Preoperative Radiation Therapy and Chemotherapy for Pulmonary Blastoma
A Case Report

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CASE PRESENTATION

A 24-year-old man presented with hemoptysis. Chest radiographs revealed a right upper lobe mass. Positron emission tomography-computed tomography confirmed a 7.4-cm hypermetabolic right upper lobe mass. The patient underwent right upper lobectomy, which demonstrated a 7.7-cm pulmonary blastoma. Surgical margins and 3 N1 lymph nodes were negative. Adjuvant chemotherapy was recommended but was declined by the patient. Five years later, he again presented with significant hemoptysis. Chest computed tomography scan demonstrated an 8.9-cm right lung mass, which abutted the mediastinum (Figure 1). Positron emission tomography-computed tomography confirmed localized disease. The tumor was deemed unresectable. Biopsy to confirm disease recurrence was not performed because he was having significant hemoptysis, and the clinical picture was consistent with recurrent pulmonary blastoma. The original treatment plan was for definitive radiation therapy to a dose of 60 Gy with concurrent cisplatin and etoposide. However, his tumor regressed substantially after 2 weeks of therapy. Therefore, a preoperative course of radiation therapy and chemotherapy was pursued. The tumor was treated to a total dose of 50 Gy in 2 Gy daily fractions. He received two cycles of cisplatin (50 mg/m² on days 1 and 8) and etoposide (50 mg/m² on days 1–5) during weeks 1 and 5 of radiotherapy.

The patient tolerated treatment exceptionally well, developing grade 2 acute esophagitis, which was managed with viscous lidocaine. Three weeks after completing preoperative therapy, a chest computed tomography was repeated showing dramatic regression of disease (Figure 2). The patient subsequently underwent surgical resection, which required a completion right pneumonectomy. Pathology revealed a 6.3-cm pulmonary blastoma with significant scarring and pleural fibrosis. His original pathology was reviewed and found to be identical. Surgical margins were negative, and there was no evidence of regional lymph node involvement. Two additional cycles of chemotherapy were recommended, which he is currently receiving.

DISCUSSION

Pulmonary blastoma is an uncommon malignancy occurring principally in adults. In the World Health Organization classification, pulmonary blastoma is included under the category of carcinomas with pleomorphic, sarcomatoid, or sarcomatous elements.1 The World Health Organization differentiates pulmonary blastoma from pleuropulmonary blastoma, which are soft tissue tumors arising from the lung parenchyma and pleura in children. Pleuropulmonary blastoma can be distinguished both histologically and clinically from pulmonary blastoma.1,2

There is no clear consensus as to what combination of therapy is optimal for pulmonary blastoma. Nevertheless, most agree that surgical resection should be performed if possible.3 The role of adjuvant radiation therapy and chemotherapy is not clear, but given the propensity for recurrence are often administered. For patients with unresectable disease, there is limited data on the effectiveness of definitive radiation therapy, with or without chemotherapy. Isolated case reports suggest that pulmonary blastomas do respond to radiation therapy.4,5

To our knowledge, this is the first report of preoperative radiation therapy and chemotherapy followed by gross total resection for pulmonary blastoma. Our patient was deemed unresectable at presentation due to the original extent of disease with possible invasion of the mediastinum. Nevertheless, shortly after initiating combined modality therapy, the tumor decreased substantially in size.
and became resectable. For patients with pulmonary blastoma who initially present with unresectable disease, this approach should be considered.

REFERENCES