Pulmonary Edema Associated with Peripartum Cardiomyopathy
—A case report—

Hye Won Cho, M.D., Eun Chi Bang, M.D. and Shin Ok Koh, M.D.

Department of Anesthesiology College of Medicine, Yonsei University, Seoul, Korea

Peripartum cardiomyopathy is a myocardial disease associated with pregnancy and leading to heart failure. A twenty-eight years old primipara was scheduled for a cesarean section due to a twin pregnancy. She had no previous cardiac or other systemic illness. But periodic episode of sudden hypertension, tachycardia, hypoxemia($\text{PaO}_2/\text{FiO}_2=58$) and pulmonary edema were developed in the perioperative period. After being transferred to the intensive care unit, mechanical ventilation with positive end expiratory pressure was applied for six days and pulmonary infiltration subsided. However, two days after extubation, acute pulmonary edema redeveloped in both lung fields in spite of fluid restriction. In echocardiogram demonstrated global hypokinesia of the left ventricle with an ejection fraction of 31%. Dobutamine infusion was started and one day after infusion the pulmonary edema subsided. In conclusion echocardiogram would be helpful for diagnosis of peripartum cardiomyopathy and adequate cardiac support with assisted ventilation will improve prognosis. (Korean J Anesthesiol 1996; 30: 615~619)

**Key Words:** Complication: pulmonary; edema. Monitoring: echocardiography. Pregnancy: peripartum cardiomyopathy

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Key Words:** Complication: pulmonary; edema. Monitoring: echocardiography. Pregnancy: peripartum cardiomyopathy

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Key Words:** Complication: pulmonary; edema. Monitoring: echocardiography. Pregnancy: peripartum cardiomyopathy

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)

---

**Abstract**

Pulmonary edema is a common complication of peripartum cardiomyopathy, characterized by the presence of fluid in the alveoli and interstitial spaces of the lungs. This condition can lead to respiratory distress and can be life-threatening if not managed appropriately. The incidence of pulmonary edema in cases of peripartum cardiomyopathy varies, but it is generally considered to be a severe manifestation of the disease. The mechanisms underlying the development of pulmonary edema in these patients are not fully understood, but they may include increased capillary permeability, decreased pulmonary compliance, and decreased cardiac output. Strategies for managing pulmonary edema in peripartum cardiomyopathy include diuretic therapy, mechanical ventilation, and inotropic support. Treatment should be individualized based on the patient's clinical status and the severity of the pulmonary edema. Close monitoring and frequent assessments of the patient's cardiac function are essential to ensure effective management of the condition. (Korean J Anesthesiol 1996; 30: 615~619)
소견 등 검사 소견은 모두 정상이었다(Fig. 1). 입원 당시의 수축기/완전기 혈압은 100/70 mmHg, 맥박수는 분당 72회였다.

그러나 입원 다음날 수술실에 도착했을 당시 수축기/완전기 혈압이 160/120 mmHg, 맥박수는 분당 150회 있고 맥박환율계측기로 측정한 산소포화도(SpO2)가 81%였고. 혈압 산소분율 1.0의 산소를 마스크로 투여한 결과 98%로 산소포화도의 향상을 보였으나 마취용수 기관내 삽관을 시행한 후에 O2: N2O-enfurane (혈압 산소분율 0.5)를 투여시켰을 때 산소포화도가 80%로 다시 감소하였다. 그 후 N2O를 고고 혈압 산소분율을 1.0으로 증가시켜 99~100%의 산소포화도를 유지하며 수술을 끝냈다. 수술 중 시행한 동맥혈가스 분석상 pH 7.29, 산소분압 140 mmHg, 이산화탄소 분압 28 mmHg, 염기결손 -10.8, 산소포화도 99%로 대사성 산증을 보여 중탄산나트륨 40 mEq를 투여하였다(Table 1). 총마취시간은 60분이었으며, 총혈량은 1000 ml로 마취 중 전해질용액(Ringer’s lactate solution) 1700 ml, 10% pentastarch 500 ml, 농축 적혈구 400 ml가 주입되었고 furosemide 5 mg·ec 2회 투여하였으며 소변량은 150 ml었다.

회복실에 이송후 T-piece로 투여한 혈압 산소분율 1.0의 산소를 투여한 후 시행한 동맥혈가스분석은 pH 7.37, 산소분압 58 mmHg, 이산화탄소분압 25 mmHg, 염기결손 -9, 산소포화도 91%였다. 기관내 삽관을 흡인식 분비물과 혈액이 섞인 분비물이 배출되어 furosemide 10 mg를 투여하였고 대사성 산증을 치료하기 위해 중탄산나트륨 40 mEq 투여하였다. 그 후 맥박환율계측기상 산소포화도가 60%까지 감소하

### Table 1. Vital Signs and Arterial Blood Gases

<table>
<thead>
<tr>
<th>Event</th>
<th>SBP/DBP (mmHg)</th>
<th>PR (beats/min)</th>
<th>FiO2 (%)</th>
<th>SpO2 (%)</th>
<th>Arterial blood gas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pH</td>
</tr>
<tr>
<td>Operating room</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preinduction</td>
<td>160/120</td>
<td>150</td>
<td>0.21</td>
<td>81</td>
<td>7.29</td>
</tr>
<tr>
<td>Postinduction</td>
<td></td>
<td></td>
<td>1.0</td>
<td>100</td>
<td>7.37</td>
</tr>
<tr>
<td>End of operation</td>
<td>160/120</td>
<td>145</td>
<td>0.5</td>
<td>80</td>
<td>7.21</td>
</tr>
<tr>
<td>Recovery room</td>
<td></td>
<td></td>
<td>1.0</td>
<td>99</td>
<td>7.35</td>
</tr>
<tr>
<td>T-piece</td>
<td>150/100</td>
<td>156</td>
<td>1.0</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Manual ventilation</td>
<td>120/80</td>
<td>105</td>
<td>1.0</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Controlled ventilation</td>
<td>120/60</td>
<td>100</td>
<td>0.5</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>

SBP/DBP: systolic blood pressure/diastolic blood pressure, PR: pulse rate, BE: base excess, FiO2: fraction of inspired oxygen, SpO2: oxygen saturation on pulse oximeter, PEEP: positive end expiratory pressure