Pleurodesis as a treatment option for unresectable malignant mesothelioma

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Methods Used: Review of Electronic Health Records and Literature Review
Summary of Results: An 82-year-old male presented with shortness of breath and chest pain. A CT CAP revealed left-sided large pleural effusion, suprahilar pleural mass, and 2 cm upper lobe lesion suggestive of loculated pleural fluid. US-guided thoracentesis removed 1.5 L of amber fluid consistent with exudate. No malignant cells noted. Dyspnea and pain improved. Pleural fluid reaccumulated 2 weeks later and he was admitted for bronchoscopy and thoracoscopy with talc pleurodesis and biopsy. 4250 mL of fluid were removed, and the patient was found to have diffuse carcinomatosis of the parietal pleura. Pathology findings consistent with malignant pleural mesothelioma. Circulating tumor DNA on liquid biopsy detected a VUS mutation in mTOR, TMB was not evaluable and high MSI was not detected. As patient was asymptomatic after the pleurodesis, it was decided to monitor the patient and not initiate systemic therapy until clinical or radiologic progression. 5 months later, CT showed an increase in size of the left pleural masses but no distant metastases and systemic treatment with ipilimumab and nivolumab was initiated. Patient was admitted for DKA one week later and incapacitating joint pain and stiffness shortly after that. At this time, immunotherapy was discontinued. Patient remained asymptomatic and continued to be monitored. 6 months later, patient developed worsening shortness of breath and CT showed progression. He was placed on nivolumab monotherapy, which he tolerated well, but experienced rapid clinical and radiologic progression. Patient expired 17 months after diagnosis.

As mesothelioma is often diagnosed in advanced disease, surgical resection is usually not feasible. Thus, nonsurgical approaches and systemic therapy are the treatment options to provide palliation and potentially improve survival rates. The most effective systemic therapy is a combination of nivolumab and ipilimumab which is associated with a median survival of 18 months. 30% of patients suffer grade 3/4 toxicities and 20% discontinue due to drug related side effects. Nonsurgical options include pleurodesis, tunneled catheters, and VATS pleurectomy. Pleurodesis is an appropriate treatment option in patients with rapidly recurrent malignant effusions who have fully expandable lungs and reasonable survival.

Conclusions: This case highlights the use of pleurodesis as initial therapy in patients with advanced mesothelioma. As shown in this case, systemic therapy can be associated with significant toxicity which can be spared or delayed by pleurodesis. NCCN guidelines describe observation as a treatment option for patients who are asymptomatic and systemic therapy at the time of progression. The survival of our patient treated primarily with a pleurodesis was comparable to the survival with systemic therapy.