Images in Cardiovascular Disease

An Unusual Cause of Cardiac Tamponade: Primary Pericardial Synovial Sarcoma

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OPEN ACCESS

Received: Jun 5, 2020

Revised: Jun 20, 2020

Accepted: Jun 24, 2020

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A 42-year-old man presented to the emergency department with dyspnea for two weeks. Electrocardiography showed sinus tachycardia and low voltage. Transthoracic echocardiography revealed a large pericardial effusion with right atrial systolic (Figure 1A, Movie 1) and right ventricular diastolic collapse (Figure 1B and C, Movie 2), consistent with tamponade physiology. The patient underwent emergent pericardiocentesis draining 2.2 L of hemorrhagic fluid. Cardiac magnetic resonance imaging showed an enhancing pericardial mass compressing the left atrium (steady-state free precession [Figure 1D], pre-contrast T1-weighted black blood [Figure 1E], post-contrast T1-weighted black blood [Figure 1F]). Surgical resection revealed a 21 cm × 9 cm × 3 cm hemorrhagic pericardial tumor (Figure 1G). Histology showed hypercellular fascicles of monotonous neoplastic spindle cells with scant amphophilic cytoplasm, vesicular nuclei with evenly dispersed chromatin, inconspicuous nucleoli and many mitotic figures (Figure 1H). Interphase fluorescence in situ hybridization

Figure 1. Transthoracic echocardiogram in the 4-chamber view (A) and M-mode (B) through the parasternal long-axis view (C) show a large pericardial effusion with tamponade physiology. Cardiovascular magnetic resonance steady-state free precession (D), pre-contrast T1-weighted black blood (E) and post-contrast T1-weighted black blood (F) imaging demonstrates an enhancing pericardial mass. Gross pathology (G), histology (H) and fluorescence in situ hybridization (I) revealed findings consistent with a primary pericardial synovial sarcoma.

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Conflict of Interest

The authors have no financial conflicts of interest.

(FISH) with an SS18 (SYT) break-apart probe demonstrated a separated orange and green signal pattern indicative of an SS18 (SYT) gene rearrangement, supporting the diagnosis of monophasic synovial sarcoma (**Figure 11**). In comparison, the fused orange-green signal represents the normal gene on the normal chromosome. Primary pericardial synovial sarcoma, an exceedingly rare malignant neoplasm, portends a poor prognosis.

SUPPLEMENTARY MATERIALS**Movie 1**

Transthoracic echocardiography 4-chamber cine shows a large pericardial effusion resulting in right atrial systolic collapse.

[Click here to view](#)

Movie 2

The parasternal long-axis cine demonstrates diastolic collapse of the right ventricular outflow tract.

[Click here to view](#)