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Apical Ballooning Syndrome and Anterior Wall Myocardial Infarction: Differential Diagnosis by Echocardiography

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Apical ballooning (AB) is clinically indistinguishable from myocardial infarction. Diagnosis is classically made by cardiac angiography that shows regional wall abnormalities involving the mid and apical parts of the left ventricle (LV) with normal coronary arteries, while the diagnostic yield of echocardiography has not been assessed. In this study we evaluated the accuracy of echocardiography in differentiating between patients with AB or first acute anterior wall MI(AMI).
Methods: Sixty nine echocardiograms of patients with either AMI(n=39) or AB (n=30) were reviewed by a single observer blinded to the clinical diagnosis. Patients with LVEF>50% were excluded(n=8). LV dimensions, LV function (global and regional wall motion scoring-visual analysis), systolic motion of the basal septum and basal lateral wall on tissue Doppler imaging (TDI) were analyzed.
Results: Echocardiography correctly diagnosed 89% of anterior MIs and 83% of AB. We found no differences in LV dimensions(4.8± 0.4 vs 4.7± 0.5 cm), LVEF(34±6% vs 33±8%) and in TDI parameters(6.1 ± 1.2 vs 5.9± 1.7 cm/s on septum and 7.3± 2.1 vs 7.5 ±2.1 cm/s on lateral). Regional wall motion analysis showed major differences between the groups (table).
Conclusion: Echocardiography is highly accurate in differentiating between AMI and AB. Abnormal motion of the basal septum, and basal anterior wall are more common in AMI while involvement of the mid inferior, posterior and lateral segments are common in AB.

	AS base	PW mid	S Base	LW mid	IW mid	AW basal
AMI	50%	8%	47%	27%	22%	28%
ABS	8%	48%	0%	56%	68%	4%
p	0.01	0.0007	<0.0001	0.03	0.0005	0.02

AS= anteroseptal, PW= posterior wall, S=septum, LW=lateral wall, IW=inferior wall, AW=anterior wall.