Diagnosis and management of pleural mesothelioma in the era of immunotherapy

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BACKGROUND
AB is a 73-year-old male who presented with a cough and was found to have a left sided pleural effusion on chest x-ray.

Physical exam findings include decreased breath sounds and dullness to percussion at right base.

Thoracentesis was performed and yielded 1000mL of pleural fluid. Cytology was sent but did not reveal malignant cells.

CT chest showed a right-sided loculated pleural effusion, but no clear pleural thickening.

LEARNING GOALS
Goal 1: Recognize that tissue biopsy is needed in order to determine histologic subtype of pleural mesothelioma.

Goal 2: Choose systemic therapy based on histologic subtype of pleural mesothelioma.

Goal 3: Implement and escalate immunosuppression to manage immune-related side effects of immunotherapy.

Goal 4: Recognize when immunotherapy should be permanently discontinued in favor of surveillance.
THE AMAZING CASE RACE
CASE STUDY 03

CURRENT PRESCRIPTIONS
- Amlodipine 5mg daily
- Aspirin 81mg daily
- Omeprazole 20mg daily

COMORBIDITIES/MED HX
- Acid reflux
- Benign prostatic hyperplasia
- Hypertension
- Ascending aortic aneurysm

No family history of melanoma, mesothelioma, or cholangiocarcinoma.

OVERALL DIAGNOSIS
Right pleural mass; invasive sarcomatoid mesothelioma. Surgical pathology confirms the tumor is strongly positive for WT-1; and negative for calretinin, CK 5&6, D2-40, CEA, B72.3, Ber-EP4 and TTF-1.

TESTING
The patient has a pleur-x-catheter placed and PET CT is obtained, which shows two areas of FDG-avidity along the right pleura, but no evidence of distant disease.

Cytology from a repeat thoracentesis revealed reactive mesothelial cells indicating a concern for pleural mesothelioma.

Figure 1: Initial CT Chest
Figure 2: PET CT
Video-assisted thoracoscopic surgical biopsy is performed and reveals sarcomatoid mesothelioma of the pleura.

Possible exposure to asbestos while working as a mechanic on brakes.
Never smoker.

Visit 2:

Discuss that surgery is not recommended in patients with sarcomatoid pleural mesotheliomas.

Recommend combination ipilimumab and nivolumab based on Checkmate 743 study showing that this was superior treatment compared to chemotherapy alone in the first-line setting for patients with non-epithelioid pleural mesotheliomas.

Order baseline labs recommended by NCCN prior to initiation of immunotherapy.

The patient returns to discuss a treatment plan for his sarcomatoid pleural mesothelioma. He is draining the pleur-x catheter twice weekly (500cc each time) and his cough and breathing are stable. He remains active and ECOG performance status is 0. His baseline laboratory results show that he is a candidate for chemotherapy or immunotherapy.

Physical Exam Findings:
Right pleur-x catheter in place. Decreased breath sounds at right base, but improved.

Labs/Imaging:
Order baseline labs prior to immunotherapy initiation: CBC, CMP, TSH with FT4, Hepatitis A/B/C serologies, HIV testing.

Referrals:

Diagnosis:

Orders:
Start ipilimumab 1mg/kg every 6 weeks and nivolumab 360mg every 3 weeks
Follow-up Timing: 3 weeks for next dose

VOTE FOR CASE 03