A Strange Noise Coming from Her Chest: A Mitral Honk

A 5-year-old girl presented to our clinic, reporting a sound coming from the left side of her chest. Over the previous 2 years, the sound had occurred intermittently, lasting for minutes to hours for 3-7 consecutive days, often during mild viral infections. No other symptoms were reported during this period. Her physical exam was unremarkable. In another institution, while experiencing the sound the child underwent a cardiac ultrasound, which revealed only a mild mitral valve prolapse with minimal regurgitation. Chest x-ray, bronchoscopy, and blood tests were all reported as unremarkable.

The parents provided a recording made with a mobile phone held near the girl's chest (**Audio Recording 1**, online; available at www.jpeds.com), in which an intermittent high-pitched sound was audible, repeating itself at a frequency of approximately 90 times per minute. We considered a respiratory cause unlikely due to the frequency of the sound. Only a few cardiac conditions, such as a prosthetic mechanical valve and pneumomediastinum-associated Hamman sign, can produce room-audible sounds. The patient's history excluded the former, while the recurrence, the absence of other physical signs, and normal chest x-ray ruled out the latter. Therefore, a "mitral honk" was suspected. We reassured the parents and asked them to return to our clinic the next time the symptoms occurred. The patient was re-evaluated when the sound recurred. We conducted a second cardiac ultrasound (**Figure**) shortly after the sound ceased to be audible in the room but was still detectable with a phonendoscope. Doppler evaluation and cardiac auscultation identified the mitral valve as the sound

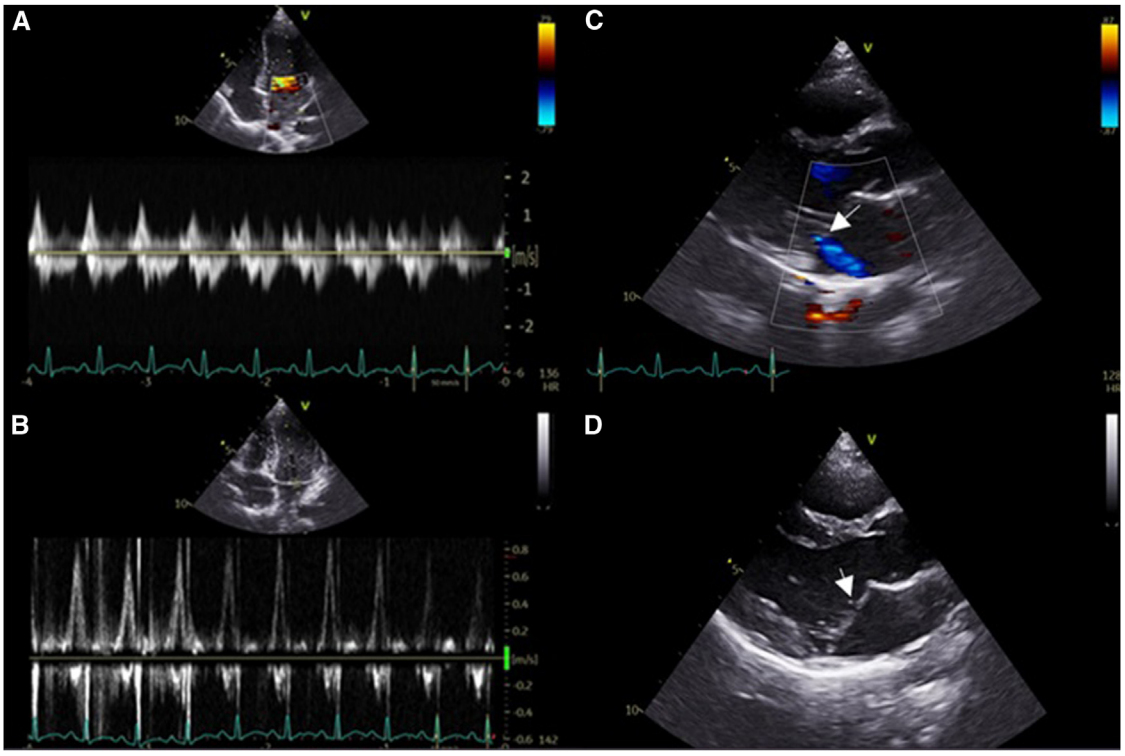

Figure. In this image, it is possible to appreciate the ultrasound counterpart of the sound audible near the chest and auscultated with the stethoscope. The view includes transmitral continuous-wave Doppler (**A**) and pulsed-wave Doppler (**B**), where the Power Doppler sample is positioned within the left ventricle at the level of the open mitral valve leaflet tips. White arrows indicate mild mitral regurgitation (**C**) and mitral valve prolapse in systole (**D**).

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source, likely caused by elongation of chordae tendineae. Six months later, the girl remained asymptomatic, and the mitral honk was still occasionally present. An annual cardiology evaluation, including ultrasound and 24-hour electrocardiogram was scheduled.

In an otherwise healthy patient, mitral valve prolapse is the sole condition capable of producing an intermittent honk, the so-called "mitral honk," audible in ambient room conditions, mainly when preload is reduced, as in cases of gastroenteritis.[1] The sound may be distinctly heard in room air, but the noise is typically first noticed by a parent sleeping with the sick child. A mitral honk is a benign condition, and no treatments are needed.[2] Beta blockers may alleviate the sound, but their use is not routinely indicated.[1] Further investigations are generally unnecessary as the honk does not correlate with prolapse severity. However, every patient with mitral valve prolapse should undergo Holter monitoring, and magnetic resonance imaging may be warranted in selected cases, such as annular disjunction.[3-5] In the case of a loud thoracic sound in children, with an otherwise unremarkable physical examination, a mitral honk should be suspected as a manifestation of mitral valve prolapse. The sound is typical, and an ultrasound performed concomitantly with the sound is diagnostic. Physicians aware of this issue may avoid useless and invasive investigations. ■

CRediT authorship contribution statement

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Declaration of Competing Interest

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References

1. Watelle L, Girard A, Dallaire F. My heart is honking loudly, but it does not even Murmur. Can J Cardiol 2023;39:1581-3. https://doi.org/10.1016/j.cjca.2023.08.009
2. Lax D, Eicher M, Goldberg SJ. Mild dehydration induces echocardiographic signs of mitral valve prolapse in healthy females with prior normal cardiac findings. Am Heart J 1992;124:1533-40. https://doi.org/10.1016/0002-8703(92)90068-7
3. Wu S, Siegel RJ. Mitral annular disjunction: a case series and review of the literature. Front Cardiovasc Med 2022;9:976066 https://doi.org/10.3389/fcvm.2022.976066
4. Sabbag A, Essayagh B, Barrera JDR, Basso C, Berni A, Cosyns B, et al. EHRA expert consensus statement on arrhythmic mitral valve prolapse and mitral annular disjunction complex in collaboration with the ESC Council on valvular heart disease and the European Association of Cardiovascular Imaging endorsed by the Heart Rhythm Society, by the Asia Pacific Heart Rhythm Society, and by the Latin American Heart Rhythm Society. Europace 2022;24:1981-2003. https://doi.org/10.1093/europace/euac125
5. Wilson WR, Gewitz M, Lockhart PB, Bolger AF, DeSimone DC, Kazi DS, et al. Prevention of viridans group streptococcal infective endocarditis: a scientific statement from the American Heart Association. Circulation 2021;143:e963-78. https://doi.org/10.1161/CIR.0000000000000969