR or MS
- B) Pathological MR
- C) Pathological AR

*Nat. Rev. Cardiol. 9, 297–309 (2012)*
Pathological mitral regurgitation
(All four Doppler echocardiographic criteria must be met)
- Seen in two views
- In at least one view, jet length ≥2 cm *
- Velocity ≥3 m/s for one complete envelope
- Pan-systolic jet in at least one envelope

Pathological aortic regurgitation
(All four Doppler echocardiographic criteria must be met)
- Seen in two views
- In at least one view, jet length ≥1 cm *
- Velocity ≥3 m/s in early diastole
- Pan-diastolic jet in at least one envelope

Nat. Rev. Cardiol. 9, 297–309 (2012)
Features in the MV
- AMVL thickening* $\geq 3$ mm (age-specific)‡
- Chordal thickening
- Restricted leaflet motion§
- Excessive leaflet tip motion during systole‖

Features in the AV
- Irregular or focal thickening¶
- Coaptation defect
- Restricted leaflet motion
- Prolapse

Nat. Rev. Cardiol. 9, 297–309 (2012)
Rheumatic mitral valve
Rheumatic mitral valve

+ Length = 0.428 cm

+ Length = 0.281 cm
Rheumatic mitral valve
Rheumatic mitral valve
Borderline RHD (MR)
<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatic MR</td>
</tr>
<tr>
<td>Physiological MR</td>
</tr>
<tr>
<td>MVP or floppy mitral valve syndrome</td>
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<tr>
<td>Congenital malformations of the mitral valve</td>
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<tr>
<td>Double orifice MV</td>
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<tr>
<td>Parachute MV</td>
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<tr>
<td>Hammock MV</td>
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<tr>
<td>Cleft MV</td>
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<tr>
<td>Infective endocarditis</td>
</tr>
</tbody>
</table>
Normal echocardiographic findings (all of A, B, C, and D):

- **A)** MR that does not meet all four Doppler echocardiographic criteria (physiological MR)
- **B)** AR that does not meet all four Doppler echocardiographic criteria (physiological AR)
- **C)** An isolated morphological feature of RHD of the MV (for example, valvular thickening) without any associated pathological stenosis or regurgitation
- **D)** Morphological feature of RHD of the AV (for example, valvular thickening) without any associated pathological stenosis or regurgitation
Physiological MR
Physiological MR
Physiological MR
Physiological MR
RF attack
Follow-up 6th month
MVP
MVP ?

Length = 0.875 cm
MVP?
Rheumatic aortic valve
Borderline aortic valve
Borderline aortic valve
<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatic AR</td>
</tr>
<tr>
<td>Physiological AR</td>
</tr>
<tr>
<td>Bicuspid aortic valve with AR</td>
</tr>
<tr>
<td>Dilated aortic sinus or root</td>
</tr>
<tr>
<td>Infective endocarditis</td>
</tr>
</tbody>
</table>
Normal echocardiographic findings (all of A, B, C, and D):

- A) MR that does not meet all four Doppler echocardiographic criteria (physiological MR)
- B) AR that does not meet all four Doppler echocardiographic criteria (physiological AR)
- C) An isolated morphological feature of RHD of the MV (for example, valvular thickening) without any associated pathological stenosis or regurgitation
- D) Morphological feature of RHD of the AV (for example, valvular thickening) without any associated pathological stenosis or regurgitation
Physiological AR
Physiological AR
Conclusion

• Echocardiography has facilitated our frequency of subclinical RHD identification

• Overdiagnosis and misdiagnosis

• Cardiologists should be familiar with the differential diagnosis of RHD