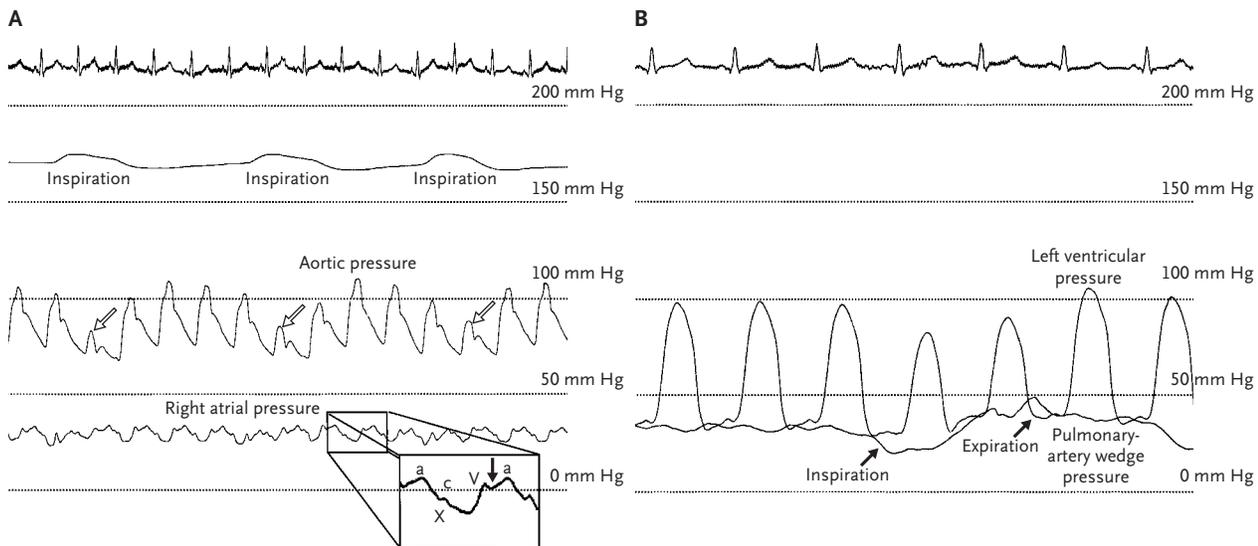


IMAGES IN CLINICAL MEDICINE

Pulsus Paradoxus



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A 45-YEAR-OLD WOMAN WITH A HISTORY OF HODGKIN'S LYMPHOMA that had been treated with mantle-field irradiation 20 years earlier presented with pleuritic chest pain, progressive dyspnea, and presyncope. Notable findings on physical examination included tachycardia, a systolic blood pressure of 100 mm Hg with pulsus paradoxus (a 20 mm Hg decrease in systolic pressure on inspiration), an elevated jugular venous pressure (15 cm of water), and a three-component cardiac friction rub. The electrocardiogram showed sinus tachycardia and low voltage. An echocardiogram showed a small, circumferential pericardial effusion that could not be approached safely by pericardiocentesis. The patient subsequently underwent cardiac catheterization. Panel A shows the electrocardiogram, the respirogram, and the tracings of aortic pressure and right atrial pressure. There was an elevated right atrial pressure with an X descent but blunting of the Y descent (solid arrow). On inspiration, there was a 30 mm Hg decrease in aortic systolic pressure as well as a decrease in pulse pressure (open arrows) — findings that constitute pulsus paradoxus. The tracings of left ventricular pressure and pulmonary-artery wedge pressure (Panel B) show that the pulsus paradoxus is caused by underfilling of the left ventricle during inspiration (due to a drop in the initial pressure gradient between the pulmonary-artery wedge pressure and the left ventricular diastolic pressure). The patient underwent surgery, and a tense, inflamed pericardium was noted. To relieve the pericardial tamponade, 500 ml of sero-sanguineous fluid that was under pressure was drained from the pericardial space, and a complete pericardiectomy was performed.

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