An echocardiogram performed on a 72-year–old man with exertional dyspnea revealed asymmetrical septal hypertrophy (maximum thickness, 1.8 mm) and turbulent flow in the left ventricular outflow tract (LVOT; Movie I in the online-only Data Supplement) with a resting gradient of 62 mmHg and a peak provoked gradient of 166 mmHg after Valsalva maneuver (Figure, A and B), consistent with hypertrophic cardiomyopathy. Systolic anterior motion of the distal tips and chordae of the mitral valve was observed (Movie II in the online-only Data Supplement). Subsequent cardiac catheterization with simultaneous measurements of left ventricular and central aortic pressure showed classic findings for hypertrophic cardiomyopathy–associated LVOT obstruction (Figure, C). At baseline, the peak-to-peak gradient was 18 mmHg (beats 1–2) but increased to 83 mmHg (beats 3–9) during the Valsalva maneuver, with a decline in aortic pulse pressure from 60 to 24 mmHg. In patients with hypertrophic cardiomyopathy, a decline in left ventricular filling characteristically leads to increased LVOT obstruction and decreased aortic pulse pressure. The patient then had premature ventricular contractions (beats 10, 12, and 14), which further increased septal wall contractility in postpremature ventricular contraction beats (beats 11 and 13), leading to a 156-mmHg LVOT gradient and a further decline in the aortic pulse pressure to 16 mmHg. This classic hemodynamic finding of reduced aortic pulse pressure in the setting of hypertrophic cardiomyopathy–associated LVOT obstruction was first described by Brockenbrough et al in 1961.1

Disclosures
None.

References
Figure. Transthoracic echocardiography with continuous Doppler registration shows the maximum blood flow velocity in the left ventricular outflow tract at rest (A) and during the Valsalva maneuver (B). The estimated pressure gradient increases from 62 mm Hg at rest to 166 mm Hg during the Valsalva maneuver. Please note that the 2 images have different scales for velocity. C. Simultaneous measurement of left ventricular and aortic pressure in a patient with hypertrophic cardiomyopathy shows a decline in aortic pulse pressure during Valsalva and premature ventricular complexes because of worsening obstruction of the left ventricular outflow tract.
Two Classic Hemodynamic Findings for Hypertrophic Cardiomyopathy
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