CLINICAL VIGNETTE

Disseminated echinococcosis with pulmonary artery embolisation

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A 23-year-old man was admitted to a cardiology department with a several-month history of increasing shortness of breath, ascites, and leg oedema. The patient had a history of a hepatic hydatid cyst and had undergone a surgical intervention four years earlier. He had poor compliance and eventually stopped the prescribed therapy with albendazole. Admission electrocardiogram demonstrated a sinus rhythm with a right bundle branch block (Fig. 1A). There were no clinically significant laboratory findings except an elevated level of D-dimer (2050 ng/mL; reference range, < 500 ng/mL) and low albumin levels (27 g/L; reference range, 30–50 g/L). The high-sensitivity cardiac troponin I was normal (13.9 pg/mL; reference range, 29–39 pg/mL). Transthoracic echocardiography showed an extremely dilated right ventricle without any detectable cystic formations in the cardiac chambers. Severe pulmonary hypertension and plethora of the inferior vena cava were observed. Global systolic function of the left ventricle was preserved. Notably, a major pericardial effusion without a collapse of the high-pressure right chambers, although with a mild collapse of the left atrium, was detected (Fig. 1B, C). There were no significant changes in the mitral and tricuspid inflow patterns. A full-body computed tomography (CT) scan demonstrated multiple disseminated cystic formations in the lungs, liver and peritoneal cavity (Fig. 1D, E). We performed a CT pulmonary angiography which revealed bilateral embolisation of the main branches of the pulmonary arteries (PAs). The capsulated hypodense formations in the PA had the same density as the liver and pulmonary cysts, which strongly suggested echinococcosis as the reason for PA occlusion (Fig. 1F). Because of the dissemination process, conservative treatment with albendazole was restarted. The standard therapy for right-sided heart failure was applied. The patient refused any invasive procedure and was discharged with clinical improvement. Four months after discharge the patient died at home. Autopsy was not performed. Cardiac involvement of echinococcosis includes approximately 2% of cases and most commonly involves the left-sided chambers. Engagement of the PA is extremely rare. The pathogenesis could be related to an intraoperative or spontaneous rupture of the cyst near the hepatic vein and the distribution of its contents into the inferior vena cava and subsequently to the PA [1]. The growth of the cysts gradually leads to progressive pulmonary hypertension. In some cases, endarterectomy can be performed with satisfactory outcomes [2]. Our case demonstrates severe disseminated echinococcosis with multiorgan involvement and complications, which has poor prognosis and limited therapeutic options. Adequate and timely treatment of echinococcosis is needed to prevent irreversible lesions.

References

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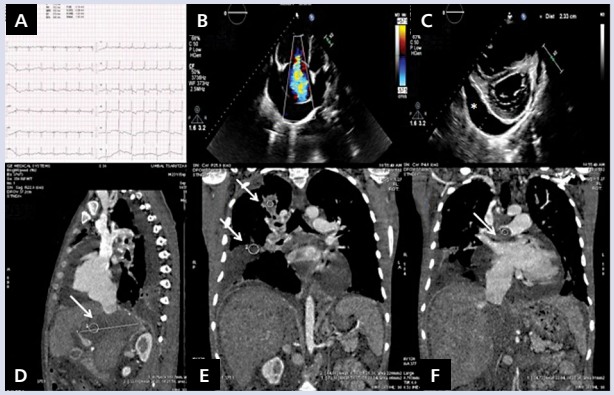

Figure 1. **A.** Electrocardiogram. A complete right bundle branch block with a heart rate of 76 bpm; **B, C.** Echocardiography. **B.** Severe tricuspid regurgitation (tricuspid pressure gradient of 58 mmHg); **C.** A D-shaped left ventricle and pericardial effusion (23 mm behind the posterior wall of the left ventricle); **D–F.** Disseminated echinococcosis on computed tomography; **D.** The cardiac chambers were without any lumen defects. Multiple confluent cysts with a density of 21.5 HU and dimensions around 109/96 mm were observed in the liver (arrow); **E.** Multiple cystic formations were detected near the upper right bronchus and in the inferior and basal parts of the lungs (arrows), with a density of 21.4 and 21.3 HU, respectively; **F.** Echinococcus cysts in the pulmonary artery. An oval hypodense zone in the right pulmonary artery (arrow) with the same density (21.3 HU) as the liver and lung cysts

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