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CASE REPORT

Takotsubo Cardiomyopathy in a Female Patient After Laparoscopic Oophorocystectomy: a Case Report

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TAKOTSUBO cardiomyopathy (TC), also known as “left apical ballooning syndrome” and “broken heart syndrome”,¹ has been reported throughout the world occasionally. The major cause of this disease is psychological or physical stress,² and it has various clinical presentations. In this article, we present a TC case caused by laparoscopic oophorocystectomy.

CASE DESCRIPTION

A 43-year-old female patient was admitted into Department of Gynecology of our hospital. She had a left ovarian cyst accidentally discovered in the recent physical examination. The patient was otherwise healthy, having regular menstrual periods and nothing special in her medical history. The auxiliary examinations including electrocardiogram, echocardiography, and blood biochemistry analysis also revealed normal results. A laparoscopic oophorocystectomy was arranged 4 days later. The operation continued for about one hour and the volume of bleeding was only 15 ml. The pathological diagnosis showed mature cystic teratoma.

At the end of the operation, when the anesthesia attenuated, the patient suddenly suffered hypoxemia and hypotension, with the oxygen saturation dropping to 83% and the blood pressure to 66-70/45-50 mmHg. She complained of dyspnea with frothy blood-tinged sputum.

Suspected as developing acute heart failure of unknown reason, the patient was transferred to cardiac care unit for advanced treatment. The instant blood sample revealed an elevated cardiac troponin I (TNI) (1.1 ng/ml, reference range 0-0.1 ng/L), N-terminal of the prohormone brain natriuretic peptide (NT-proBNP) (21 405 pg/ml, reference range 0-450 pg/ml), and D-dimer (474 ng/ml, reference range 0-250 ng/ml). The electrocardiogram showed sinus tachycardia. Echocardiography revealed severe abnormalities of left ventricular motion, and the ejection fraction fell to 32% (Fig. 1). Ultrasound examination of the lower limbs did not show any signs of deep vein thrombosis. As the blood pressure was dangerously low, the inotropic support with dopamine was continued, and intra-aortic balloon pump was used to improve the heart function. Other drugs for heart failure such as diuretics were also applied.

The blood pressure recovered and the syndrome relieved gradually. One week later the NT-Pro BNP decreased to 2538 pg/ml, the TNI declined to normal level, and the echocardiography revealed a completely recovered left ventricular motion and systolic function (ejection fraction 57%). Ten days later, before discharge, a coronary angiography was performed, which showed no stenosis or occlusion of the coronary arteries (Fig. 2). Left ventriculography demonstrated a slightly hypokinesis in apical regions and almost fully recovery of the left ventricular function (Fig. 3). These findings were in accordance with the diagnostic criteria of TC.² A one-month follow-up revealed a normal function of the heart.

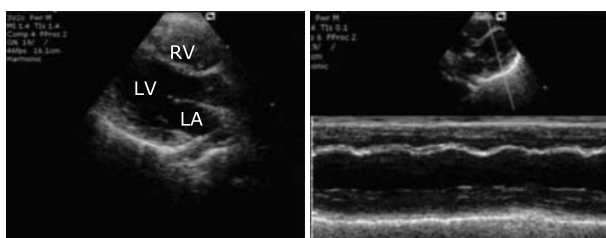


Figure 1. Abnormalities of left ventricular motion and reduced ejection fraction showed by echocardiography.

RV: right ventricle; LV: left ventricle; LA: left atrium.

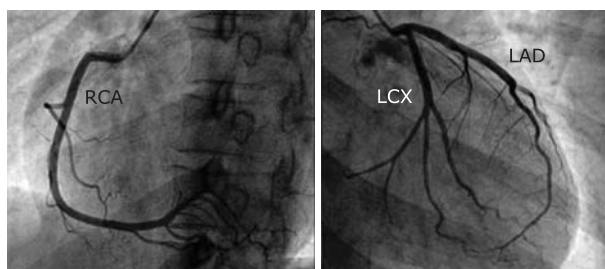


Figure 2. Coronary angiography before discharge shows no sign of stenosis or occlusion.

RCA: right coronary artery; LAD: left anterior descending artery; LCX: left circumflex artery.

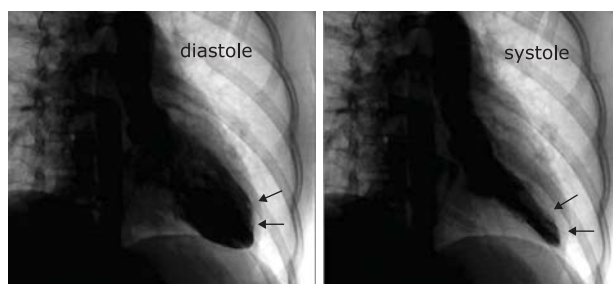


Figure 3. Left ventriculography shows slightly hypokinesis in apical regions (arrows).

DISCUSSION

TC was first reported in Japan,³ and occurred in other countries occasionally. In China, there has been a recent report about an elderly case of this disease.⁴ The case in this report was just the one we experienced recently. The distribution of TC cases implies that it may be irrelevant to certain gene or race. This condition may be caused by a variety of factors such as sepsis, emotional stress, or some special chemicals.⁵⁻⁷ However, it has never been reported as a complication of laparoscopic oophorocystectomy, especially in an otherwise healthy woman without any history of other diseases.

The pathological diagnosis of the present case was mature cystic teratoma, which is a very common benign

germ cell tumor of ovary in women of reproductive age.⁸ For this disease, laparoscopic oophorocystectomy is a very common treatment.⁹ It is unclear whether there exists a relationship between TC and this tumor or operation. While reviewing the medical record of this patient in detail, we noticed that the patient did feel nervous after admission. At the beginning of the operation, her heart rate rose to 140 beats/minute, and the blood pressure elevated to 180/80 mmHg temporarily. These may be the signs of emotional or physical stress that led to a subsequently serious heart failure.

The case we presented here is an "untypical" TC case because, not as those previously reported patients of postmenopausal age,¹⁰ our patient was a young woman with normal menstruation. Left ventriculography did not identify abnormal signs, which might be because the examination was performed 10 days later when the heart function had recovered.

Based on the experience with the present case, we recommend that all the female patients receive fully assessment before any operation, even for a young or healthy woman. Trying to be relaxed may help preventing the occurrence of TC. The prognosis of TC seems to be favorable,¹¹ but long-term follow-up is necessary to discover more information about this disease.

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