

High-intensity transient signals

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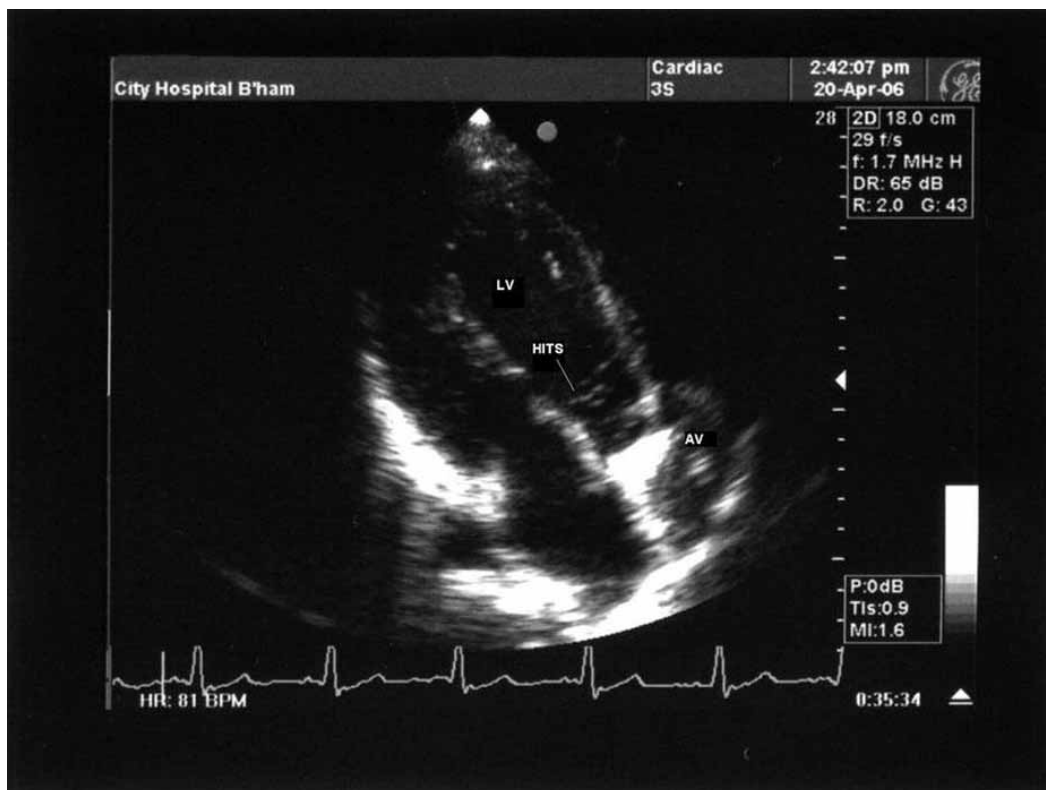
An asymptomatic 33 year-old Caucasian male presented for routine imaging following a St. Jude's bi-leaflet aortic valve replacement some 6 months previously.

The images show high-intensity transient signals (HITS) just below the aortic valve in both parasternal and apical long axis views. The valve replacement otherwise appeared healthy.

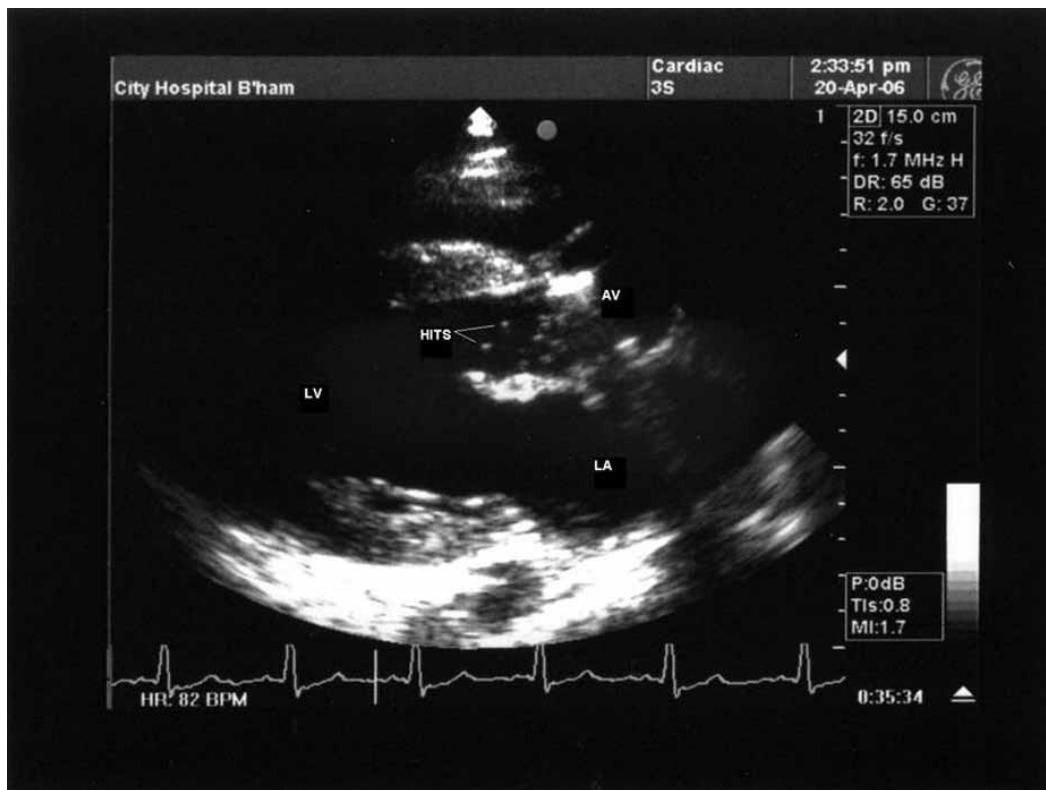
HITS are thought to be microbubbles which occur due to cavitation associated with the dynamics of mechanical valve closure [1]. They are more common with mitral valve prostheses, possibly because of greater turbulence [2]. The phenomenon has also been described with bioprosthetic valves,

but there is no known association with mitral valve repair or homografts [3].

Some patients with this phenomenon have increased levels of lactate dehydrogenase, potentially representing hemolysis [4]. Curiously, during inhalation of oxygen, a significant decrease in the number of HITS has been reported, supporting the hypothesis of the gaseous nature of such signals [1]. HITS can also be detected by trans-cranial Doppler, but the exact significance of these microemboli remains uncertain. An association with cognitive impairment has been described, whilst others have suggested that they are benign in nature [5].



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References

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