

One Successful Experience of Extracorporeal Membrane Oxygenation in pulmonary embolism following laparoscopic hysterectomy

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Introduction

Pulmonary embolism is a catastrophic event and could result in sudden circulatory collapse, respiratory distress, and lethal arrhythmias. We reported one case with pulmonary embolism and cardiogenic shock following laparoscopic hysterectomy and recovered well after extracorporeal membrane oxygenation(ECMO) support and heparinization.

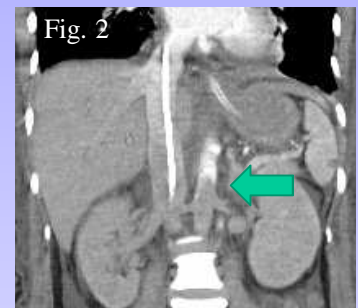
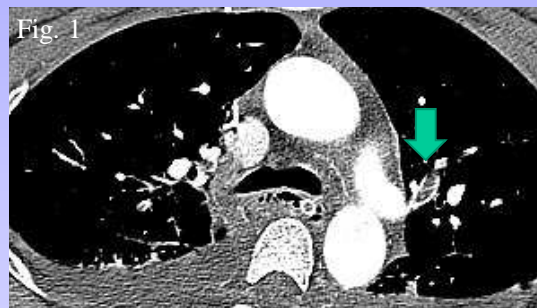
Case Report

A 43-year-old slim female without known special history was admitted because of adenomyosis and uterine myoma. She received laparoscopic hysterectomy smoothly. Operation time was less than 3 hours and estimated blood loss was 50ml. Postoperative serum hemoglobin and vital sign were normal. In the afternoon of postoperative day 1, she felt sudden onset of chest tightness, dizziness, and then fainted while walking around the ward. Her consciousness was clear. Physical examination revealed hypotension, tachycardia, tachypnea, four limbs pallor, and cold sweating. Electrocardiogram showed sinus tachycardia with ST depression and T wave inversion. She lost of consciousness later, and we started CPR for asystole. This patient showed a likely clinical probability of pulmonary embolism using revised Geneva score. Echocardiography demonstrated enlarged RV with suspect huge thrombus, indicating pulmonary embolism. Due to cardiogenic shock, ECMO was set up. Chest CT disclosed acute pulmonary thromboembolism and suspected thrombosis in bilateral renal artery, abdominal aorta, and iliac arteries.

After supportive treatment and heparinization, ECMO was removed in 5 days. 13 days later, echocardiography showed no thrombus in the heart and normal systolic and diastolic function. She recovered well without any sequelae. Chest CT in 3 months demonstrated complete resolution of pulmonary embolism.

Figures

1. Intraluminal filling defects in left truncus anterior (arrow) on chest CT.
2. Filling defects in infrarenal aorta (arrow) on abdominal CT.



Discussion

Pulmonary embolism is a rare complication after operation. The incidence of pulmonary embolism following laparoscopic surgery is 0.2%, and death resulted from pulmonary embolism is 0.02%.¹ Laparoscopy may pose higher risk to develop thromboembolic complications than laparotomy because the raised intra-abdominal pressure, longer operation time, and lithotomy position. Symptoms of pulmonary embolism include dyspnea, pleuritic pain, cough, leg swelling, leg pain, hemoptysis, palpitation, wheezing, and even circulatory collapse (shock or loss of consciousness). The signs and symptoms are sensitive but not very specific. They vary depending on severity.² The introduction of ECMO to patients with cardiogenic shock could support circulation immediately and temporarily.³

Conclusion

Pulmonary embolism is all surgeons' nightmare. Early diagnosis and prompt set up of ECMO for cardiogenic shock could save your patients' lives. Early and accurate diagnosis of pulmonary embolism depends on early recognition of omens and risk assessment.

1 D. T. Inderbitzin, I.Opitz, U. Giger, T. Kocher and L. Krähenbühl. Incidence of clinical pulmonary embolism after laparoscopic surgery. *British Journal of Surgery* 2007; **94**: 599-603

2 Stein PD, Terrin ML, Hales CA, Palevsky HI, Satzman AH, Thompson T, et al. Clinical, laboratory, roentgenographic, and electrocardiographic findings in patients with acute pulmonary embolism and no pre-existing cardiac or pulmonary disease. *Chest* 1991;100:598-603.

3 Misawa Y, Fuse K, Yamaguchi T, et al. Mechanical circulatory assist for pulmonary embolism. *Perfusion*. 2000;15:527-529.