Inverted-Takotsubo cardiomyopathy secondary to adrenal mass

Cardiomyopathie de Tako-Tsubo inversée secondaire à une masse surrénalienne

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A 28-year-old woman complained of chest discomfort. Her blood pressure was 120/80 mmHg and heart rate 110/min. She had elevated cardiac enzymes with troponin I of 13.0 ng/mL, creatinine kinase 819 U/L, creatinine kinase–MB 99 U/L. ECG showed significant ST depression in V4-6. Glycosuria was found and her fasting blood glucose was 199 mg/dL. Cardiac CT angiography revealed normal coronary artery (Fig. 1A). Echocardiography showed hypokinesis of mid to basal segments of left ventricle (LV) with preservation of apex showing inverted-Takotsubo pattern (Fig. 1B, left sided: diastole, right sided: systole). LV ejection fraction (EF) was 25%. Cardiac magnetic resonance imaging showed dilated cardiomyopathy with hypokinesis of basal and mid-ventricle and sparing of apex (Fig. 1C left sided: diastole, right sided: systole). There was mild high signal intensity in T2W black blood image (Fig. 1D) and no late gadolinium enhancement (Fig. 1E). Based on tachycardia, hyperglycemia, glycosuria and abnormal LV motion, we checked abdomen CT under suspicion of pheochromocytoma-induced cardiomyopathy, revealing a 6.4 cm × 6 cm sized right adrenal mass with prominent vascularity (Fig. 1F). Plasma test found markedly elevated norepinephrine of 13.80 (0.07–0.4 ng/mL) and epinephrine 0.71 (0.04–0.2 ng/mL). 24-hr urine collection demonstrated the elevation of norepinephrine (1618.0 μg, 15–80), epinephrine (137.0 μg, 1.2–20), metanephrine (8.2 μg, 0.2–1.2), and vanillylmandelic acid (33.7 mg, 1–5).

The right adrenal mass was visualized by scintigraphy with 131-metaiodobenzilguanidine (MIBG). Follow up echocardiography after 2 days with conservative management showed improving LV wall motion with EF of 36.7%. Surgical excision of adrenal mass confirmed pheochromocytoma and made LV wall motion normalized with LVEF of 65%.

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**Figure 1.** Cardiac CT angiography (A) revealed normal coronary artery, and echocardiography (B) and cardiac MRI (C, D, E) showed dilated cardiomyopathy with hypokinesis of mid to basal segments of left ventricle and preservation of apex showing inverted-Takotsubo pattern. Abdomen CT (F) revealed a 6.4 cm × 6 cm sized right adrenal mass with prominent vascularity.

Final diagnosis was pheochromocytoma-induced cardiomyopathy of inverted Takotsubo pattern (Supplementary data).

**Disclosure of interest**

The authors declare that they have no conflicts of interest concerning this article.

**Appendix A. Supplementary data**

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2011.05.011.