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We describe a rare case of a pleomorphic carcinoma forming polypoid growth in the pulmonary vein. A 69-year-old man was admitted with an abnormal shadow in his right lung. Thoracic computed tomography scans showed a polypoid lesion extending into the right lower pulmonary vein. We performed a right lower lobectomy without any evidence of tumor embolism perioperatively. Pathological examination revealed that the lesion was a pleomorphic carcinoma of the lung and that the polypoid lesion in the pulmonary vein was composed solely of spindle cell components. Early ligation of affected vessel is important to avoid tumor embolism through the pulmonary veins.

Keywords: pleomorphic carcinoma, spindle cell component, pulmonary vein, invasion

Introduction

Pleomorphic carcinoma is a subtype of sarcomatoid carcinomas, which are defined as poorly differentiated non-small cell carcinomas that contain components of sarcoma or sarcoma-like differentiation, including spindle cells or giant cells. Pleomorphic carcinomas can invade the adjacent tissues. We report a rare case of pleomorphic carcinoma with polypoid tumor growth in the pulmonary vein.

Case Report

A 69-year-old man was admitted to our hospital to investigate an abnormal shadow in his right lung found in a medical checkup (Fig. 1). He showed no symptoms and his medical history was unremarkable. Thoracic computed tomography scans showed a 3.5-cm-diameter mass in the right lower lobe of the lung, which appeared to grow into the lower pulmonary vein (Fig. 2). Radiological evaluation revealed no distant metastases. A bronchoscopic biopsy was non-diagnostic. We planned surgical resection with the preoperative diagnosis of primary lung cancer. Lateral thoracotomy revealed that the tumor extended into the lower pulmonary vein. At first, with an auto-suture device, we ligated the lower pulmonary vein at an extra pericardial point. We completed a right lower lobectomy with hilar-mediastinal lymph node dissection and confirmed that the resected vein stump was microscopically free of tumor. The resected tumor extended into the lower pulmonary vein, showing polypoid growth (Fig. 3). Histologically, the dominant component of the tumor was spindle cell and the tumor also had small foci of poorly differentiated squamous cell carcinoma and adenocarcinoma. These findings were consistent with the pleomorphic carcinoma of the lung. The polypoid lesion in the pulmonary vein was composed solely of spindle cell components (Fig. 4). The pathological staging was T2aN0M0. The postoperative...
Our case was unique in that the polypoid lesion in the pulmonary vein was composed solely of spindle cell components. The tumor recurrences in sarcomatoid carcinomas are mostly distant hematogeneous rather than local lymph node metastasis. However,
it has not been well known which component of sarcomatoid carcinoma really has a metastatic potential via pulmonary vessels.3) Our case showed that spindle cell components of a pleomorphic carcinoma could aggressively grow into the pulmonary vein, indicating metastatic potential through systemic circulation.

Tumors invading the pulmonary veins have potential risks of systemic tumor emboli. Several cases have been reported on spontaneous systemic tumor embolization caused by tumor invasion to the pulmonary veins.8,9) Tumor emboli are very fragile and an even gentle manipulation can lead to emboli release or infarction.10) Preoperative computed tomography or ultrasonography are useful for precise evaluation of tumor growth and potential risks of tumor embolism.8,9) The best way to prevent tumor embolism is surgical resection with early clamping or ligation of the invaded vessels with minimal dissection when the tumor extends into the atrium.6,12)

Although the efficacy of the chemotherapy has not been established for pulmonary pleomorphic carcinomas, some reports have recommended considering an induction or adjuvant chemotherapy as a systemic treatment option because of the aggressive behavior of the tumor.3,5) Further cumulative data are warranted for determining the optimal treatment strategy.

In conclusion, we reported a rare case of pleomorphic carcinoma showing polypoid growth in the pulmonary vein. The polypoid lesion was composed solely of spindle cell components. Early ligation of affected vessel is important to avoid tumor embolism during operation.

Disclosure Statement

The authors have no potential conflicts of interest with any companies or organizations whose products or services might have been discussed in this article.

References