Case Report

Left intra-ventricular Metastasis from Squamous Cell Carcinoma of the Bronchus-Case Report

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Abstract

Lung cancer is one of the common causes for cardiac metastasis, followed by mesothelioma, melanoma, renal cell carcinoma and colorectal cancers. High index of suspicion and sound clinical Echocardiography skills is the key in detection of these metastases. Echocardiography and MRI are helpful in detection of neoplastic cardiac disease in addition to CT scan. Early detection may result in successful outcome.

INTRODUCTION

Lung cancer has a propensity to rapidly involve neighbouring structures thus greatly reduces the chance of a curative treatment. The heart is the nearest organ to the lungs yet its involvement is the least understood. I report a case of left intra-ventricular cardiac metastases from a squamous cell carcinoma of the left bronchus. The metastases presented post-operatively with left ventricular outflow tract obstruction.

Cardiac metastases are the commonest neoplastic disease of the heart. More than a fifth of the cardiac metastases found on autopsies are from lung cancers [1]. The other neoplastic diseases commonly give rise to cardiac metastases are mesothelioma, melanoma, renal and colorectal neoplasm [2].

A high index of suspicion and sound clinical skills are the key to detection of metastases in the heart.

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New manifestations of cardiac diseases such as heart murmur or rapid deterioration in heart failure in patients with neoplastic diseases are clues to possible cardiac involvement. Early detection may result in successful outcomes [2,4]. Echocardiography is a relatively less invasive investigation to detect. Magnetic resonance imaging (MRI) is an ideal modality for examination of soft tissues and has a supportive role in the investigation of neoplastic cardiac disease [2].

Squamous cell carcinoma (SCC) comprises of 30% of lung cancers [3]. It is commonly located in large bronchi and can be visualized on bronchoscopy. It is multifocal with tobacco induced pre-malignant changes on the bronchial mucosa. Localized SCC is amenable to surgical treatment.

A 60 year-old man presented to the Accident and Emergency department with an acute episode of left sided pleuritic chest pain and a cough. He

was found to have a left upper lobe mass on chest x-ray and referred to the local respiratory physicians for further investigations. He had been a life long heavy smoker but there was no history of asbestos exposure.

A flexible bronchoscopy revealed a tumor in the left upper lobe. The diagnosis of squamous cell carcinoma was confirmed on the biopsy report. A staging CT scan of chest and upper abdomen showed the tumor in the left upper lobe with some mediastinal lymphadenopathy especially in the pre-aortic fat. He was referred to the thoracic surgeons for further management. His repeat bronchoscopy showed totally occluded lingular bronchus of left upper lobe but at mediastinoscopy no lymph nodes were found to biopsy. His postoperative recovery was uneventful.

At the left thoracotomy, a massive and centrally placed tumour was found to adhere to the anterior chest wall and the pericardium, invading the lower lobe through the fissure, and a massive hilar lymphadenopathy was also found. A left pneumonectomy, partial pleurectomy and excision of all hilar and mediastinal lymph nodes was performed. The operation went on smoothly.

His initial postoperative recovery was uneventful but on first postoperative day, he became tachycardic, hypotensive and dyspnoeic at rest. He also developed oliguria. He did not respond to aggressive volume resuscitation with blood and colloid. He was transferred to the ICU where, he required a cardiorespiratory support and continuous veno-venous haemofiltration to correct the worsening acidosis. An Echo was performed which showed a dilated right ventricle with paradoxical septal movement, but no pericardial effusion.

On the second day in the cardiothoracic ICU he had an episode of massive haematemesis followed by cardiac arrest. Resuscitation started immediatedly with CPR, and epinephrine and atropine were also given. He was intubated and ventilated. In total he had six cardiac arrests and each time CPR was resumed.

Concurrent OGD revealed oesophagitis without active bleeding. Coffee ground aspirate in the right bronchial tree seen on bronchoscopy was suctioned followed by bronchial wash out. Transoesophageal Echo revealed a pedunculated lesion just under the aortic valve causing intermittent left ventricular outflow tract obstruction. Left ventricular function was satisfactory but the right ventricular function was poor.

He returned to the theatre for a resection of the 4 cm wide metastatic tumour situated at the muscular septum and one coronary artery bypass graft to the right coronary artery. In spite of all the efforts it was not possible to take the patient off the cardio-pulmonary by-pass. He was pronounced dead on the operating table. Histology of the intra-ventricular tumour confirmed a metastatic moderate to poorly differentiated squamous cell carcinoma. Post-mortem examination did not reveal further neoplastic disease in the myocardium or other organs.

COMMENTS

Left ventricular outflow tract (LVOT) obstruction is more commonly due to fixed lesions as in aortic stenosis, subaortic membrane and hypertrophic obstructive cardiomyopathy. In our case the paroxysmal LVOT obstruction was caused by a mobile metastatic tumour on a stalk. Pre-operatively the patient was asymptomatic. Somehow changes in the blood flow following left pneumonectomy brought about the protrusion of the left ventricular tumor onto the left ventricular outflow tract and resulted in the repeated obstructions.

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