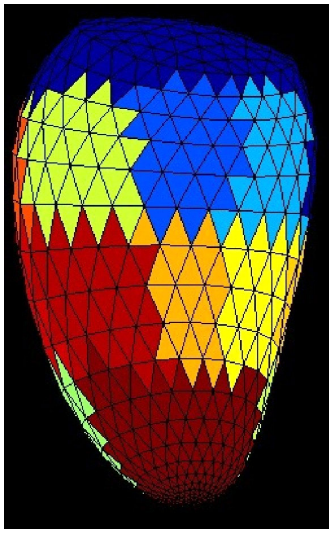
show Inferior/Lateral target plot



1126-113 Impaired Left Ventricular Systolic Torsion in Dilated Cardiomyopathy Characterized With Magnetic Resonance Tagging Method

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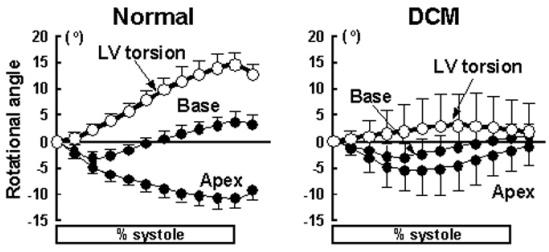
Background: Left ventricular (LV) torsion is a crucial component for effective LV squeezing. However, the time course of torsion dynamics in dilated cardiomyopathy (DCM) remains unclear. Our objective was to characterize systolic torsion in DCM using myocardial magnetic resonance (MR) tagging method.
Methods: Twenty-six subjects were studied: 17 patients with DCM (ejection fraction [EF] 27 ± 9%) and 9 controls. MR tagged images were acquired at three levels (base, mid, and apex). Intersecting tag points on myocardium were tracked during systole, thereby determining serial angular displacements of each level relative to the short axis centroid (positive degrees indicated a clockwise rotation as viewed from the apex). LV torsion was defined as net angular difference between the basal and apical levels. Time to peak LV torsion was expressed with % systole obtained by dividing the time from end-diastole by a total systolic time.
Results: Peak rotational angle in DCM was impaired at both levels of the base (0.2 ± 3.3 vs. 2.7 ± 2.0 degrees, $p < 0.05$ vs. control) and apex (-5.0 ± 5.0 vs. -10.1 ± 3.3 degrees, $p < 0.01$ vs. control). LV torsion then peaked earlier and less in DCM than in controls (66 ± 22 vs. 104 ± 16% systole; 5.8 ± 3.6 vs. 13.7 ± 2.7 degrees, both $p < 0.001$), and correlated with LVEF ($r = 0.78$, $p < 0.01$).
Conclusion: In DCM, peak LV systolic torsion was also impaired, being proportional to global LV function. This is likely due to insufficient wringing behavior from the apical and basal opposing rotations.



1126-114 Clinical and Magnetic Resonance Imaging Characteristics of Pathologically Confirmed Left Ventricular Thrombus in Patients With Cardiomyopathy

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Background: Development of left ventricular (LV) thrombus is a serious complication for patients with structural and functional heart disease. Determination of clinical and imaging characteristics of patients with heart disease who develop LV thrombi may provide important prognostic and therapeutic information. We sought to identify clinical and imaging parameters which may correlate with development of LV thrombus in patients with heart disease.
Method: Patients who underwent LV reconstruction with direct visualization of the LV cavity or had pathologic evidence of presence or absence of LV thrombus (autopsy or explanted heart) were included. Demographics and clinical history were obtained from the patient's electronic medical record. Preoperative cardiac magnetic resonance imaging studies were reviewed for LV size, function, and development of LV aneurysm.
Results: Population consisted of 135 patients (mean age 62.2; male 76 %) with heart disease (131 with ischemic heart disease and 4 with dilated cardiomyopathy). 47 (35%) had thrombus detected at surgery or by pathology. See table below for a summary of the clinical and imaging data. 2 patients had acute embolic events in the thrombus group. Also of note, coumadin and aspirin use was not different between groups.
Conclusion: Pathologically proven LV thrombus was found in approximately one third of the patients. Patients with LV thrombus had lower LV function while demonstrating a trend toward greater LV volumes and aneurysm development.

Clinical or Image characteristic	No Thrombus (n=88)	Thrombus (n=47)	P value
Female sex	24%	26%	NS
Age	59.7 +/- 9.4	62.4 +/- 8.5	NS
Aneurysm presence	65%	68%	NS
End diastolic volume	287 +/- 71	311 +/- 111	NS
End systolic volume	218 +/- 68	260 +/- 99	<0.05
Ejection fraction	26.8 +/- 8.6 %	22.7 +/- 6.7%	<0.01
Coumadin use	28%	29%	NS
Aspirin use	64%	59%	NS
History of stroke or peripheral embolic event	10%	9%	NS
Atrial fibrillation	11%	9%	NS
Hypertension	61%	56%	NS
Diabetes Mellitus	28%	31%	NS
Hyperlipidemia	69%	60%	NS
Tobacco use history	46%	64%	NS

1126-115 Chronic Implantation of Left Atrial Pressure Monitor Accurately Measures Left Atrial Pressure in Porcine Model

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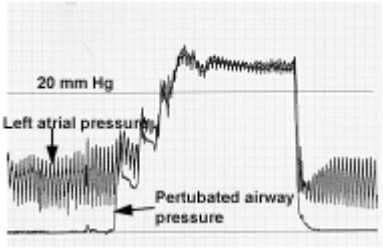
Background and Purpose: Left atrial pressure (LAP) monitoring can guide therapy of heart failure. We evaluated performance, calibration, and healing of implanted Heart(POD) systems in vivo.
Methods. Anesthetized pigs (n=5) were implanted with PODs comprised of a sensor lead that measures LAP, temperature and intracardiac electrogram IEGM. POD is remotely powered and telemetry read by a modified palm computer. PODs were inserted by transseptal cath from the right jugular vein. Repeat cath and pseudo Valsalva (closed airway + abdominal pressure) (N=10) were performed followed by euthanasia at 0, 14, 21, 125, and 180 (pending) days.
Results. All PODs were successfully implanted. Twice a week ambulatory monitoring detected high fidelity LAP and IEGM waveforms for the duration survival. At 125 days LAP offset had drifted <2 mmHg and gain was attenuated -0.51%. The LA and RA surfaces were covered with nonthrombotic neointima at 21 days and fully healed at 125 days. Valsalva (Fig) calibrated pressure with an error of -0.4±0.9 mmHg.
Conclusions. These studies establish early 'proof-of-concept' for POD implantation in large animals. Chronic LAP monitoring is feasible, and remains accurate despite sensor overgrowth by tissue. An accurate non-invasive means of recalibration was validated.



1126-116 The Utility of High Frequency QRS Electrocardiogram in the Diagnosis of Cardiomyopathy

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Background. High frequency (HF) QRS ECG (150-250 Hz) over entire QRS interval is known to be more sensitive than standard conventional ECG for detecting myocardial ischemia. However, the use of HF QRS ECG in patients with left ventricular mechanical dysfunction has been less extensively studied. *Methods.* We obtained 12-lead HF QRS ECGs in 29 patients with cardiomyopathy (EF < 40% by echocardiography, mean ± SD 23.1 ± 6.6%) and in 29 age- and gender-matched healthy controls using PC-based ECG