An Unusual Case of Dyspnea in Metastatic Breast Carcinoma

To the Editor:

Dyspnea is the term generally applied to the unpleasant or uncomfortable sensation often described by patients as “breathlessness.” The American Thoracic Society defines dyspnea as “a subjective experience of breathing discomfort that consists of qualitatively distinct sensations that vary in intensity. The experience is derived from interaction among physiological, psychological, social, and environmental factors and may induce secondary physiological and behavioral responses.”\(^1\) The reported frequency in cancer patients varies from 21% to 90% depending on the stage of the cancer.\(^2,3\)

Although this case illustrates a rarer cause of dyspnea, it emphasizes the importance of identifying possible reversible causes before treatment is implemented.

Case Report

A 53-year-old woman attended the palliative medicine outpatient clinic complaining of increasing dyspnea. She was diagnosed 10 years previously with left-sided breast cancer. She underwent wide local excision and was treated with cyclophosphamide, methotrexate, and fluorouracil-based systemic chemotherapy, which was followed by hormonal therapy. The patient was well for several years but eventually developed local recurrence. Further surgery revealed that the tumor had progressed from Grade I to Grade II, with evidence of metastatic involvement of her lymph nodes only. She was treated for six months with adriamycin and cyclophosphamide, followed by paclitaxel chemotherapy and local-field radiotherapy.

Soon after completion of this chemotherapy, she developed bone metastases. Despite additional chemotherapeutic regimens, a range of hormonal manipulations, and radiotherapy, the bony metastases progressed. The patient had most recently completed radiotherapy to the base of the skull for a bony deposit that was causing numbness in her right lower jaw. Her dyspnea had been progressively worsening over a six-week period.

Normally, she enjoyed walking her dog but found this increasingly difficult to do. She reported being dyspneic while performing normal daily activities like getting dressed. She graded her dyspnea as 9 of 10 on a visual analogue scale, where 0 was “no breathlessness” and 10 was “worst possible breathlessness.” She did not report any productive cough, pleuritic pain, chest pain, palpitations, orthopnea, or paroxysmal nocturnal dyspnea. The patient had a history of a pulmonary embolus and was receiving therapeutic low-molecular weight heparin. A computed tomography (CT) pulmonary angiogram completed a month previous to her visit showed no evidence of pulmonary emboli.

Physical examination revealed a blood pressure of 109/72, a respiratory rate of 24 breaths per minute, and the oxygen saturation was 96% on room air. The rest of the examination was essentially normal. Full blood count, iron studies, thyroid function tests, and electrolytes were normal. Liver function test showed an elevated alkaline phosphatase of 419 IU/L (normal range 35–120 IU/L) and gamma-glutamyl transpeptidase of 218 IU/L (normal range 5–85 IU/L). The patient declined an arterial blood gas. A chest radiograph did not reveal any evidence of pulmonary edema, pleural effusion, or consolidation. Previously, her oncologist started her on dexamethasone 8 mg once a day for appetite and energy stimulation.
This was decreased to dexamethasone 6 mg once a day because of anxiety associated with the higher dose. Her dyspnea worsened with the reduction. Lymphangitic carcinomatosis was considered as a cause of her dyspnea. A high-resolution CT scan of the thorax was performed. Her dexamethasone was kept at 6 mg once a day, and her long-acting morphine sulfate dose was increased to 15 mg twice a day to symptomatically help her dyspnea. She was advised to take immediate-release morphine sulfate, as needed, for acute episodes of dyspnea.

The patient’s dyspnea did not improve. The high-resolution CT of the thorax did not show lymphangitis or active infection. It was felt she needed further dedicated respiratory investigations to examine her dyspnea. The patient was referred back to her oncologist. A repeat CT pulmonary angiogram was completed. This revealed that the caliber of the right pulmonary artery was slightly smaller in diameter compared with the left side. Soft tissue, consistent with small lymph nodes, was identified adjacent to the right pulmonary artery (Fig. 1). It was suspected that extrinsic compression by these lymph nodes on the pulmonary artery caused an increase in pulmonary pressure, resulting in the development of pulmonary hypertension and dyspnea. She was referred for palliative radiotherapy and received 30 Gy/10 fractions to this area.

This patient was evaluated in the palliative outpatient clinic three weeks after her radiotherapy. She reported an improvement in her dyspnea. Her exercise tolerance had improved, and she graded her dyspnea as 5 of 10 on a visual analog scale. The patient felt the radiotherapy improved her quality of life. She died 10 months after the completion of radiotherapy.

Comment

This case illustrates an uncommon cause of dyspnea in advanced cancer and the efficacious use of limited palliative radiation therapy. Pulmonary hypertension is increased pressure within the pulmonary circulation. The main associated symptoms with pulmonary hypertension are fatigue, exertional dyspnea, and occasional chest discomfort. This patient’s main complaint was progressive dyspnea on exertion. Further investigation revealed that compression of the pulmonary artery by metastatic lymph nodes was causing worsening dyspnea.

An underlying cause for a patient’s dyspnea should be assessed even in a case of advanced cancer. A history and physical examination are essential starting points. Then simple tests such as complete blood count, chest radiograph, and pulse oximetry should be done. When the benefits of further investigation are appropriate, additional studies such as arterial blood gases, pulmonary function test, echocardiography, and CT may be done.

Causes for dyspnea in advanced cancer may be multifactorial. Dudgeon and Lertzman did a prospective analysis of 100 patients with dyspnea and advanced cancer in an attempt to elucidate the causes. They found that 49% had lung cancer; 65% had lung or pleural involvement; 29% had evidence of cardiac ischemia, congestive heart failure, or atrial fibrillation; and 20% were anemic, with a hemoglobin concentration less than 10 g/dL. The authors showed that the average number of potential causes per patient was five.

When an apparent cause of dyspnea cannot be found, clinical signs of right heart disease or enlarged pulmonary hilar vessels and cardiomegaly on chest x-ray may suggest pulmonary

Fig. 1. CT pulmonary angiogram. The arrow indicates right perihilar tissue consistent with small lymph nodes compressing the right pulmonary artery causing the patient’s dyspnea. This area received palliative radiation therapy.
hypertension. Doppler echocardiography confirms this diagnosis. Serial echocardiographic examinations show signs of progressive right ventricular hypertrophy. Common causes are cor pulmonale secondary to chronic obstructive pulmonary disease and pulmonary emboli. Rarer causes are lymphangitic carcinomatosis, pulmonary tumor emboli, and extrinsic pulmonary artery compression. In more than 200 unselected autopsies of cancer patients, arterial tumor embolism was found in 8.5% and lymphangitic carcinomatosis in 20%.5

In this case, the patient did not have any clinically documented lung metastases or pleural disease. Initially, it was thought that she might have lymphangitic carcinomatosis. However, lymphangitic carcinomatosis was not confirmed by high-resolution CT. A few studies report extrinsic compression of the pulmonary artery by cancer causing dyspnea.6,7 The patient’s CT pulmonary angiogram showed extrinsic compression of the right pulmonary artery by malignant lymph nodes obstructing and impeding blood flow from the pulmonary artery, thus causing increasing dyspnea. When the abnormal area was irradiated, the patient’s dyspnea improved dramatically.

In summary, dyspnea is a common symptom in advanced carcinoma. It may have multiple causes. As a new symptom in a palliative care patient, investigating potential causes where appropriate is important in view of reversing a potentially correctable condition and offering appropriate palliation. In this case, the patient’s dyspnea improved, and she lived for a further 10 months.

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References

Is the Patient’s Voice Under-Heardin Family Conferences in Palliative Care? A Question From Sydney, Australia

To the Editor:

Effective, humane, and trustworthy communication among patient, family, and professional carers is an essential element of good palliative care. Family conferences are thought to facilitate such communication. To ensure that our clinical interventions are based on clinical evidence, the literature on family conferences in the palliative care setting was reviewed.1–3 It was noted that although published guidelines have been proposed4 for palliative care family conferences, the guidelines’ authors admit that that “no comprehensive exploration of the conduct and utility of family meetings in the specialist palliative care setting has occurred.” A chart review of current practice in an inpatient palliative care setting was undertaken to assist in the further development of ethically robust clinical guidelines informed by “the best possible evidence of the link between the intervention and the clinical outcomes of interest.”5 This letter provides a summary of our methods and modest findings and aims to assist those considering the development of such guidelines.