Unusual presentation of a recurrent squamous cell lung cancer

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Learning Point for Clinicians

Invasion into the lumen of the main pulmonary artery is an uncommon mode of extension in lung carcinoma. Also, it is often misdiagnosed as a more common disease such as pulmonary thromboembolism. It is important to rule out cancer-invading pulmonary artery in patient with a history of lung cancer and suspected pulmonary embolism.

Case report

A 77-year-old man with a history of squamous cell lung cancer treated with curative surgical resection was referred to our emergency department with suspected pulmonary embolism. The patient had been free from any recurrent signs for 5 years, but he reported that he had an acute dyspnea and multiple episodes of syncope for the last 1 week. On arrival to the emergency services, his blood pressure was 100/50 mm Hg and heart rate was 110 beats/min. Findings on physical examination including cardiac auscultation was unremarkable but the patient was hypoxemic on room air (SpO₂ = 88%). A-12 lead electrocardiogram revealed non-specific ST changes and sinus tachycardia. Laboratory test yielded no significant changes except for increased levels of B-type natriuretic peptide. In the emergency department, bedside echocardiographic evaluation was performed. An echocardiographic examination showed estimated pulmonary artery systolic pressure of 70 mm Hg, extrinsic compression of right ventricular outflow tract by tumor and mobile polypoid mass in the proximal main pulmonary artery (Figure 1a). A computerized tomography scan demonstrated endobronchial lesion in the left upper lobe invading the pulmonary artery (Figure 1b). Brain magnetic resonance imaging and a bone scan were negative for any metastasis. Subsequently, transbronchial biopsy was performed for diagnosis. Histological examination of the biopsy specimen showed squamous cell carcinoma. Surgical treatment was recommended but the patient refused it. He received systemic chemotherapy, but the patient died 4 months later from pneumonia.

Discussion

Although microscopic vascular invasion by lung carcinoma is frequently observed, polypoid growth into the lumen of the main pulmonary vessels is quite rare.¹ There are few reports describing primary lung cancers invading pulmonary arteries with polypoid growth into the lumen.² This kind of
growth can cause a decrease in pulmonary blood flow and may result in syncope.

Manifestations of primary lung cancer with growth in the pulmonary artery are different. Two cases had dry cough, one case had dyspnea, one case had left shoulder pain, another case has fever and cough and a case we reported had syncope and dyspnea. Patients with a history of lung cancer, when presenting with similar complaints, pulmonary artery invasion should be considered in the differential diagnosis.

Regardless of cancer type with growth in the pulmonary artery, presentation and findings on CT often mimics pulmonary thromboembolism. Therefore, biopsy via endobronchial or surgical intervention is often required for proper diagnosis. As in our case, in the emergency service, bedside echocardiography can provide valuable information in the diagnosis stage.

The rarity of this tumor growth pattern makes it difficult to define its prognostic impact and appropriate treatment. Nevertheless, even when macroscopic cancer invasion to the main pulmonary artery seems likely, complete surgical resection may offer the only chance for survival.

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References