Malignant Tension Hydrothorax secondary to Metastatic Diffuse Large B Cell Lymphoma

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Malignant pleural effusion accounts for 15-25% of all pleural effusions, mostly secondary to lung, breast, ovarian cancer, and lymphoma. Some of these malignant effusions can continue to accumulate, leading to tension hydrothorax. Tension hydrothorax is defined as massive pleural effusion that increases intrathoracic pressure to the point causing mediastinal compression/shift compromising cardiac diastolic filling and output, which may progress to cardiac arrest if left untreated. Herein, we present a rare case of tension hydrothorax in the setting of metastatic lymphoma.

A 54-year-old male patient with a known past medical history of hypertension and stage IV diffuse large B-cell lymphoma who presented to the hospital emergency department complaining of generalized fatigue, dyspnea on exertion, and progressive weight loss. The patient was diagnosed with metastatic diffuse large B-cell lymphoma to the liver and lung about a year prior to his presentation, and he was on chemotherapy. Initial examination revealed, toxic appearing male in respiratory distress. Vital signs were temperature 97.4 F, blood pressure 89/50 mmHg, heart rate 110 bpm, and respiratory rate 22 bpm. Right lung examination revealed absent breath sounds and dullness to percussion extending up to the upper lobe. CT angiography of the chest as part of the initial workup showed large right pleural effusion with a complete collapse of the right middle and lower lobe along with the shifting of mediastinal structures with no evidence of pulmonary embolism or aortic dissection. Immediate chest thoracostomy tube was placed with an initial 2.5 L drainage of serosanguineous fluid. Patient hemodynamics and oxygenation immediately improved after the procedure. Patient symptoms continue to improve; however, the patient decided to continue his treatment on hospice. PleurX catheter was placed, and the patient was discharged home with outpatient follow-up.

Tension hydrothorax is a rare yet potentially fatal medical emergency that requires urgent intervention as it can lead to severe hemodynamic instability and death. In the adult population, malignancy and infection are the common primary causes. Additional causes mentioned previously in the literature include; ventriculopleural shunting, peritoneal dialysis, migration of ventriculoperitoneal shunts, cirrhosis, ovarian hyperstimulation syndrome, and central venous catheterization. Patients usually present with obvious respiratory symptoms, including dyspnea, decreased or absent breath sounds, tachypnea, and hypoxia. Chest x-ray likely will confirm the diagnosis and depending on the patient's acuity chest CAT scan can provide additional information. Management of tension hydrothorax involves immediate drainage. Depending on the patient's hemodynamics, this may improve therapeutic thoracentesis or, more commonly, tube thoracostomy, which typically results in immediate hemodynamics and oxygenation improvement.