

HPI

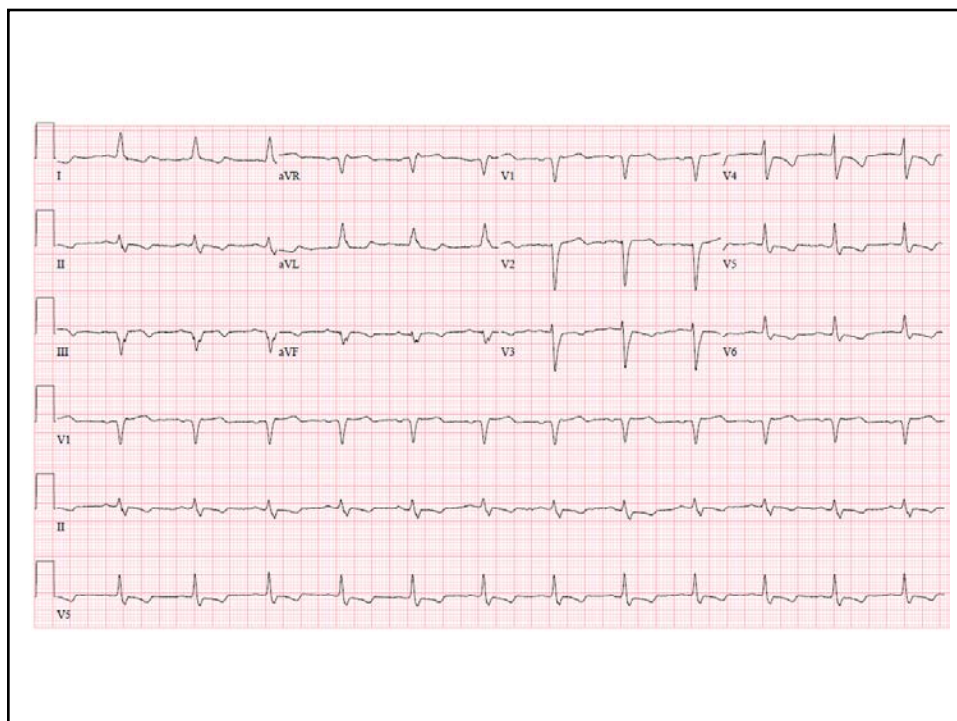
- 71 year old female with ESRD on dialysis presented to the hospital with 2 days of weakness and falls in addition to her chronic dyspnea.
- She has had worsening of dyspnea on exertion, limited to walking around the house.

3

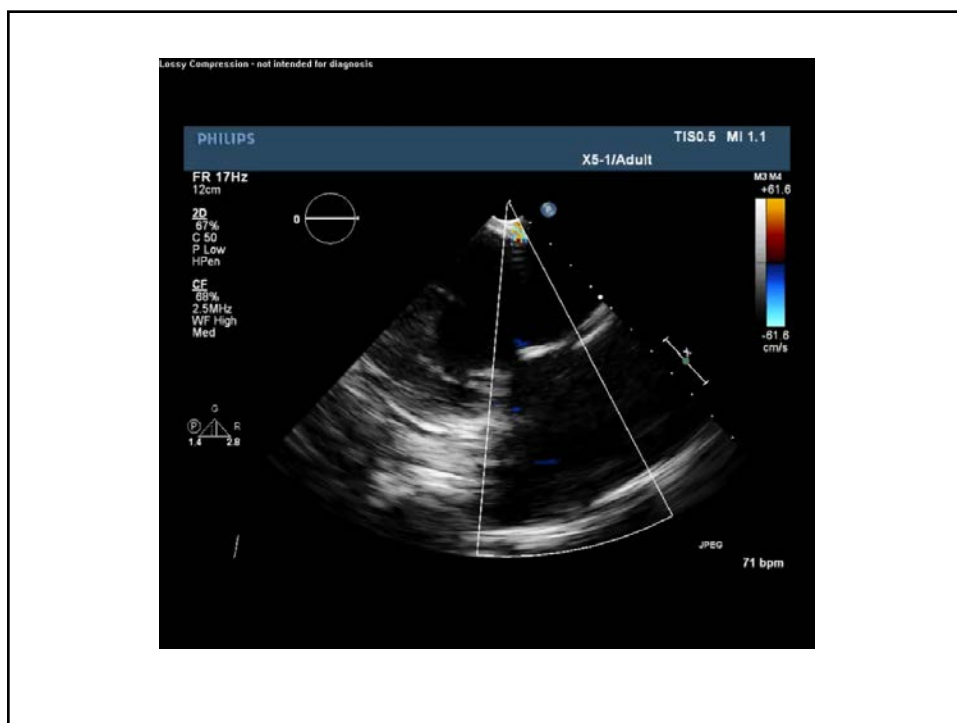
Physical Exam

- Temp 98.4, HR 72, BP 92/48, RR 19, 100% on RA
- Gen: Frail, AAF, not in distress, breathing comfortably
- *CV: Regular S1 and S2, II/VI holosystolic murmur over L sternal border, no S3. JVP 10cm with prominent V waves. Subtle RV heave.*
- Chest wall: L mastectomy scar and sternal scars
- Lungs: clear bilaterally
- Abdomen: soft, non-tender
- Ext: No edema, warm.

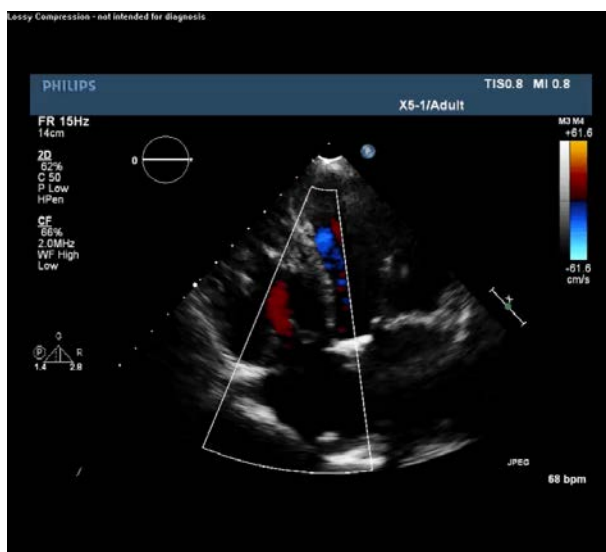
6



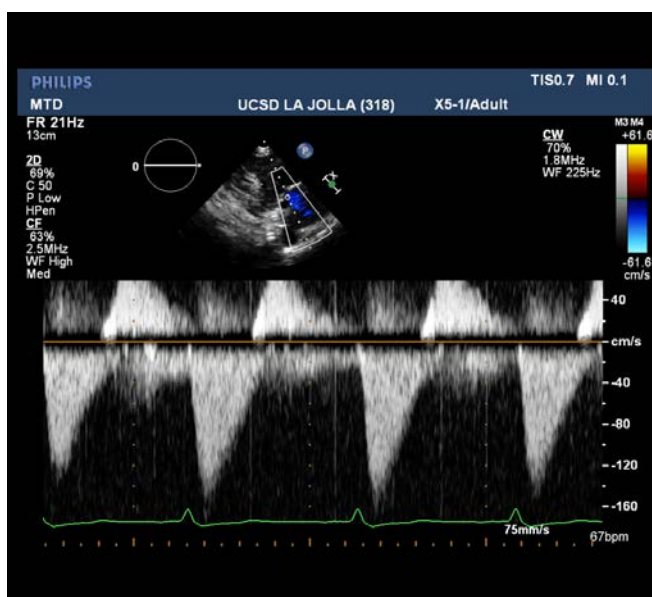
7



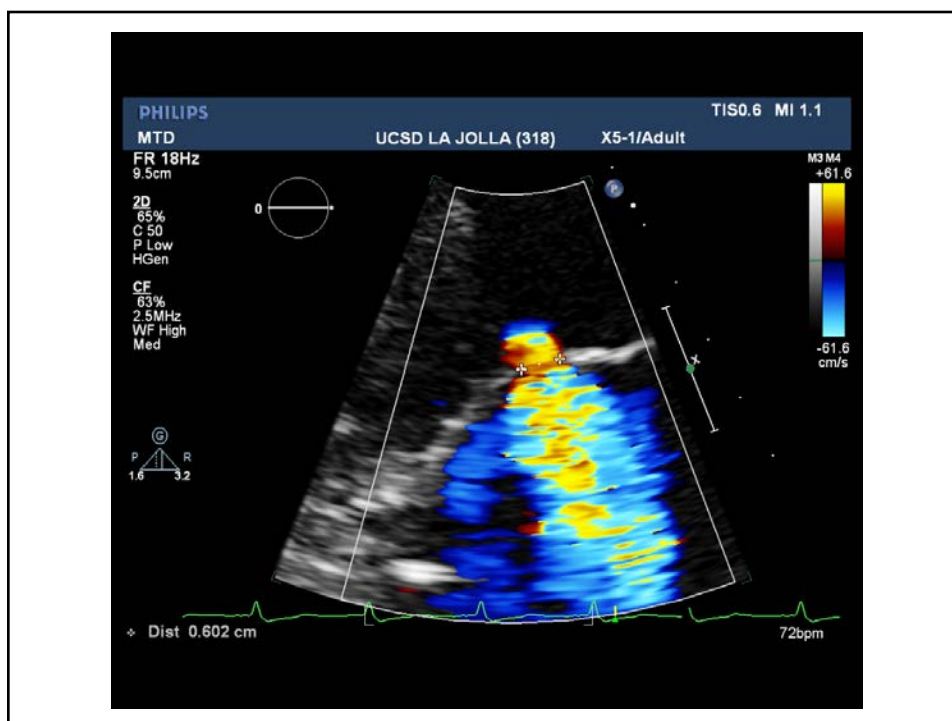
10



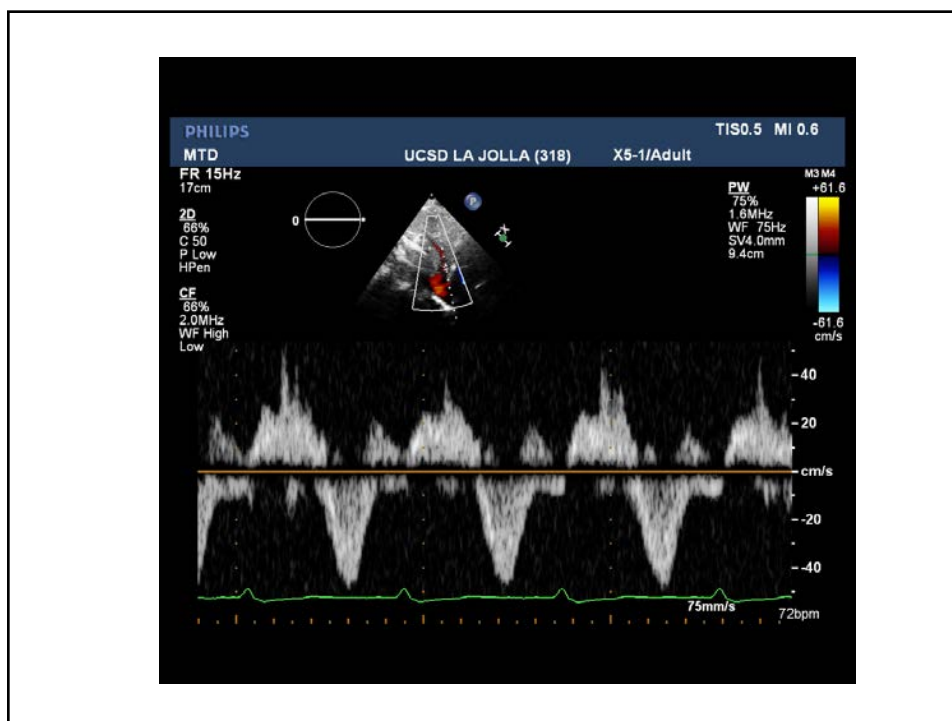
11



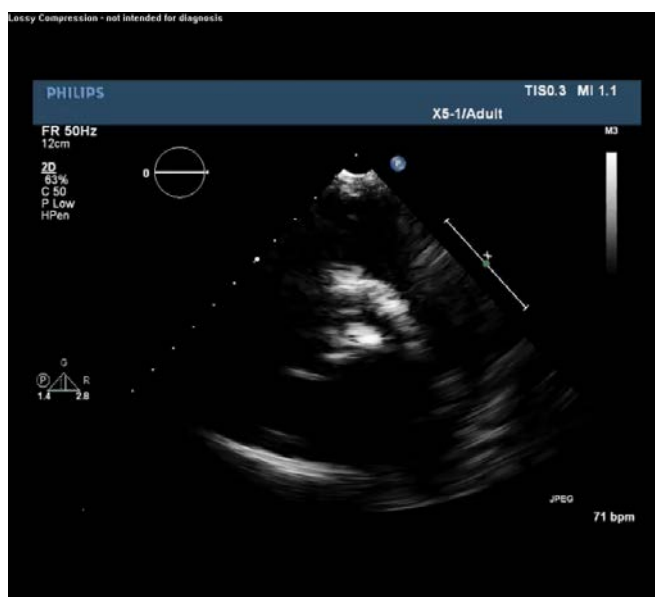
12



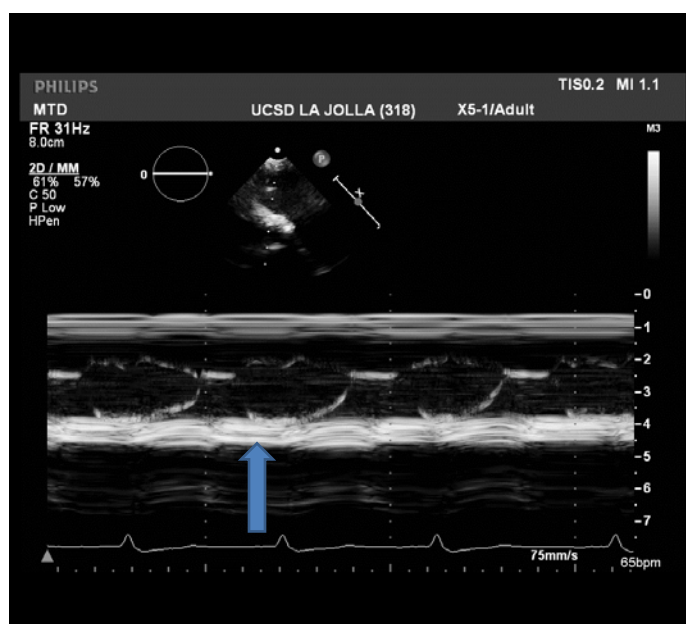
13



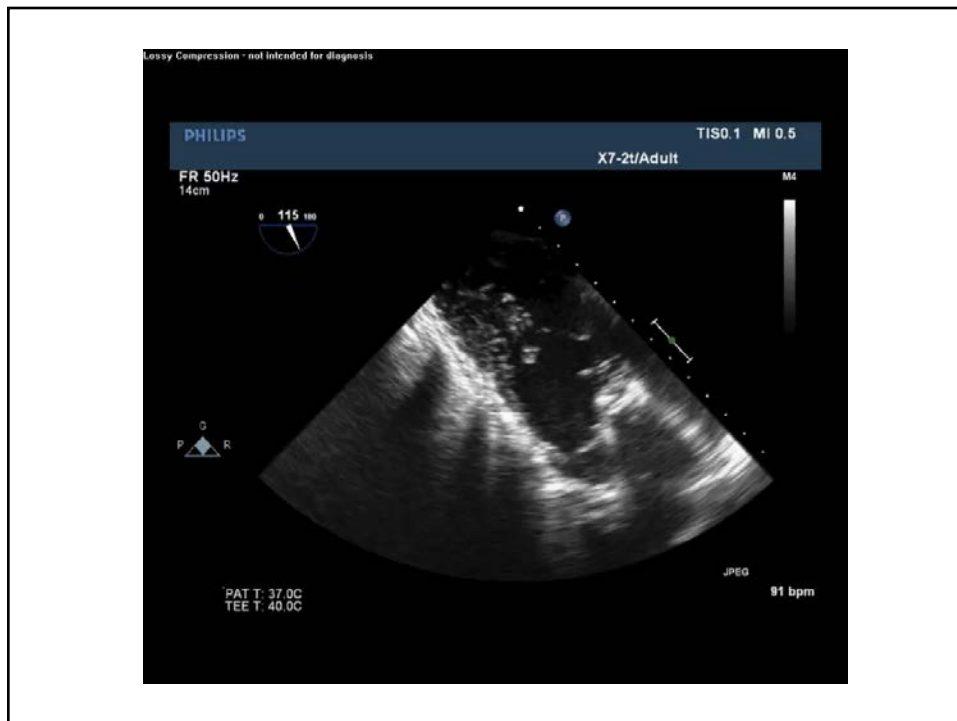
15



17



18



19

DIASTOLIC PULMONIC VALVE OPENING

20



21

128

CIRCULATION

VOL 55, No 1, JANUARY 1977

Premature Pulmonary Valve Opening

L. S. WANN, M.D., ARTHUR E. WEYMAN, M.D., JAMES C. DILLON, M.D.,
AND HARVEY FEIGENBAUM, M.D.

SUMMARY Premature opening of the pulmonary valve (opening independent of atrial or ventricular systole) was originally described in a case of sinus of Valsalva rupture into the right atrium. Since that time we have observed five additional cases in which the pulmonary valve opened prematurely. Entities encountered included: 1) constrictive pericarditis; 2) Loeffler's endocarditis; 3) Ebstein's anomaly with tricuspid regurgitation; 4) tricuspid regurgitation following tricuspid valvectomy, and 5) pulmonary regurgitation accompanied by atrial septal defect. In the first two cases, premature pulmonary valve opening is felt to be due to restriction of diastolic filling of the right ventricle with subsequent early diastolic rise in pressure equalling or exceeding pulmonary artery diastolic pressure. In the latter three cases, the increased volume of blood entering the right ventricle again appeared to result in a rapid rise in initial right ventricular diastolic pressure and to produce premature opening of the pulmonary valve. Premature pulmonary valve opening, therefore, does not appear specific for any particular clinical entity but reflects the relative pressures in the right ventricle and pulmonary artery during diastole.

A NUMBER OF RECENT REPORTS have demonstrated the clinical usefulness of recording the echocardiographic pattern of pulmonary valve motion. Characteristic echocardiographic patterns have been described in patients with pulmonary valvular stenosis,¹ pulmonary infundibular stenosis,² pulmonary regurgitation,³ Uhl's anomaly,⁴ and pulmonary hypertension.^{5, 6} We have previously reported a case of sinus of Valsalva aneurysm rupture into the right atrium in which one of the echocardiographic manifestations was early diastolic opening of the pulmonary valve.⁷ We felt that premature pulmonary valve opening (opening independent of atrial or ventricular systole) reflected a rapid early diastolic rise in right ventricular pressure which equalled or transiently exceeded pulmonary artery diastolic pressure, causing pulmonary valve opening. We postulated that this degree of early diastolic pressure elevation in the right ventricle might be specific for a lesion bringing systemic arterial pressure to the right side of the heart. Since that time we have observed five additional cases in which the pulmonary valve opened prematurely. In all, communication between the aorta and the right heart was absent. The purpose of this report is to describe these cases and to discuss the factors responsible for premature pulmonary valve opening.

Material and Methods

During the last 24 months, we have recorded technically adequate pulmonary valve echograms in approximately 750

From the Krannert Institute of Cardiology and the Department of Medicine, Indiana University School of Medicine, Fortune-Fry Research Laboratories, and Veterans Administration Hospital, Indianapolis, Indiana. Supported in part by the Herman C. Krannert Fund, and by USPHS grants HL-06308, HL-05353, and HL-05749, The Veterans Administration and Indiana Heart Association.

Address for reprints: L. S. Wann, M.D., Indiana University School of Medicine, University Hospital N367, 1190 West Michigan Street, Indianapolis, Indiana 46202.

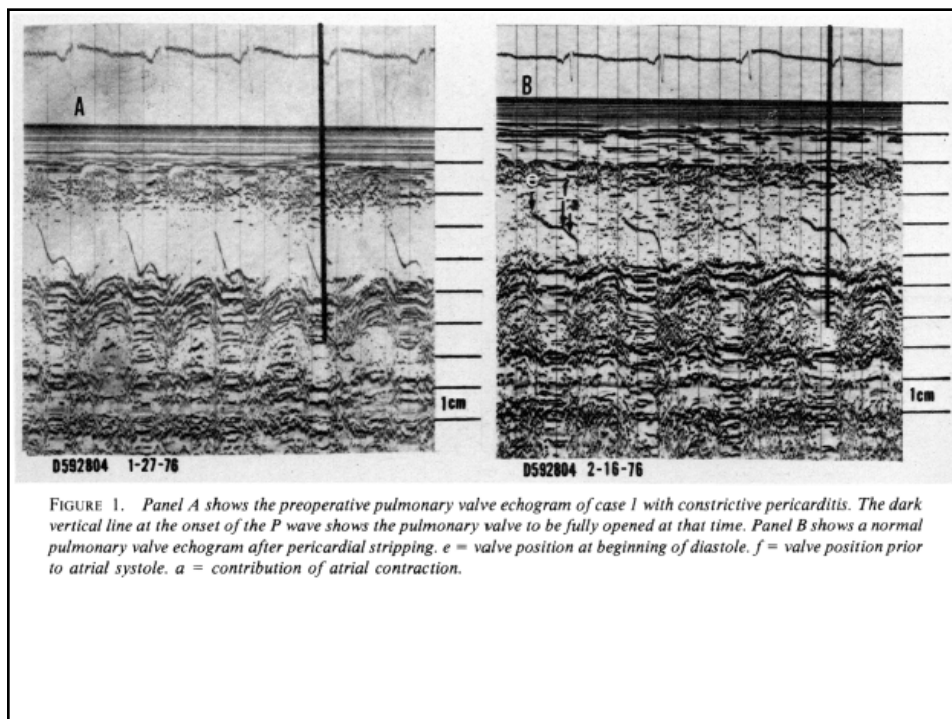
Received July 9, 1976; revision accepted August 27, 1976.

22

Case series of diastolic pulmonic vein opening

- Premature diastolic pulmonary valve opening is due to a rapid rise in diastolic RV pressure which exceeds pulmonary artery diastolic pressure.

24



26

– 20 M with Ebstein's anomaly and severe TR
valvectomy

27

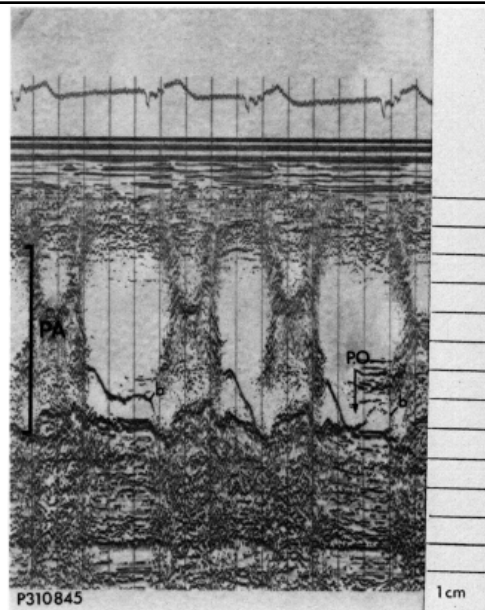


FIGURE 3. Pulmonary valve echogram of case 3 with Ebstein's anomaly and tricuspid regurgitation. PA = pulmonary artery, b = b point; PO = pulmonary valve opening. The pulmonary valve is completely open prior to ventricular systole.

28

- 25 F with acute staph tricuspid endocarditis and severe tricuspid regurgitation s/p surgical valvectomy

29

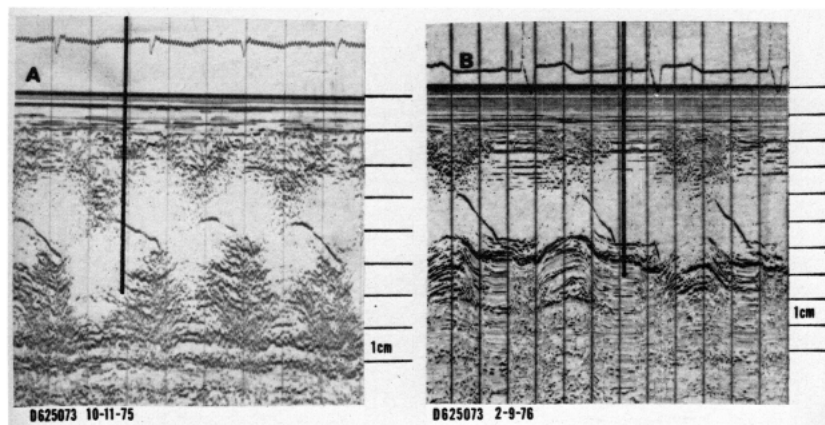


FIGURE 5. Panel A is a normal pulmonary valve echogram from case 5 with tricuspid endocarditis. Panel B, obtained after tricuspid valvectomy, shows premature pulmonary valve opening. The dark vertical lines are at the beginning of the electrocardiographic P wave.

30