Cardiovascular Hemodynamics in the Cardiac Catheterization Laboratory

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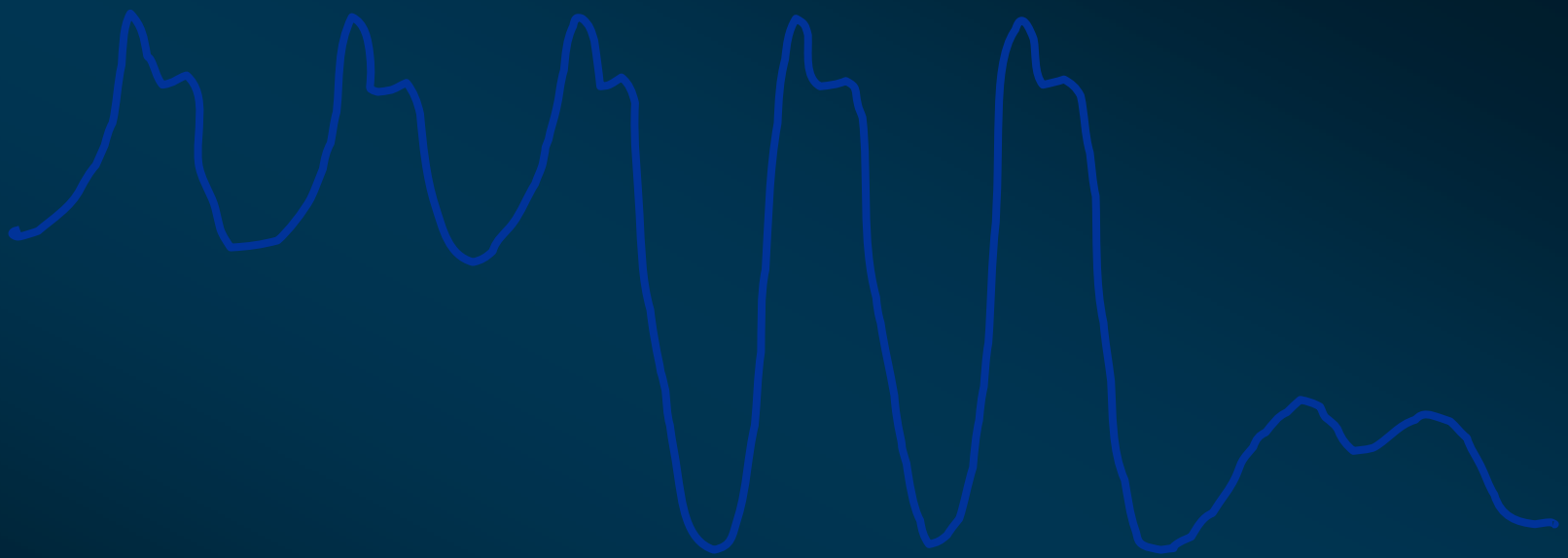
Arterial Pressure Tracings From Guiding Catheter

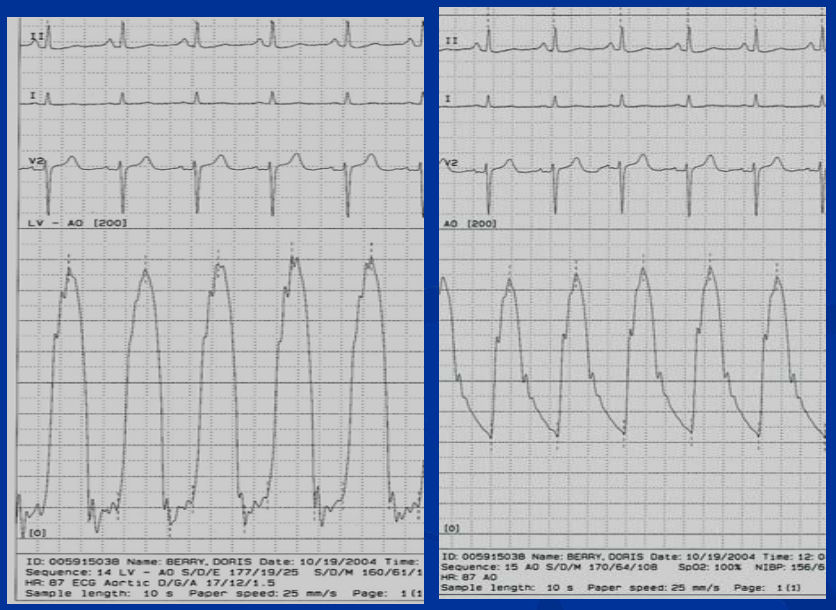


This is all there is…Right???

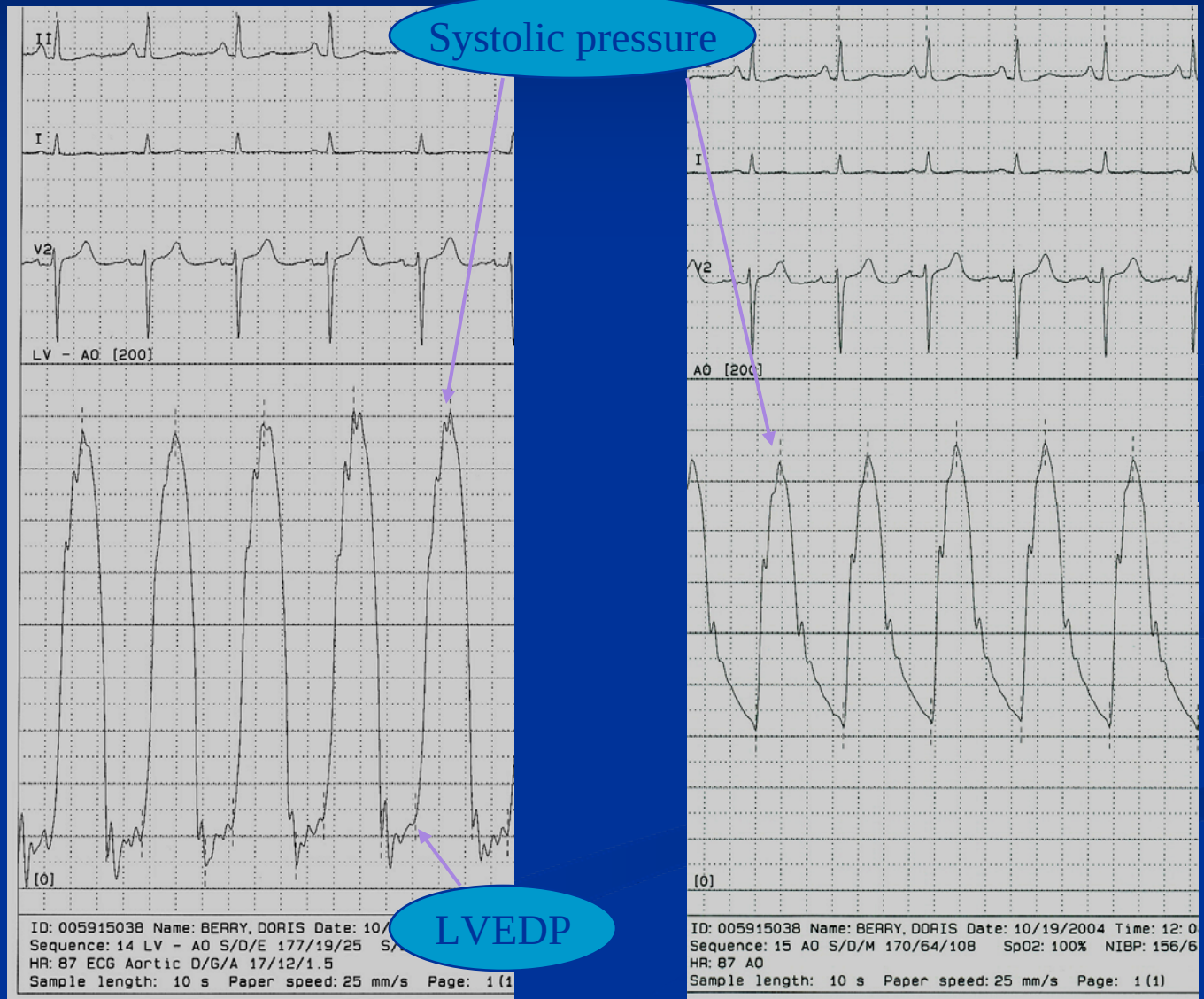
Normal Ventricularization Damped

Left Heart Catheterization

- Allows for assessment of left ventricular filling pressures
- Allows for simple assessment of aortic valvular disease
- Allows for simple assessment of subaortic valvular disease (i.e. Hypertrophic obstructive Cardiomyopathy)

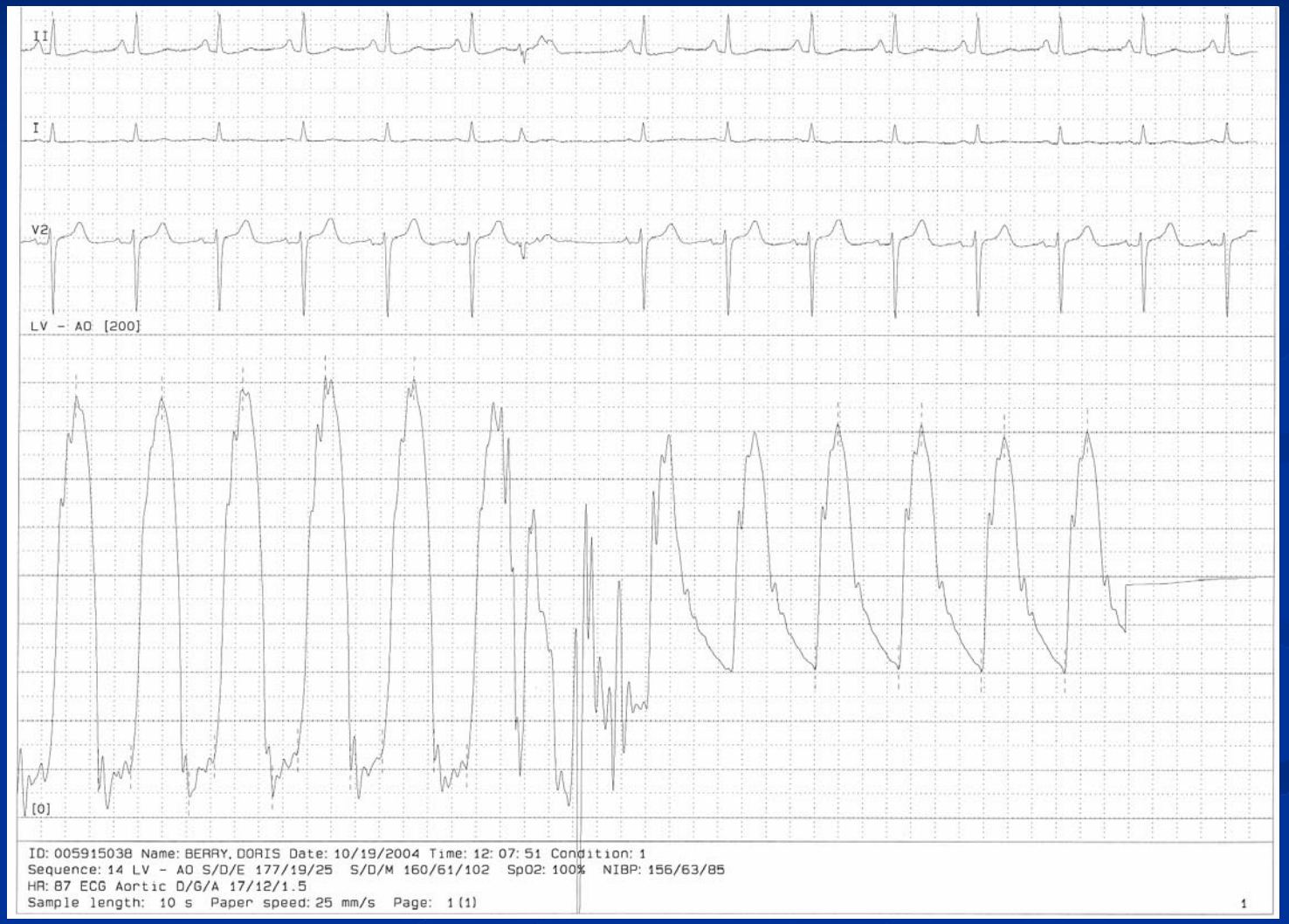


Left Ventricular and Aortic Pressure



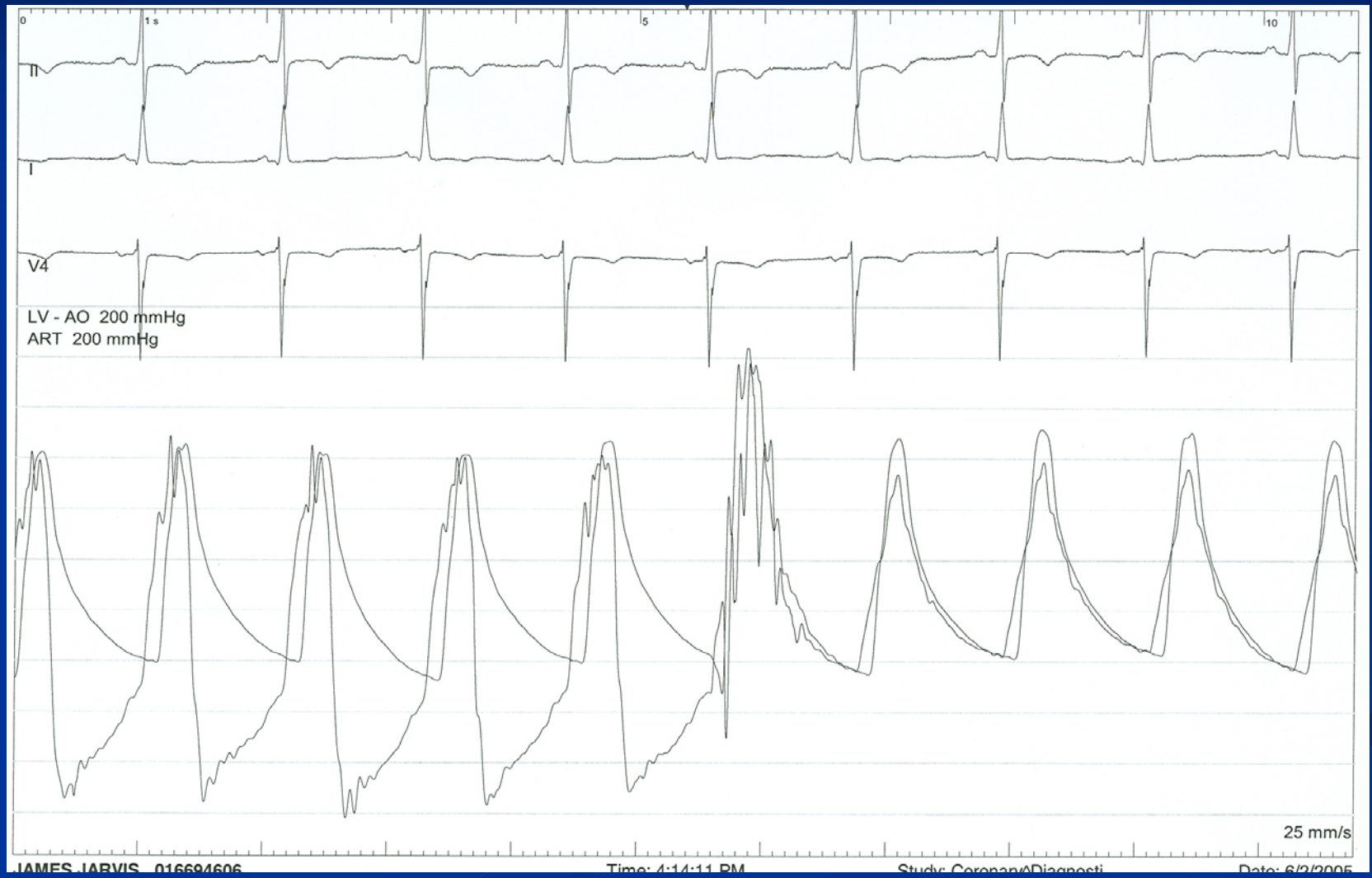
Aortic Valve Disorders

Aortic Stenosis

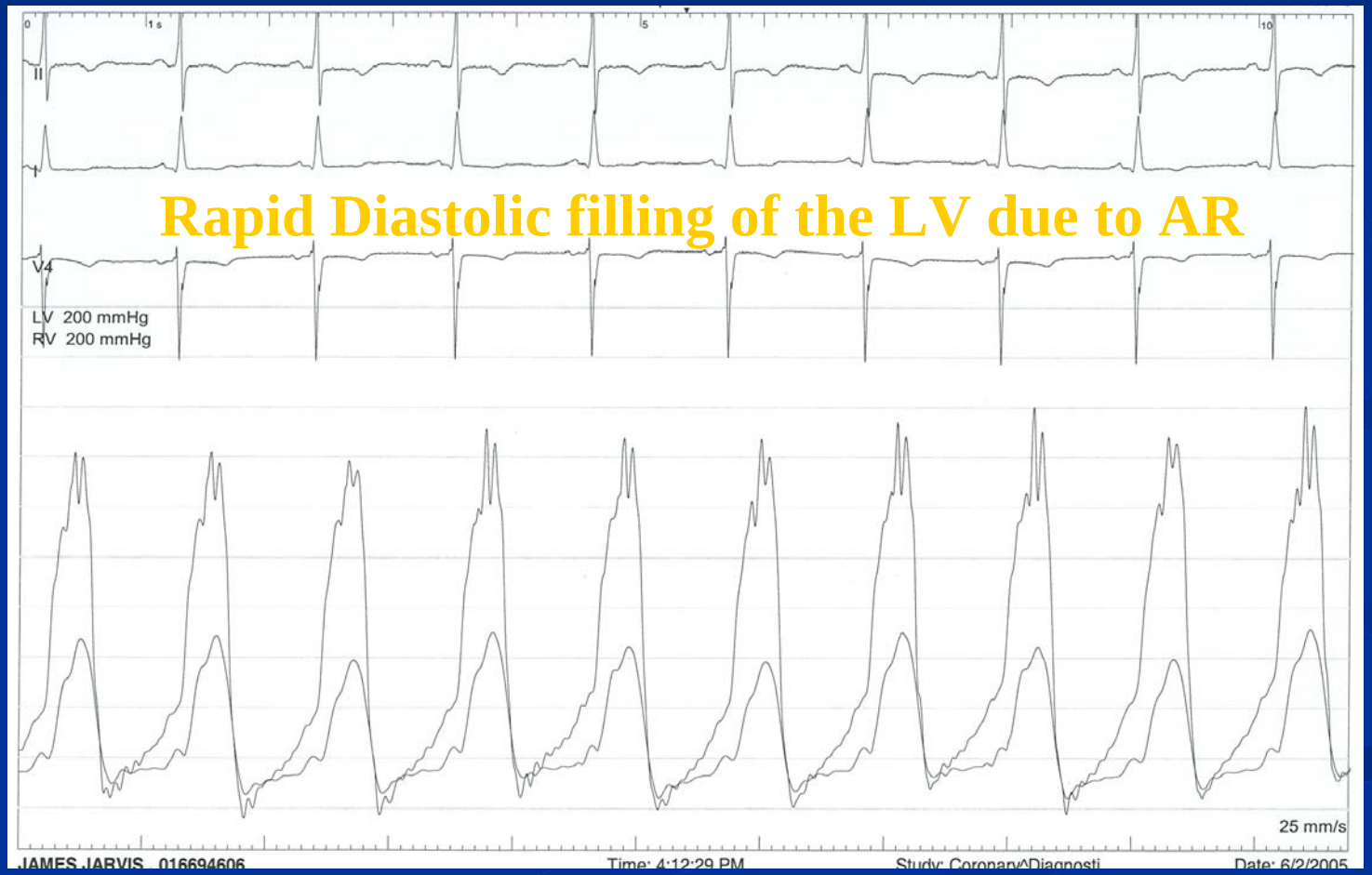


Severe Aortic Stenosis Pressure Tracing

Aortic Valve Regurgitation



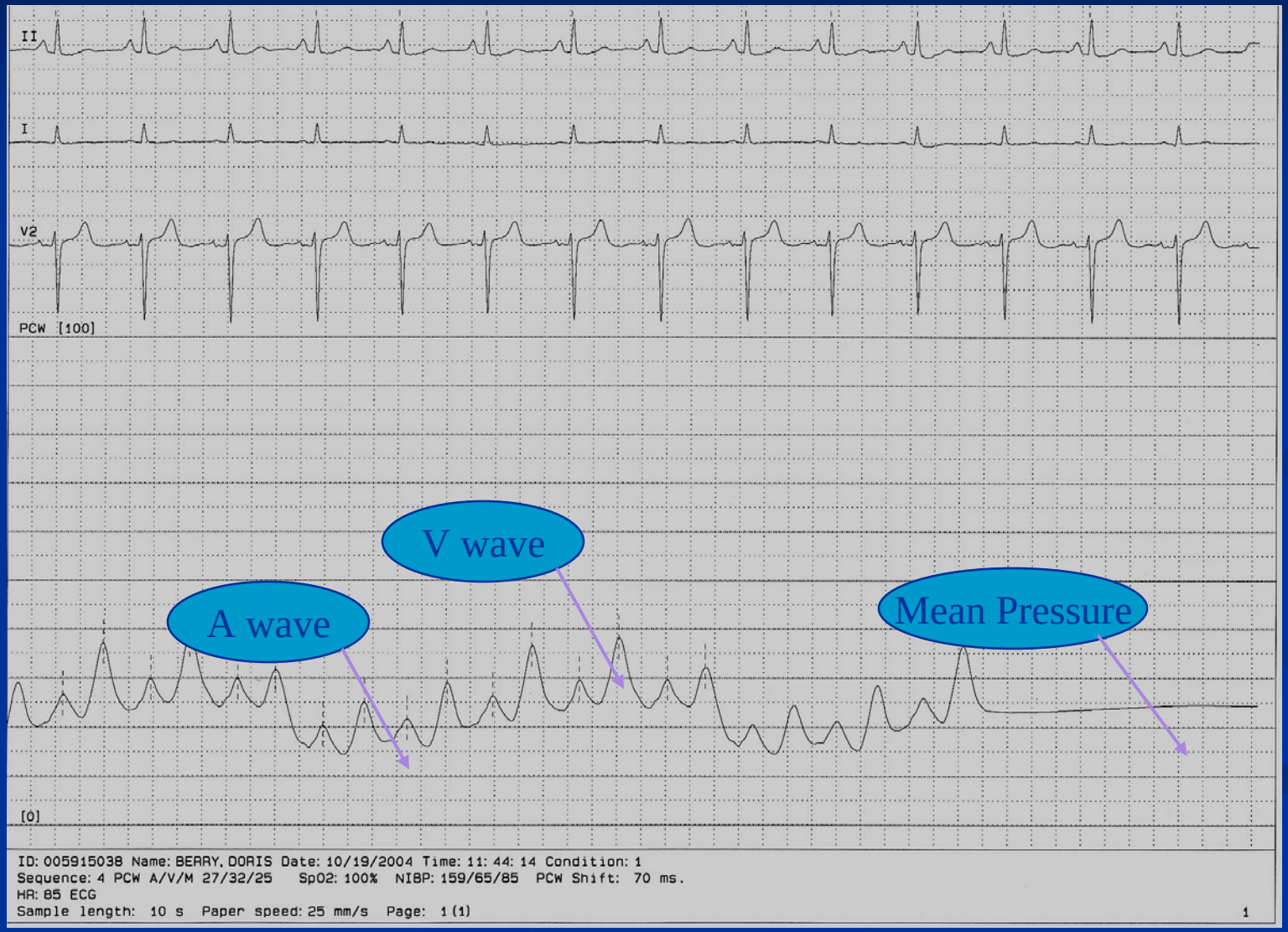
Aortic Valve Regurgitation



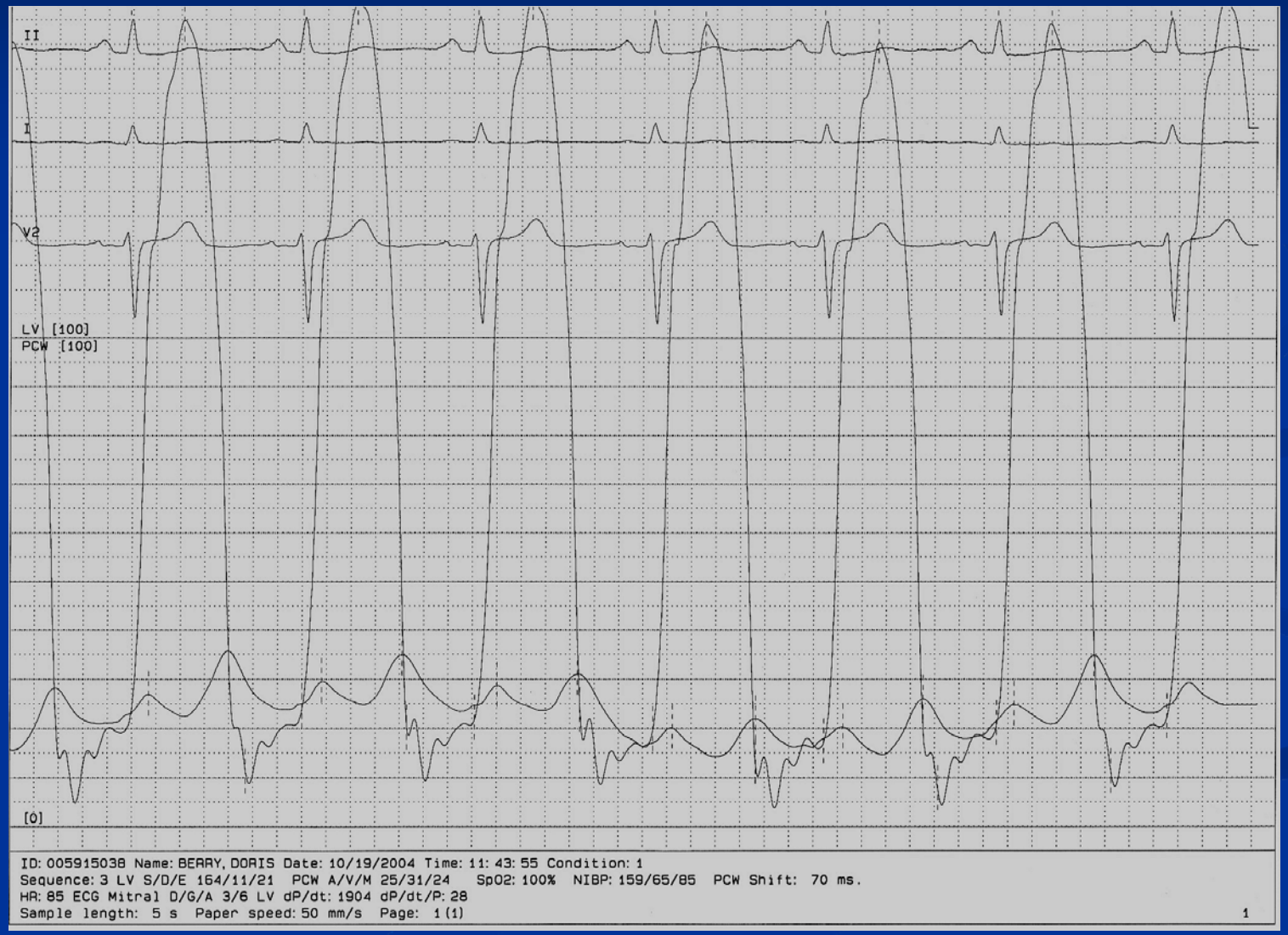
Indications for Right Heart Catheterization

- Evaluation of CHF or dyspnea
- Evaluation of valvular heart disease
- Evaluation of cardiomyopathy (restrictive, constrictive, dilated)
- Evaluation of pericardial disease (i.e. tamponade)
- Evaluation of pulmonary hypertension
- Evaluation of severe hypotension post MI

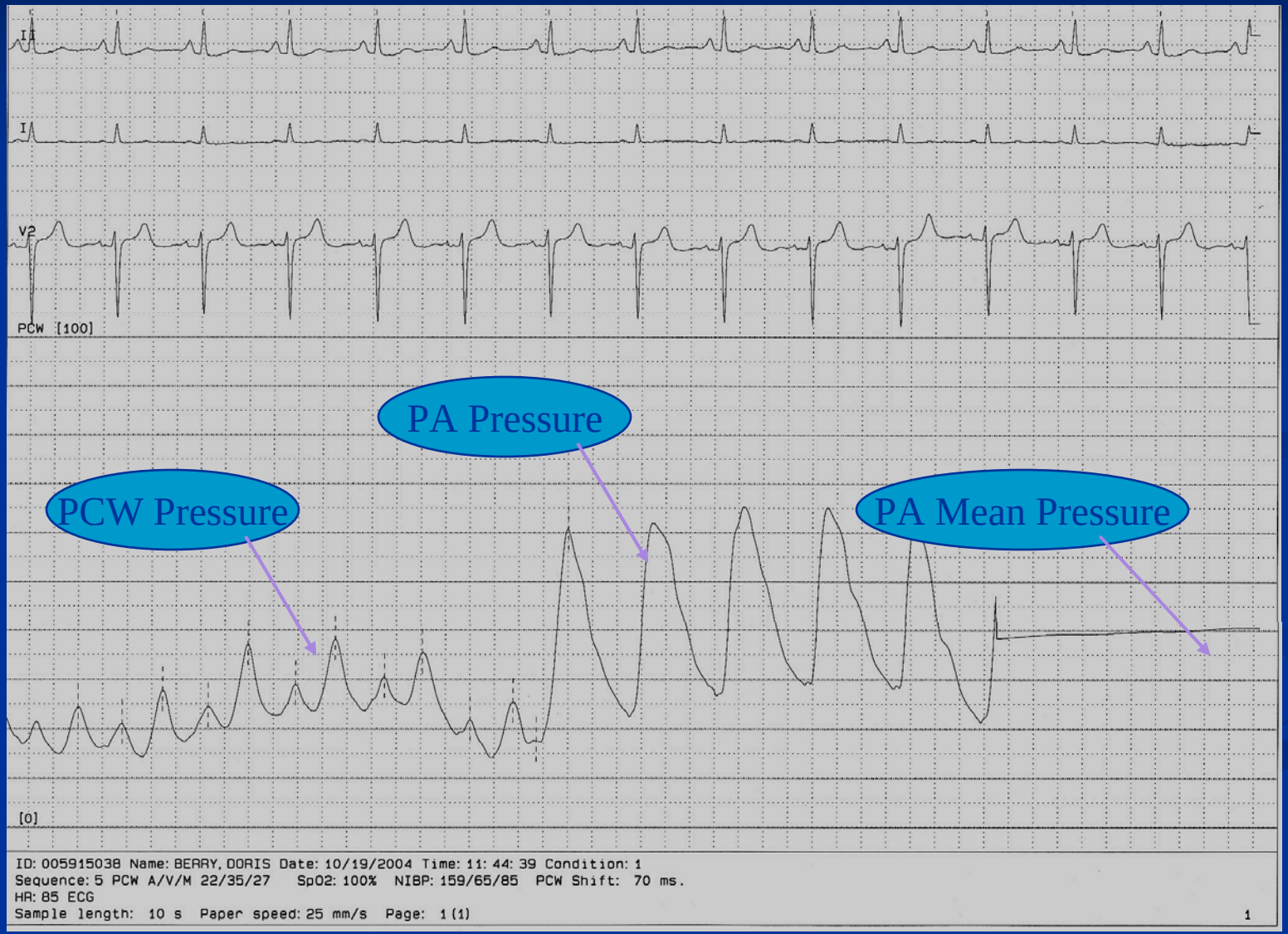
Pulmonary Capillary Wedge Pressure



LV and PCW Pressure

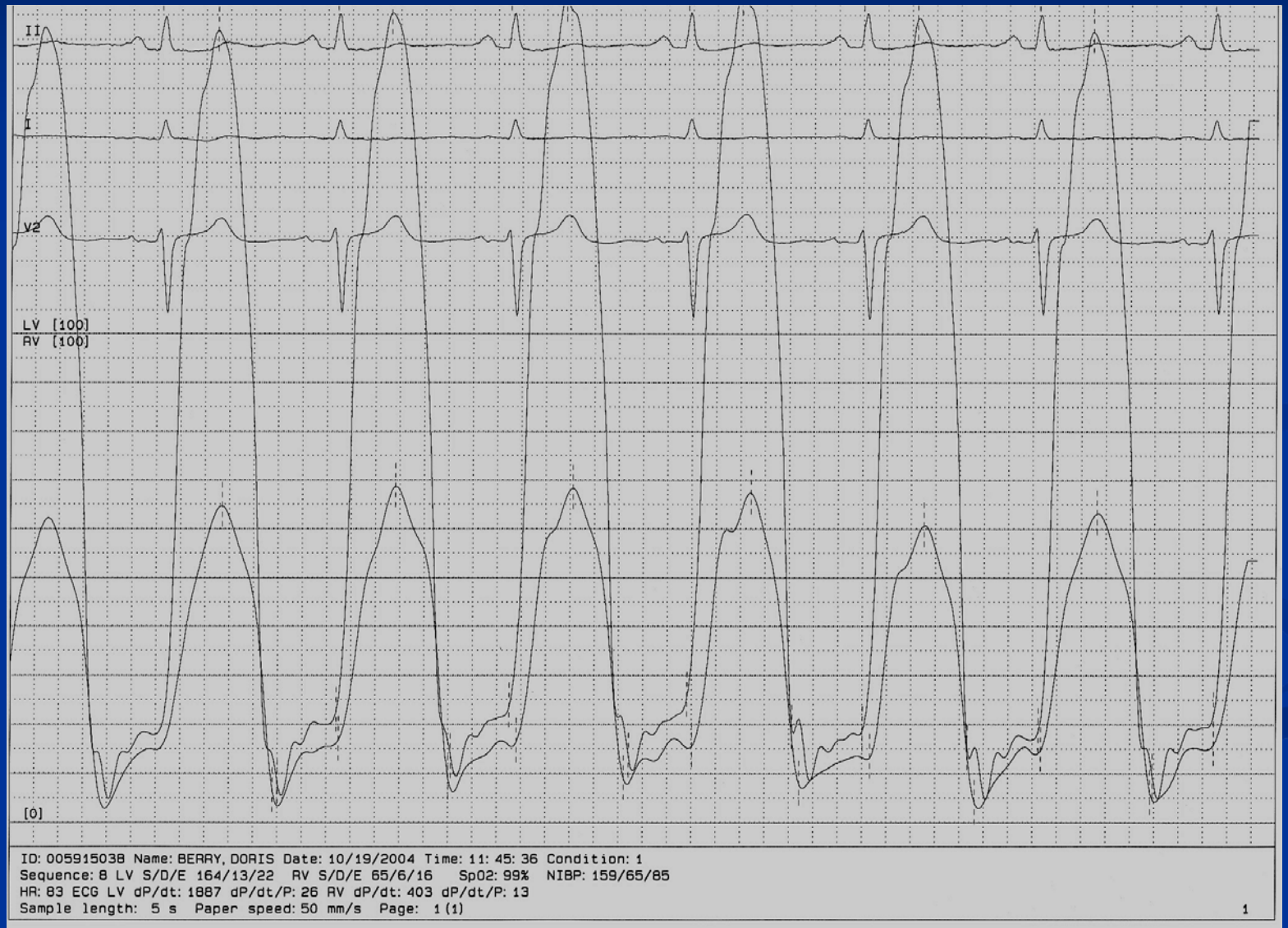


PCW - PA Transition

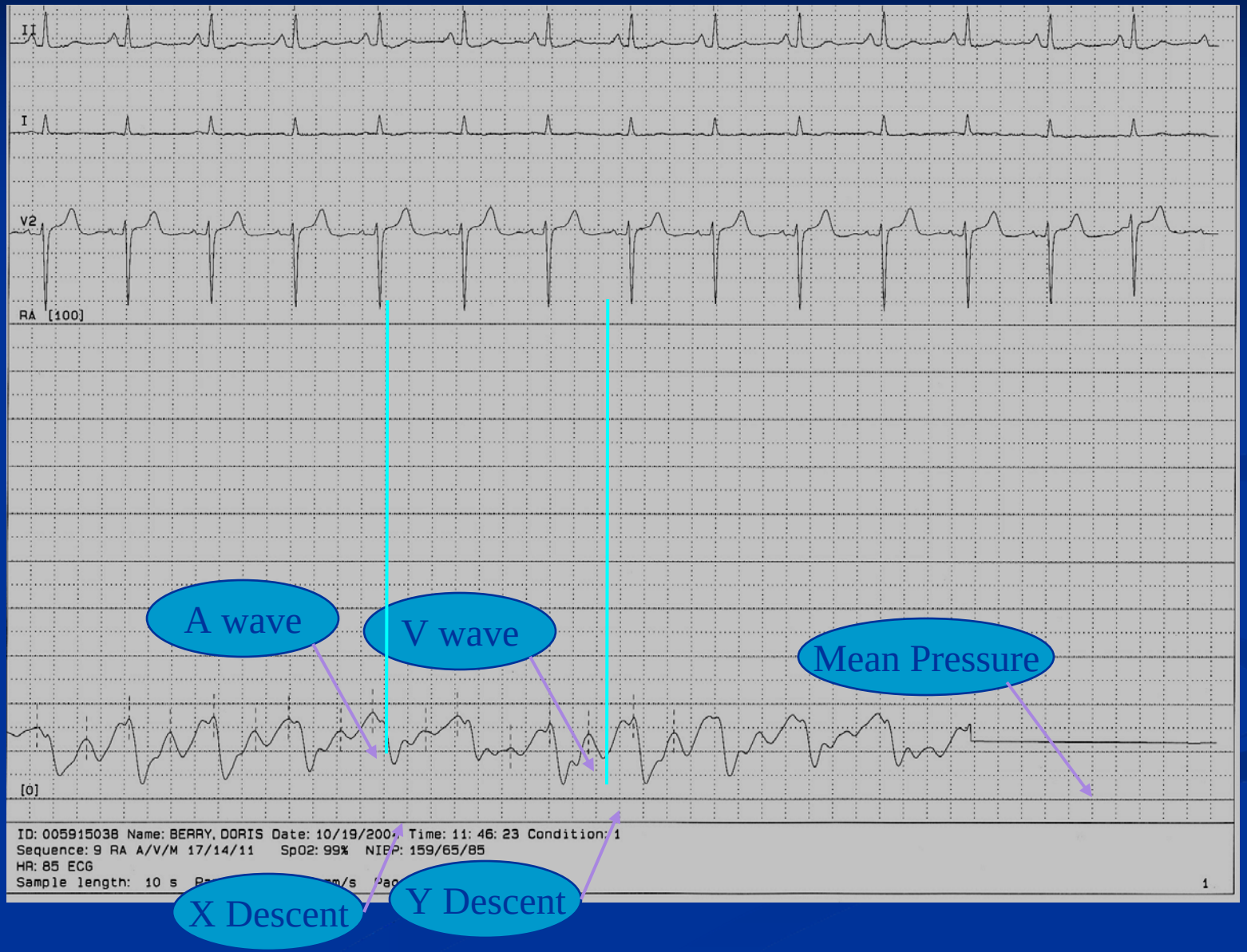


Pulmonary Artery Pressure

LV and RV Pressure



Right Atrial Pressure

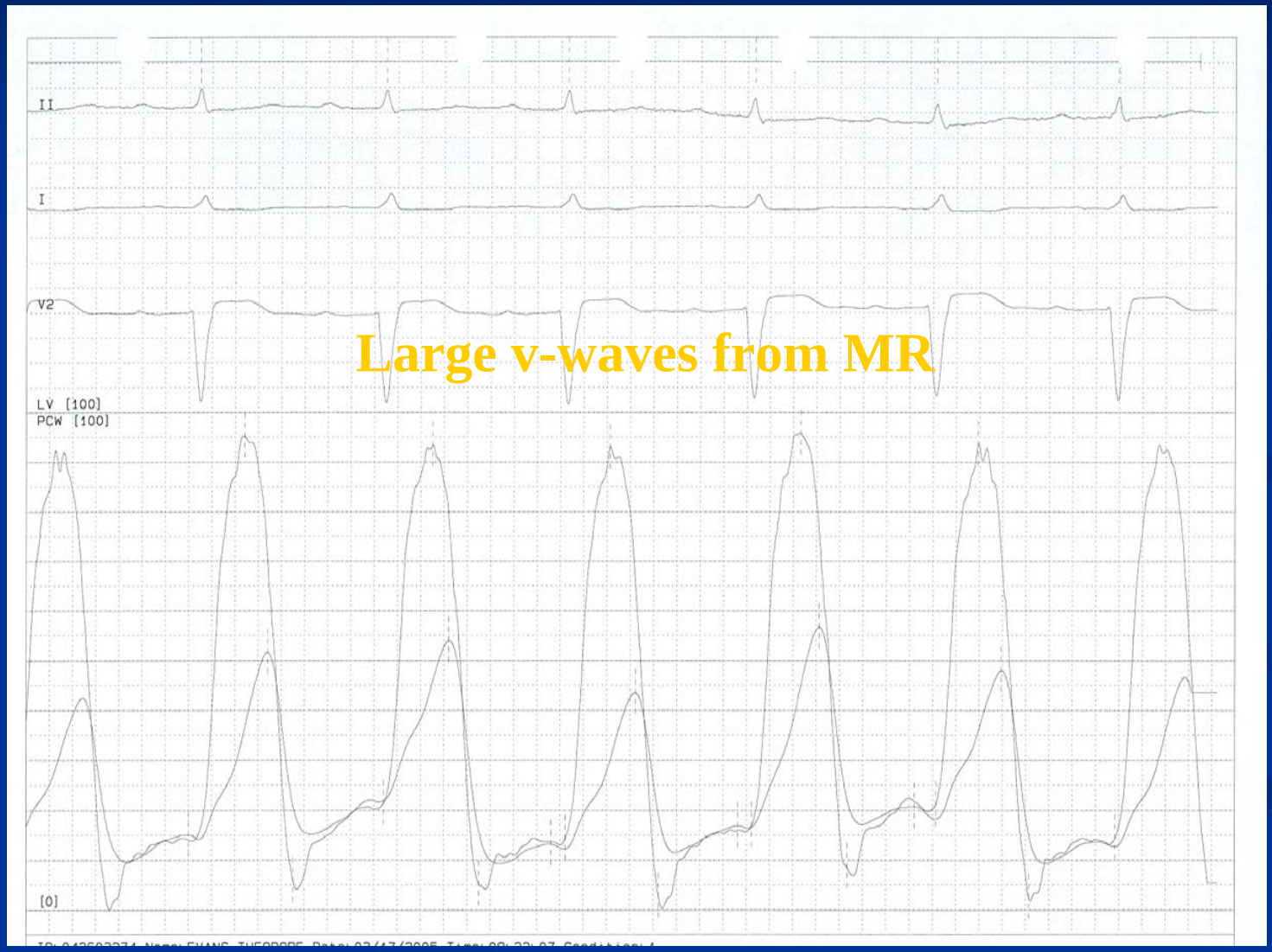


Mitral Valve Disorders

Mitral Valve Regurgitation

Mitral Valve Regurgitation

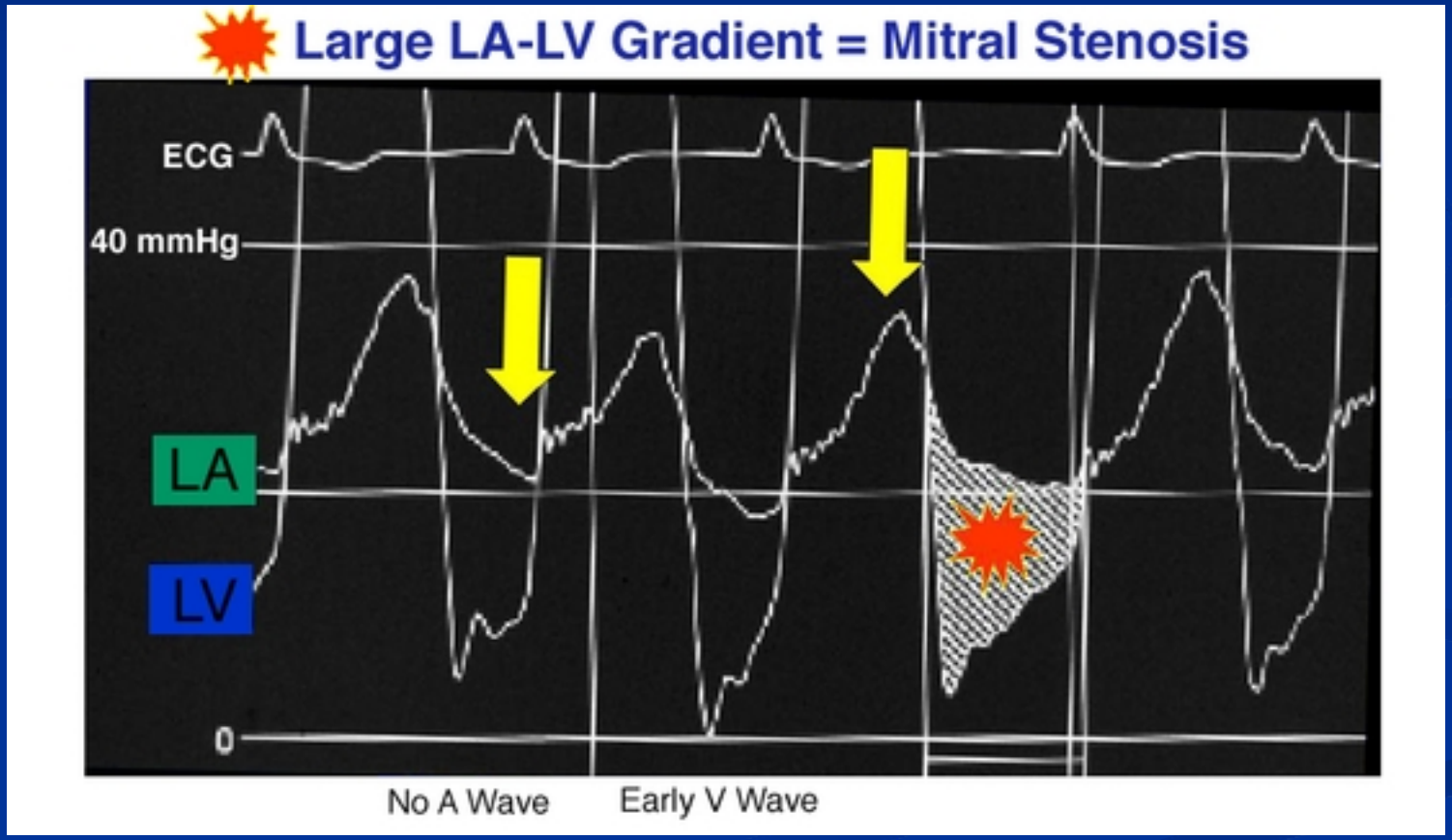
Mitral Valve Regurgitation



Mitral Valve Stenosis

Mitral Stenosis

Mitral Valve Stenosis

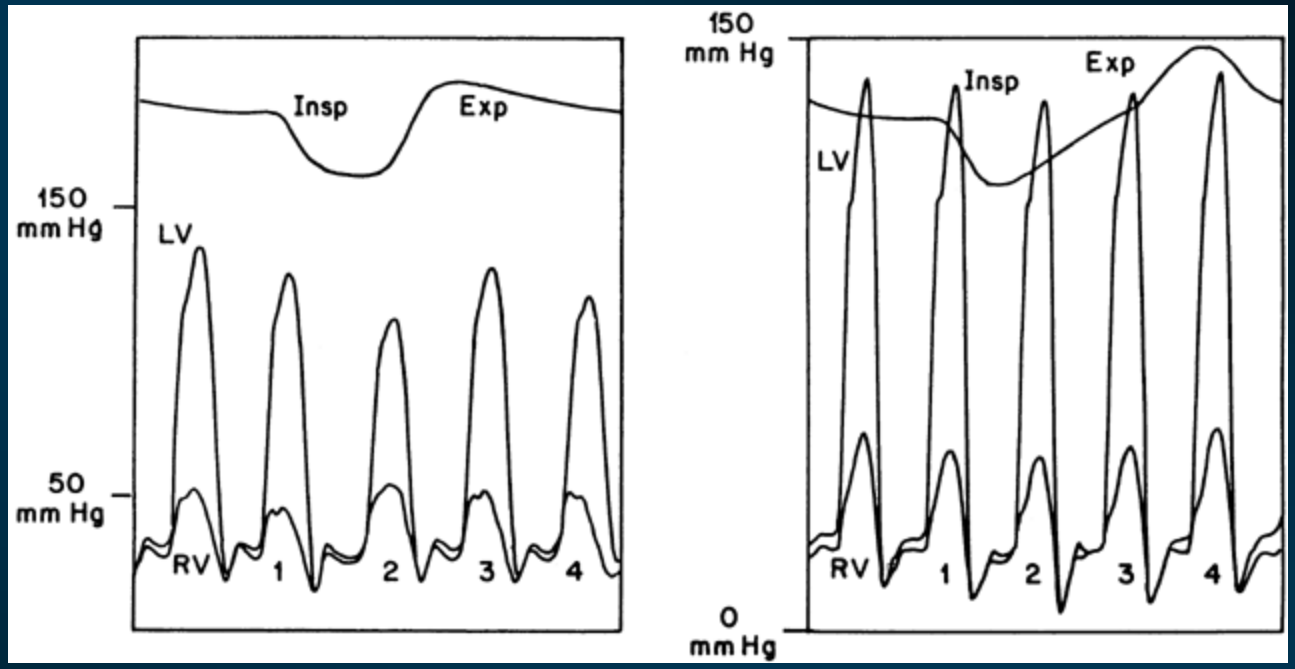


Cardiomyopathies and Pericardial Diseases

Traditional Hemodynamic Criteria for Diagnosing Constrictive Pericarditis

	Constrictive Pericarditis	Restrictive Cardiomyopathy
End-diastolic pressure equalization	LVEDP-RVEDP ≤ 5mm Hg	LVEDP-RVEDP >5mm Hg
Pulmonary artery pressure	PASP <55mm Hg	RASP > 55mm Hg
High RVEDP	RVEDP/RVSP > 1/3	RVEDP/RVSP ≤ 1/3
Dip-plateau morphology	LV rapid filling wave > 7mm Hg	LV rapid filling wave ≤ 7mm Hg
Kussmaul's sign	Lack of respiratory variation in mean RAP	Normal respiratory variation in mean RAP

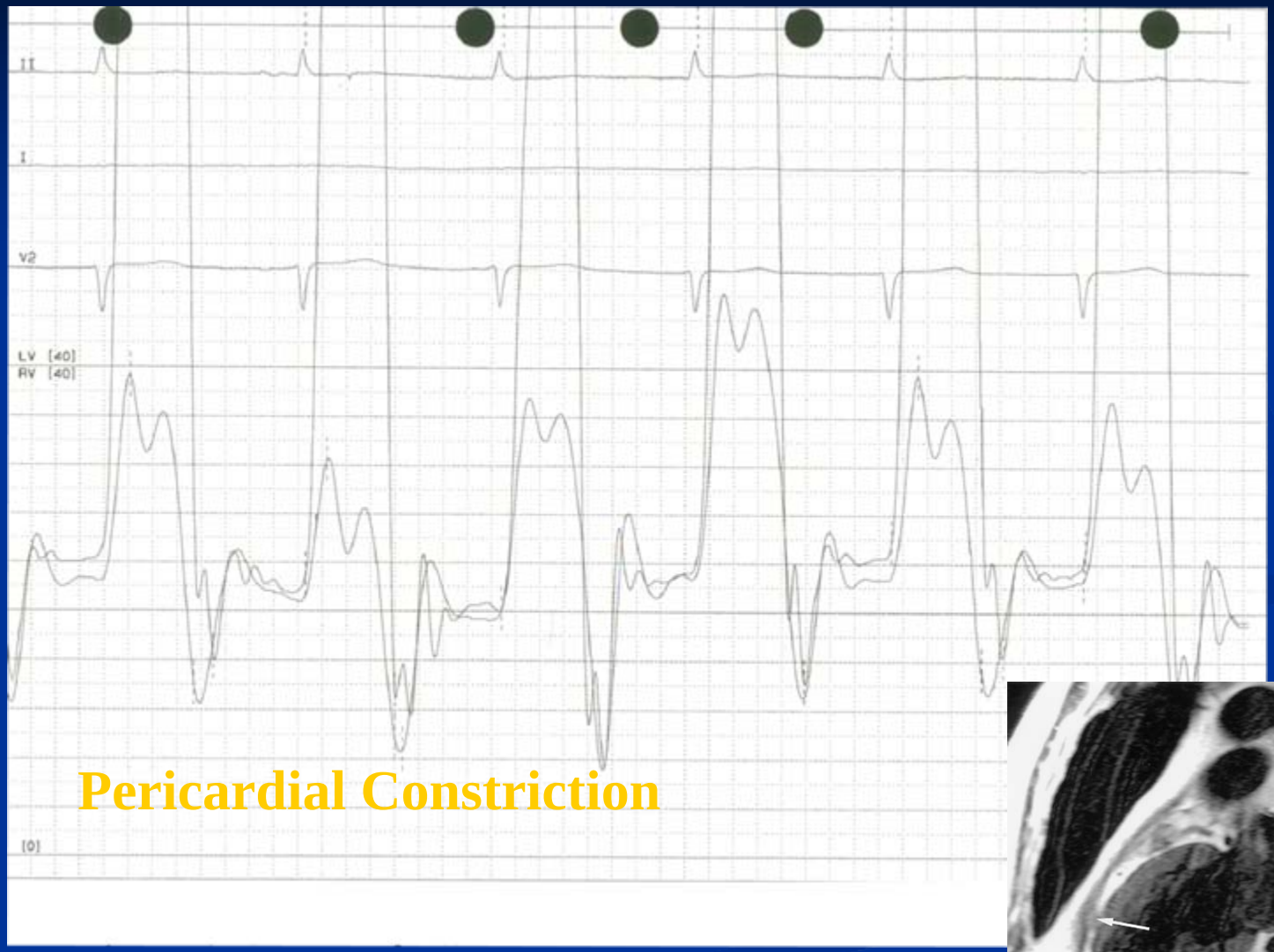
Ventricular Interdependence During Respirations Differentiates Constrictive Pericarditis from Restrictive Cardiomyopathy

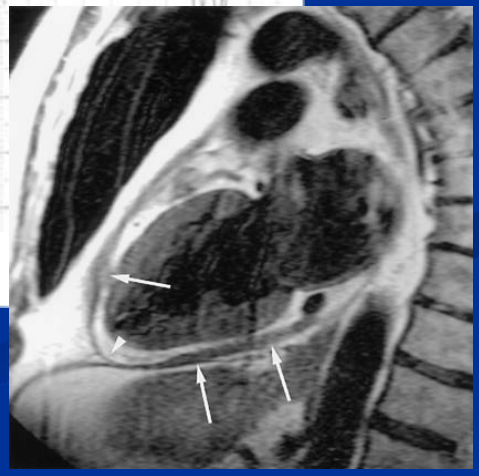


Constrictive Pericarditis (LV and RV discordant)

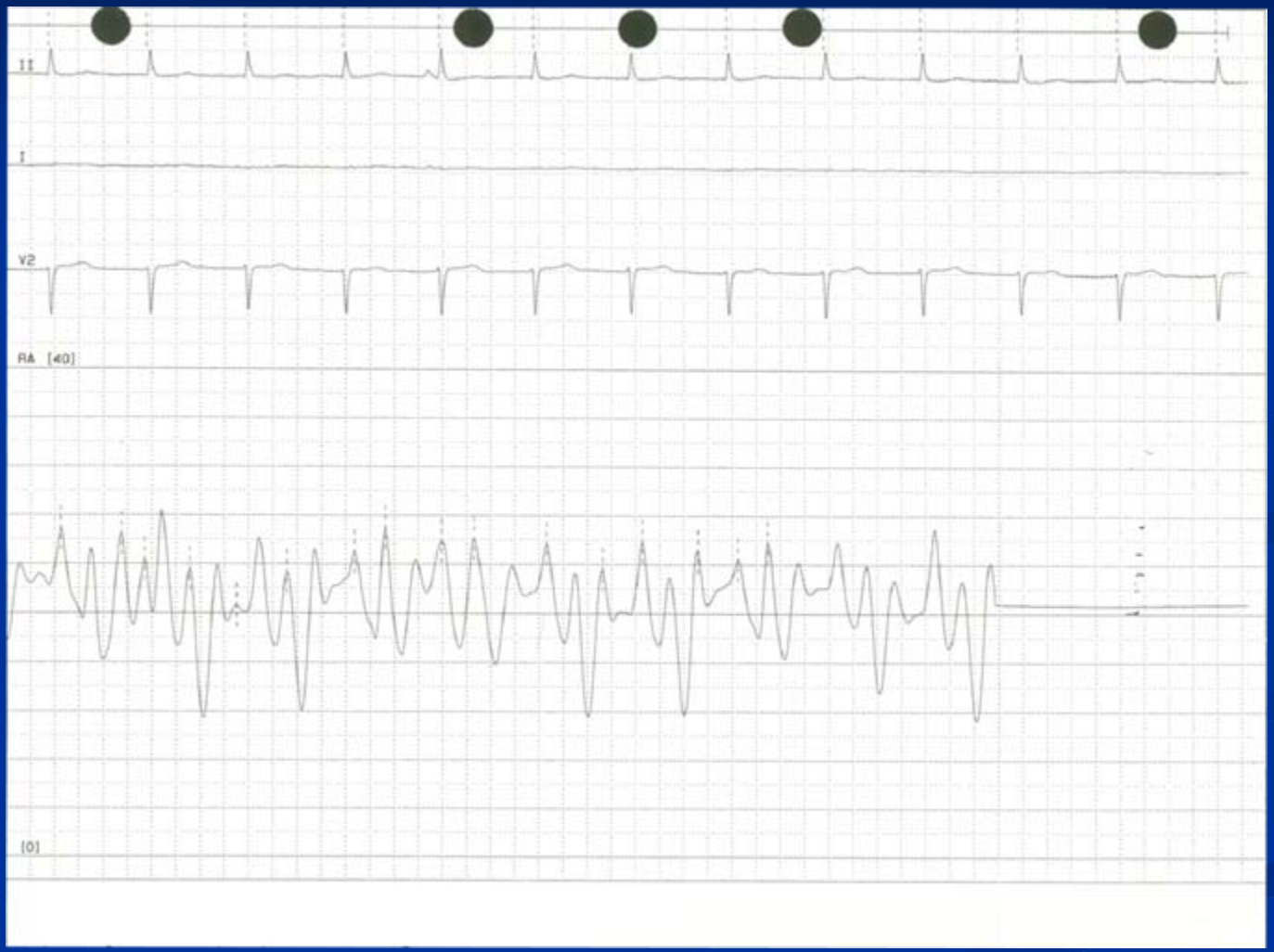
Restrictive Cardiomyopathy (LV and RV concordant)

Pericardial Constriction



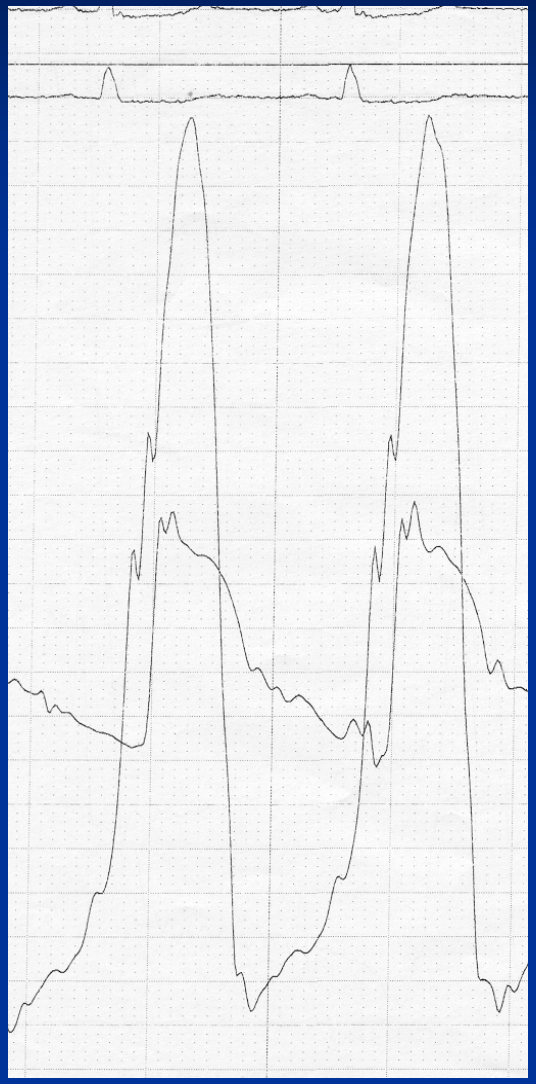


Pericardial Constriction



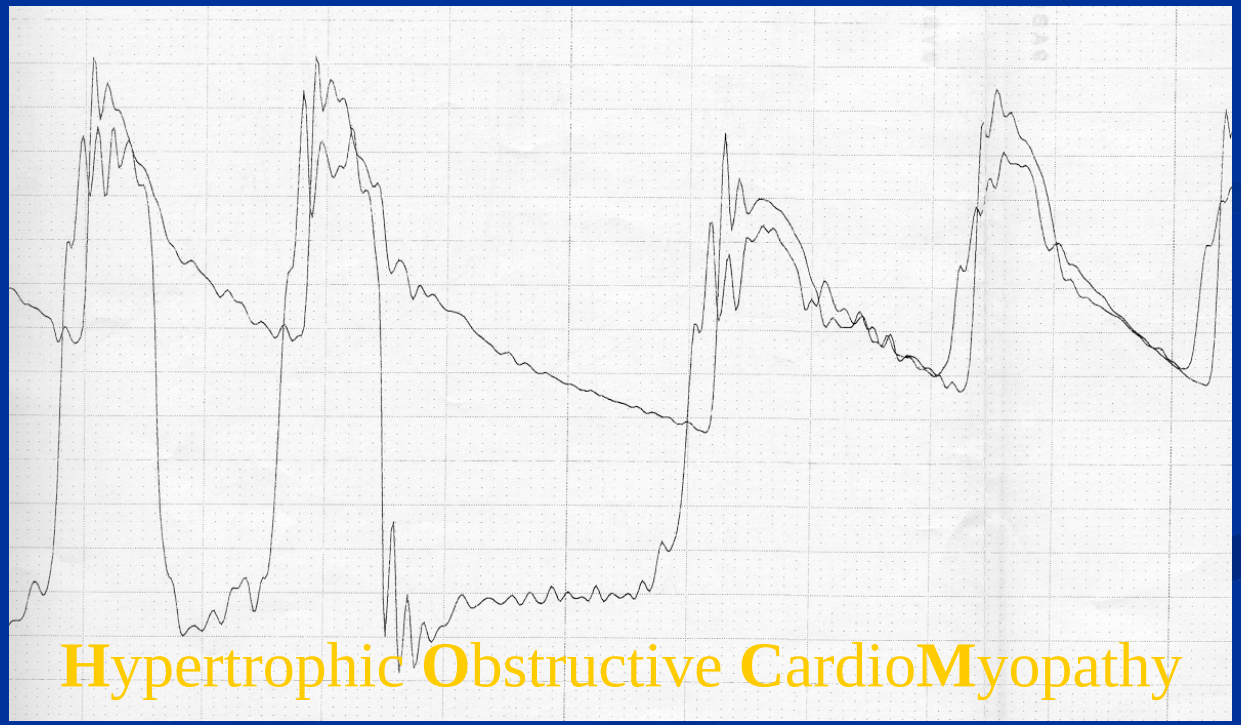
LV Body

HOCM



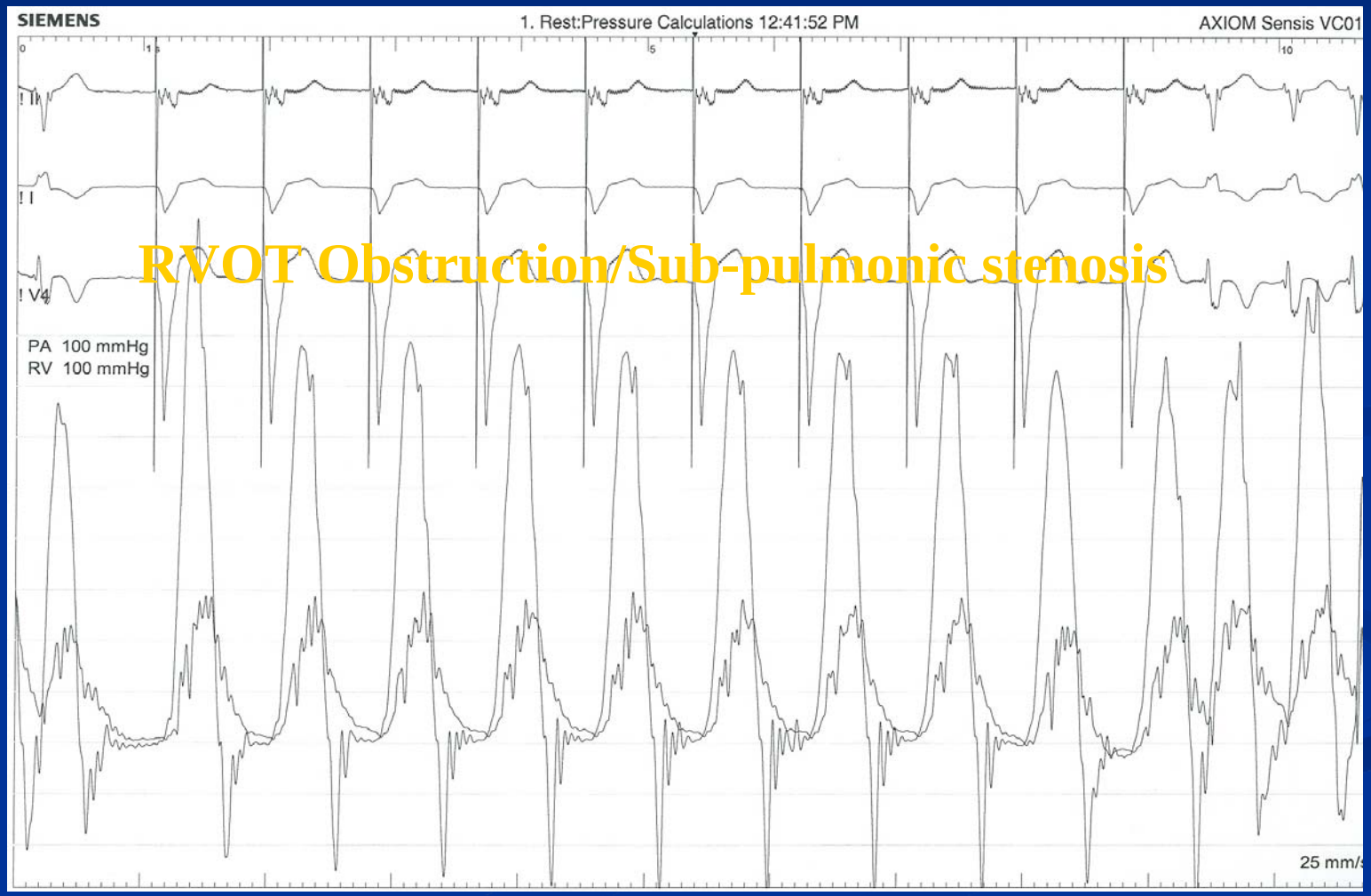
LVOT

Aorta

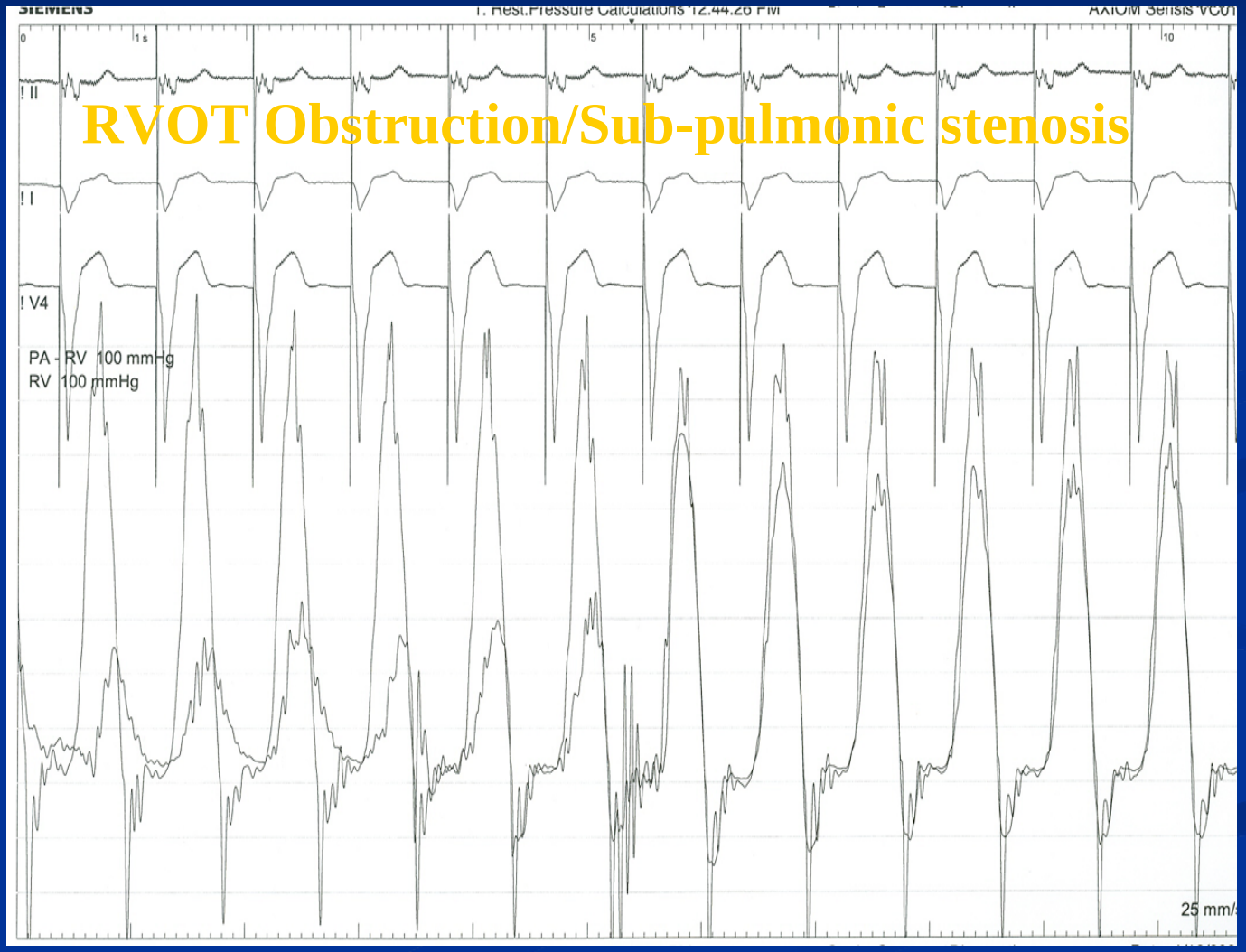


Hypertrophic **O**bstructive **C**ardio**M**yopathy

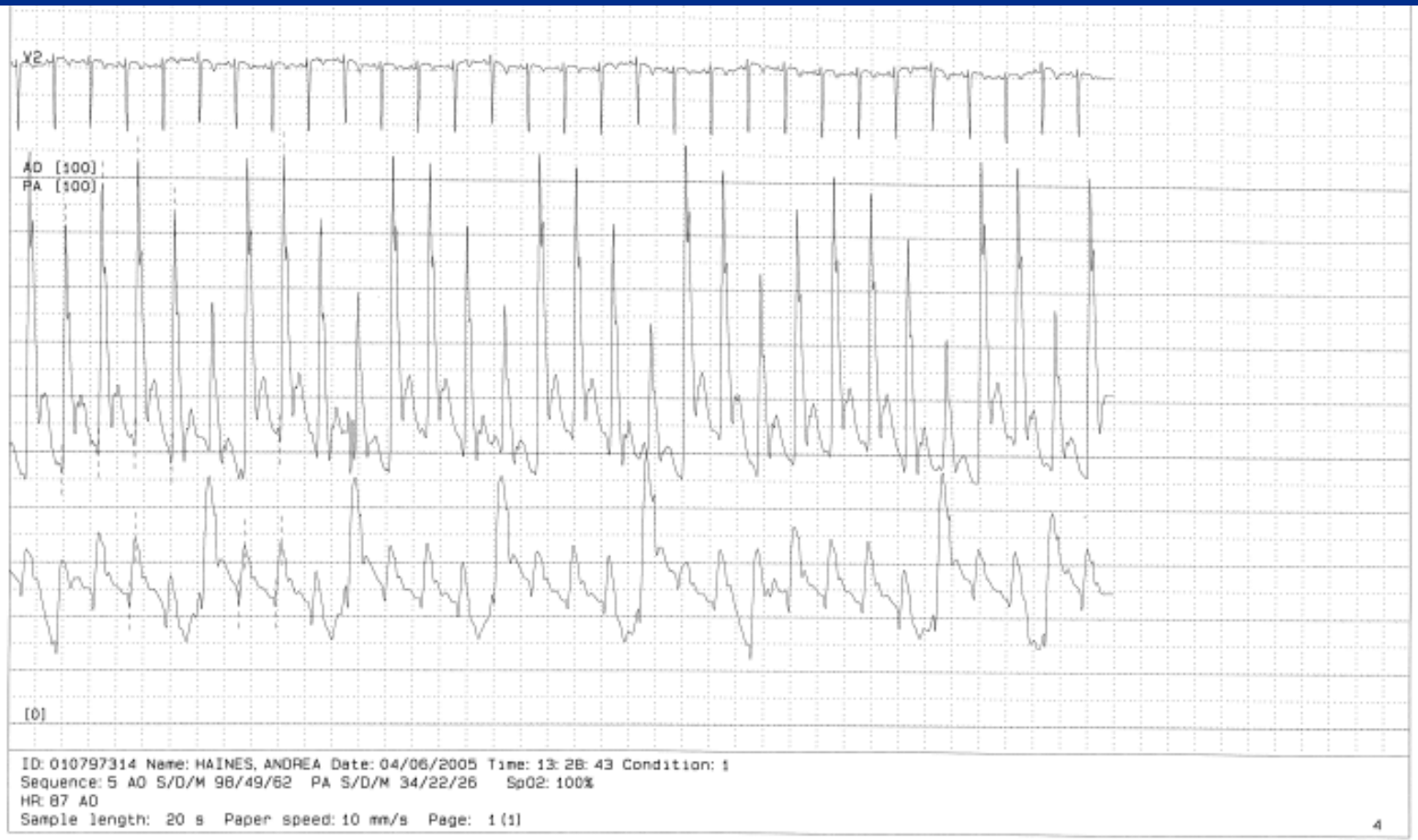
RVOT Obstruction



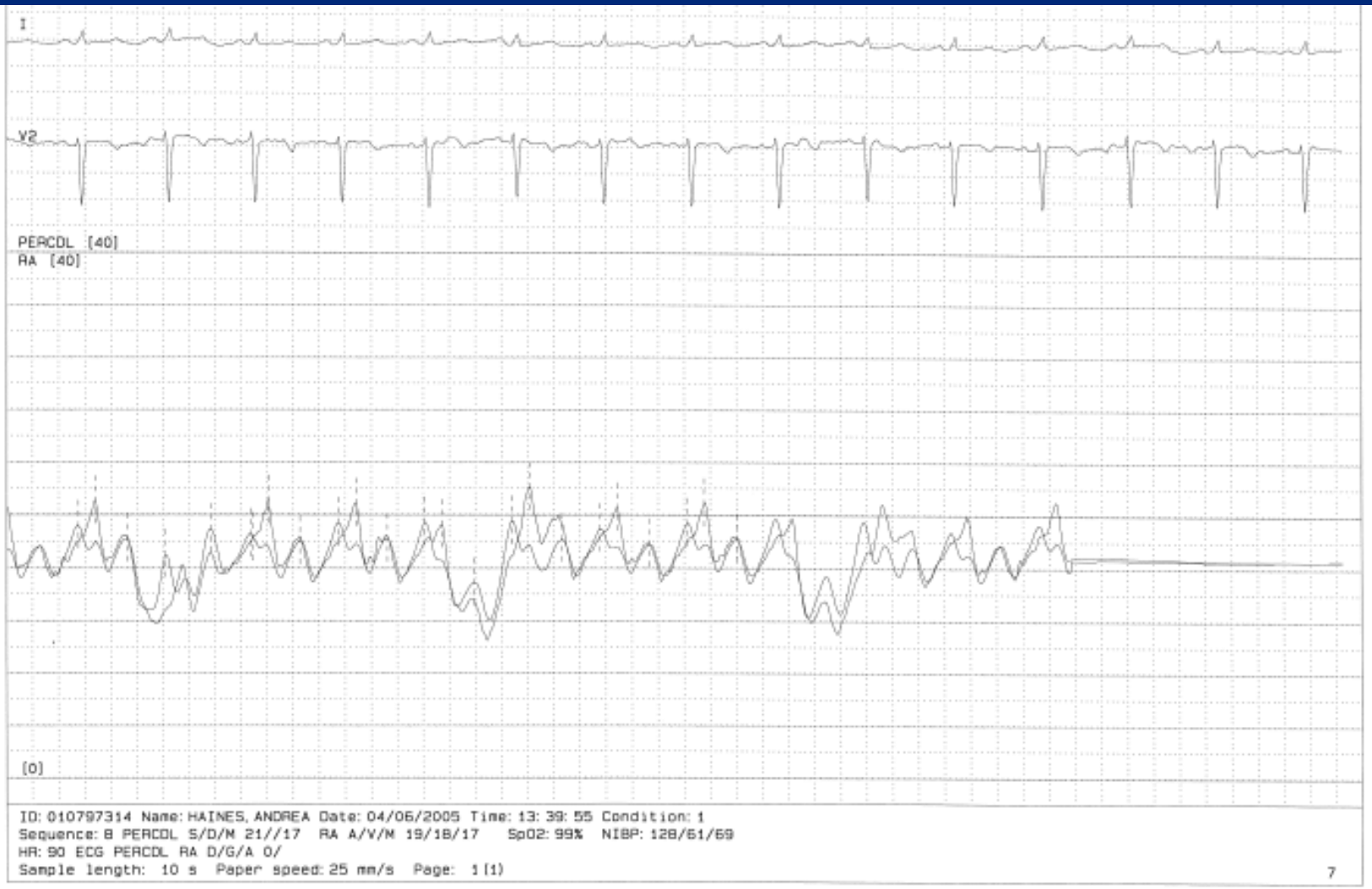
RVOT Obstruction



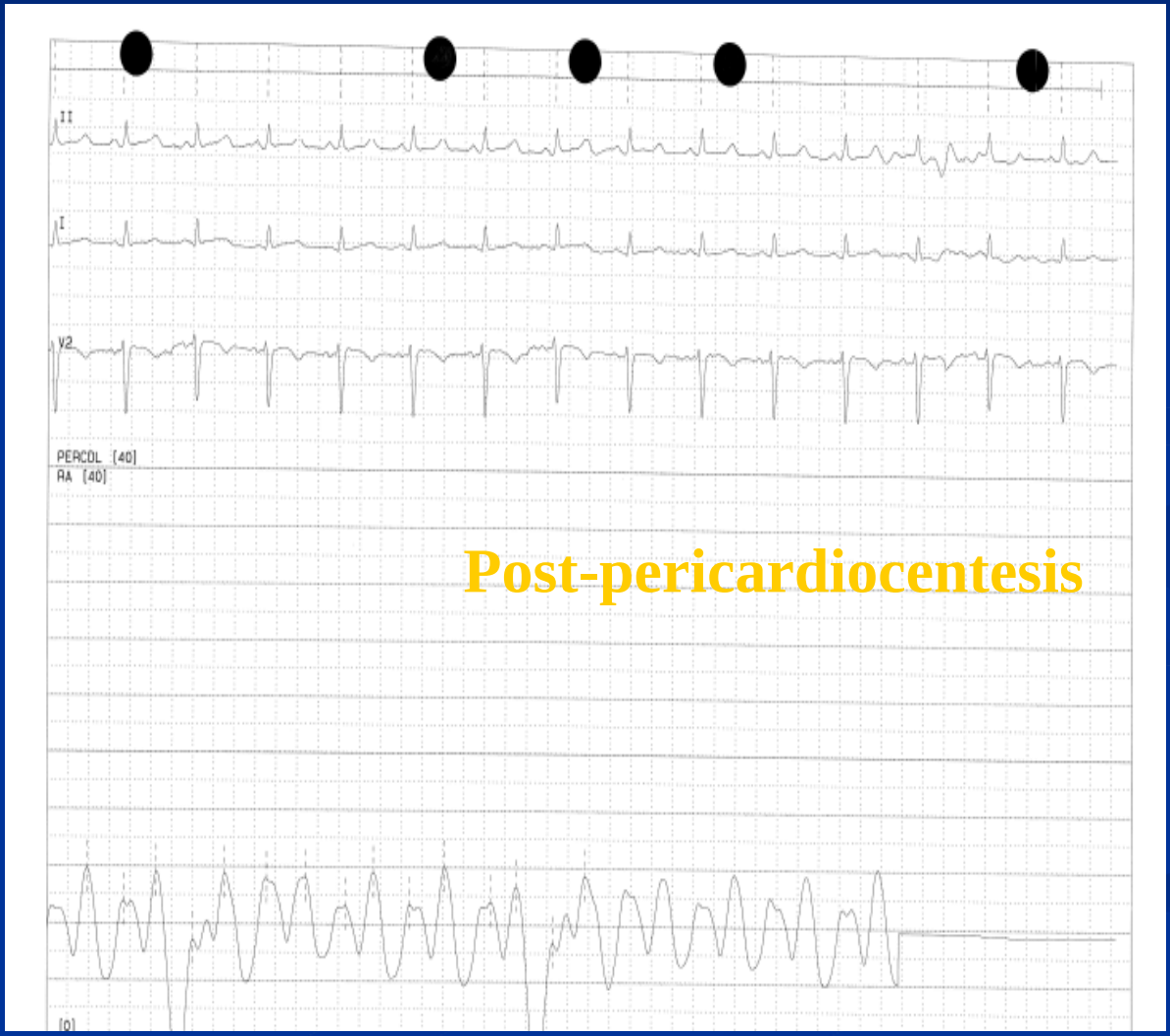
Cardiac Tamponade



Cardiac Tamponade



Cardiac Tamponade



Cardiovascular Hemodynamics

- The most important information obtained from CARDIAC CATHETERIZATION
- Helps with diagnosis, management, assessment of risk, assessment of procedural success and prognosis of patients with coronary artery disease, valvular heart disease, cardiomyopathy, and congestive heart failure.