Respiratory failure due to interstitial lung metastases of ovarian carcinoma reversed by chemotherapy.

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Respiratory Failure Due to Interstitial Lung Metastases of Ovarian Carcinoma Reversed by Chemotherapy*

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A woman with metastatic ovarian carcinoma developed postoperative respiratory failure due to interstitial lung metastases demonstrated by bronchoalveolar lavage. After chemotherapy, she was able to be removed from mechanical ventilation and has shown progressive resolution of her interstitial lung disease. Metastatic ovarian carcinoma can be a treatable etiology of life-threatening interstitial lung disease. ***(Chest 1991; 99:1533-34)***

Twenty five to 35 percent of patients with ovarian carcinoma present with the finding of malignant pleural effusion.[1,2] Parenchymal lung metastasis or mediastinal nodal metastases are more rare. Lymphangitic involvement of the lung was found at autopsy in 170 of the patients in one series.[2] We report a case of respiratory failure due to lymphatic proliferation of tumor in a patient with bilateral malignant pleural effusions, which was resolved by chemotherapy in the intensive care setting.

Case Report

A 45-year-old woman was admitted to our institution with a four-week history of abdominal distension. The past medical history was unremarkable. The physical examination was remarkable only for a heart rate of 120 bpm, a respiratory rate of 32 breaths per minute, a tensely ascitic abdomen, and a pelvic mass. Routine laboratory values were relatively unremarkable. Imaging studies of the chest and abdomen showed a large right-sided pleural effusion, a right middle lobe nodule, ascites, and an ovarian mass with intraperitoneal spread. Fluid obtained by thoracentesis and abdominal paracentesis contained papillary adenocarcinoma cells, consistent with an ovarian primary. The CEA, beta HCG, and alpha fetoprotein levels were normal, as was a pap test. However, the CA-125 level was 2371.3 U/ml (normal 0 to 35 U/ml).

She underwent laparotomy with total abdominal hysterectomy, bilateral salpingo-oophorectomy, and debulking of the diffuse peritoneal tumor. Postoperatively, she was unable to breathe without mechanical assistance.

A Swan-Ganz catheter was placed, which revealed an increased cardiac output with mildly elevated pressures. Respiratory system compliance was very low (4 ml/cm H_2O). Despite paracentesis, diuresis, and documented decreases in central pressures, she continued to have severely reduced compliance, requiring mechanical ventilation with 15 cm of PEEP. The patient had recurrent fever, and chemotherapy was delayed because of suspected pneumonia. Bronchoscopy revealed no obstruction of the airways, and bronchioalveolar lavage fluid contained tumor cells, as did simultaneously obtained left pleural space fluid. She underwent tracheostomy after 21 days of intubation. Chest CT after this showed

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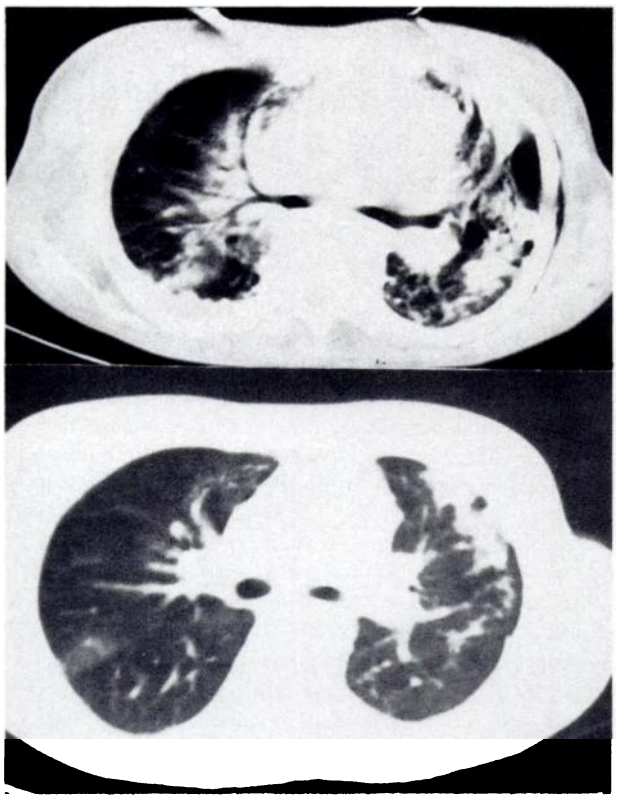

FIGURE 1. CT of the chest, (*upper*) before chemotherapy (*lower*) four months after the initiation of chemotherapy.

bilateral hilar adenopathy, diffuse bilateral interstitial infiltrates, pleural effusions, and mediastinal adenopathy (Fig 1), consistent with interstitial tumor spread in the lungs.

Chemotherapy was then instituted with cycles of cisplatin 20 mg/m² for three days, and a single dose of cyclophosphamide (600 mg/m²). After the second course of chemotherapy, there was progressive improvement of lung compliance from initial values of 4 ml/cm H_2O to final values of 15 ml/cm H_2O. The patient was removed from mechanical ventilation, and the tracheostomy was closed on the 72nd postoperative day.

Subsequent to discharge, she has received four more courses of chemotherapy, and has nearly normal arterial blood gas values. The interstitial infiltrates seen on CT scan have largely resolved (Fig 1), and her pulmonary function tests have shown progressive normalization (Table 1). In addition, transbronchial biopsy after the sixth course of chemotherapy revealed no persistent tumor.

DISCUSSION

Ovarian carcinoma metastasizes to the thorax frequently, generally late in the course of the diseases. In one study, 44 percent of patients with ovarian carcinoma had some form of intrathoracic involvement,[1] of whom 75 percent had pleural effusions. In another study, malignant pleural effusions occurred in 24.7 percent of patients with epithelial ovarian carcinoma.[2] Conversely, 20 percent of women with malignant pleural effusions were found to have the primary tumor in the female genital tract, usually ovary.[3] Other forms of intrathoracic involvement of ovarian carcinoma include nodular parenchymal metastases (28 percent), lymph node involvement (11 percent), solid pleural lesions (7.5 percent), rib involvement (4 percent), pericardial involvement (1.3 percent), and parenchymal lymphangitic spread (6 percent).[1] Despite the frequency of pulmonary involvement in ovarian carcinoma, respiratory complaints of any sort are rare, being the presenting complaint in only 1.4 percent of the patients in one major series.[1] No case of respiratory failure secondary to metastatic ovarian carcinoma has been described previously.

Table 1—*Vital Capacity FEV_1, TLC and Dco at two, four, and six months After Initiation of Chemotherapy*

	Two Months	Four Months	Six Months
VC, L (% pred)	.93 (29)	1.7 (51)	2 (61)
FEV_1, L (% pred)	.92 (34)	1.6 (59)	1.9 (73)
TLC, L (% pred)	1.7 (35)	2.99 (60)	3.2 (63)
Dco, ml/min/mm Hg (% pred)		14 (69)	18 (89)

In the case presented, metastatic ovarian carcinoma cells were documented in the pleural fluid and in the lung parenchyma, and chest CT demonstrated mediastinal node enlargement. The patient received appropriate antibiotic and fluid therapy, but she continued to have poor respiratory system function until five days after the second course of chemotherapy, after which she began her progressive improvement.

Lymphangitic spread of ovarian carcinoma into the pulmonary parenchyma thus represents a cause of respiratory failure in patients with metastatic ovarian carcinoma which can be diagnosed by fiberoptic bronchoscopy with BAL and can be reversed by appropriate chemotherapy.

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Successful Balloon Aortic Valvuloplasty in a Patient with Mitral Valve Endocarditis*

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A critically-ill 73-year-old man was admitted with simultaneous mitral valve endocarditis and aortic stenosis. Balloon aortic valvuloplasty was performed successfully and without complications and was followed by prompt clinical improvement. Balloon aortic valvuloplasty should be considered in patients with aortic stenosis and nonaortic valve endocarditis. ***(Chest 1991; 99:1534-35)***

Diagnostic cardiac catheterization in patients with bacterial endocarditis carries the risk of systemic embolization of vegetations.[1] The material and manipulations

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