

## Pulsus paradoxus due to left ventricular collapse with localized pericardial effusion

### Lokalize perikart efüzyonu sonucu gelişen sol ventrikül basısına bağlı pulsus paradoksus

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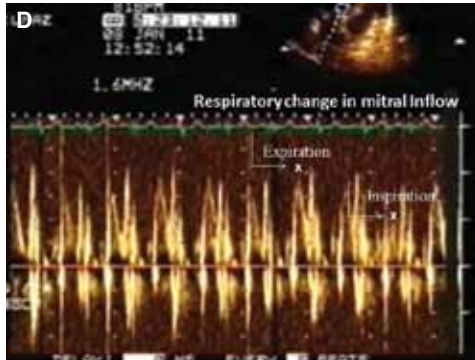
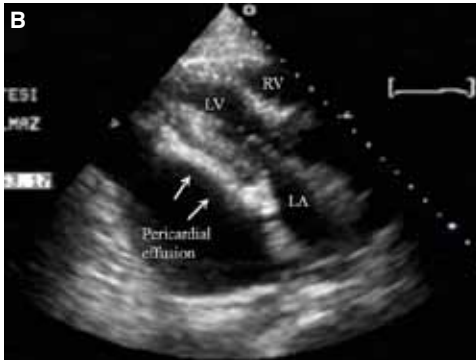
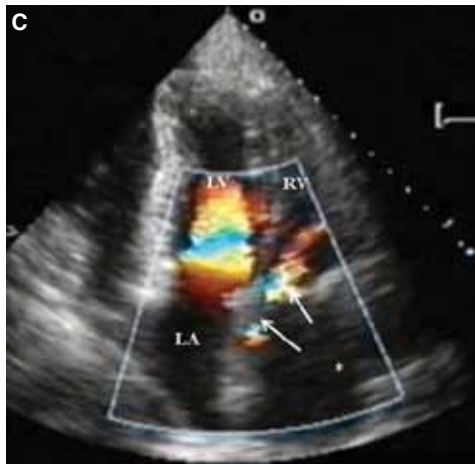
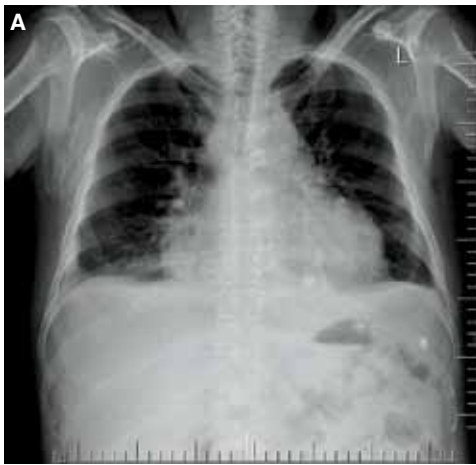
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A 55-year-old male patient presented to our hospital complaining of shortness of breath, palpitations, and excessive sweating. He had undergone coronary artery bypass grafting three weeks previously. On physical examination, he had tachycardia, orthopnea, hypotension, and narrowed pulse pressure. The patient had a pulsus paradoxus pattern with a systolic blood pressure of 100 mmHg during expiration and 70 mmHg during inspiration. Heart sounds were muffled. On the chest X-ray, the heart had a flask-like appearance (Fig. A). On his echocardiography, localized pericardial effusion was observed

adjacent to the posterior and lateral walls of the left ventricle and adjacent to the right atrium, in the parasternal and apical four-chamber views. The pericardial effusion was 43 mm thick behind the posterior wall and 32 mm thick adjacent to the lateral wall during diastole, leading to significant diastolic compression of the left ventricle (Fig. B; Video file 1A, B). The localized effusion next to the right atrium was almost completely obliterating the cavity during both systole and diastole (Fig. C; Video file 2). Respiratory changes over 25% were detected during mitral inflow (Fig. D; Video file 3). However, no effusion was seen adjacent to the right ventricle. The patient deteriorated progressively over hours, and so, surgical drainage was performed, removing 1200 ml of pericardial fluid. Immediately after the operation, the patient began to recover and stabilized both clinically and hemodynamically.



**Figures– (A)** Chest X-ray showing the flask-like appearance of the heart. **(B)** During inspiration, as the pulmonary venous flow to the left ventricle decreases, diastolic collapse of the left ventricle due to localized pericardial effusion is observed with a concomitant drop of the systolic blood pressure from 100 mmHg to 70 mmHg (pulsus paradoxus). In contrast, due to the lack of pericardial effusion next to the right ventricle and the obliteration of the right atrial cavity by the extrinsic hematoma, no significant flow changes were observed within the right ventricle. **(C)** Pericardial effusion, most likely a hematoma, next to the right atrium, almost completely obliterating the cavity (\*). Note the slit-like right atrial cavity observed with color Doppler (arrows). **(D)** Respiratory changes in mitral inflow. Note that mitral inflow decreased from 82 cm/sec to 40 cm/sec during inspiration. \*Supplementary video files associated with this presentation can be found in the online version of the journal.