Commentary: Sarcomas and sarcomatoid tumors of the lung…not your average lung cancers

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In their manuscript, Robinson and colleagues1 put forth a 20-year retrospective case series of 100 consecutive patients with primary pulmonary sarcomas (N = 45) and carcinosarcomas (N = 55), both of which represent rare tumors of the lung with an incidence less than 1%. By reputation, these tumors are known to be locally aggressive, often requiring more extensive lung resections, with poor responses to systemic therapy. Given their rarity and the resultant paucity of data, the question remains whether these should be approached any differently from the average non–small cell lung cancer, ie, lung adenocarcinoma. The short answer, based on this study and others, is probably not, but the clinicopathologic behavior of these tumors is clearly different, with a worse prognosis stage-for-stage, and thus a few important points deserve mention.

The first point is that this study affirms that surgery should likely remain the mainstay of treatment for these tumors if technically resectable. For pulmonary carcinosarcomas, surgery leads to a 5-year survival of approximately 30%, which is supported by a larger Surveillance, Epidemiology, and End Results (SEER) database study.2

The SEER database study also suggests a far-worse prognosis in surgically unresectable disease, whereas Robinson and colleagues demonstrate a similar 5-year survival in nonsurgical patients treated with chemotherapy, radiotherapy, and/or immunotherapy. Surgical resection confers a comparable 5-year survival of nearly 30% for primary pulmonary sarcomas as well in comparison with 8% in unresectable disease, according to this study and another previous SEER database study.3 It is worth noting that most patients presented with tumors >5 cm in size and almost one half of surgical patients required either a pneumonectomy or chest wall resection. Still yet, roughly 20% had an R1 resection and required adjuvant therapy. With respect to these characteristics, pulmonary carcinosarcomas may have more in common with primary pulmonary sarcomas rather than non–small cell lung cancers, although they are histopathologically classified as such.4

The second point is that invasive mediastinal staging should be carefully considered in all patients with pulmonary carcinosarcoma, regardless of stage potentially, whereas only in select patients with primary pulmonary sarcoma with suspicious findings on imaging. Although the sample size is limited, 44% of pulmonary carcinosarcomas had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease. A clear relationship between tumor size and nodal involvement was not apparent here, thereby suggesting that perhaps all of these patients should undergo invasive mediastinal staging upfront. By contrast, only 18% of patients with primary pulmonary sarcoma had nodal involvement, including 36% with N2 disease.

The last point is that multimodality therapy may play a more prominent role in treating these tumors than...
previously acknowledged. For primary pulmonary sarcoma, 7 of 8 patients who were treated with induction chemotherapy had at least a partial response to chemotherapy, including one complete response, surprisingly. Very few patients with pulmonary carcinosarcoma were treated with induction therapy in this cohort, but patients with more advanced disease were treated with chemotherapy, radiotherapy, and/or immunotherapy if positive for PDL-1 expression, with remarkably similar survival as surgical patients as noted previously. This finding does not undermine the role of surgery but rather enhances the argument for multimodality treatment in my view. Given these results and a high rate of R1 resection, induction therapy should be considered more often.

In conclusion, the 3 main take-home messages of this study are that (1) surgery is the mainstay of treatment, (2) invasive mediastinal staging should be strongly considered in pulmonary carcinosarcomas, and (3) multimodality therapy including possibly immunotherapy may have an enhanced role in both histologies. The level of evidence is low, but any prospective study examining these rare tumors will be challenging.

References


Commentary: Primary pulmonary sarcomas and pulmonary carcinosarcomas, challenging and enigmatic, but treatable!

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Primary pulmonary sarcomas (PPS) and pulmonary carcinosarcomas (PCS) are rare, sarcomatous subtypes of lung cancer. They display more aggressive features than the more common non–small cell lung cancers (NSCLC). According to the World Health Organization classification of tumors, sarcomatoid carcinomas account for 0.1% to 0.4% of all lung cancers. Furthermore, only 4% of this subgroup are PCS.1 Similarly, PPS accounts for <0.5% of all lung cancers.2 Clinical and imaging features of PPS and PCS are similar to other subtypes of NSCLC. However, they often present with locoregional invasion and distant metastases. Due to their more aggressive behavior, both PPS and PCS have a relatively poor prognosis compared with more common non–small cell lung cancers. Multimodality treatment is indicated to improve prognosis.