

INTRODUCTION

- ❖ Non-small cell lung cancer (NSCLC) is the second most common cancer that occurs in both men and women.
- ❖ Treatment depends on the subtype and the stage, but it can consist of surgery, chemotherapy, radiotherapy, immunotherapy, clinical trials, or any combination of the five (2).
- ❖ Immunotherapy, specifically, is reserved for metastatic or recurrent diseases. Current immunotherapy agents for NSCLC include immune checkpoint inhibitors like pembrolizumab and nivolumab.
- ❖ Side effects of immunotherapy include: myocarditis, thyroiditis, colitis, and pneumonitis (1).
- ❖ Treatment of immunotherapy-induced pneumonitis, includes steroids, cessation of the immunotherapy, or immune modulators (2).

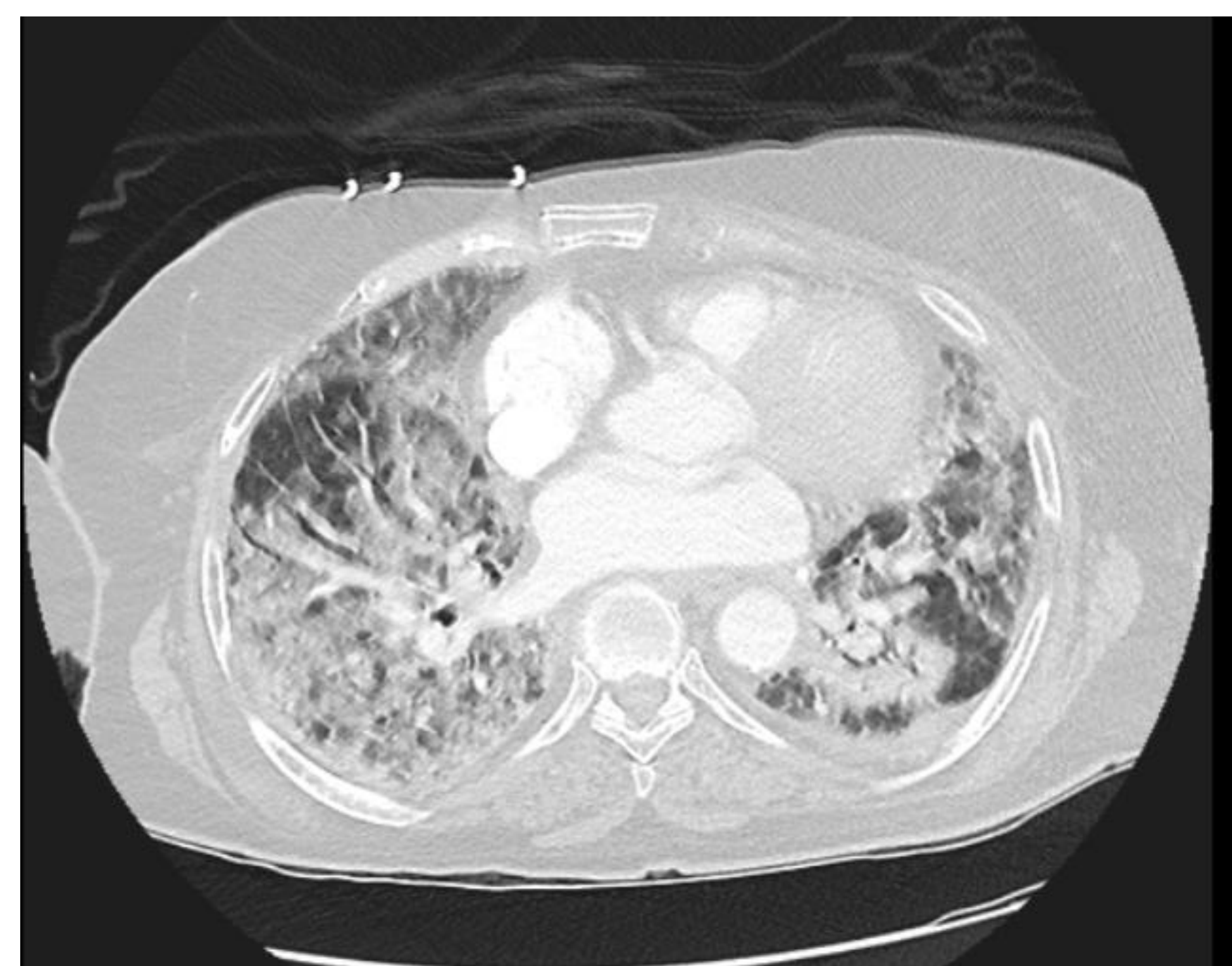


Figure 1. CTA of the Chest- Signs of PNA vs Pneumonitis

CASE DESCRIPTION

Immune therapy-induced pneumonitis is a rare but potentially life-threatening complication of checkpoint inhibitors

- ❖ 77-year-old female with recently diagnosed metastatic adenocarcinoma of the lung in late 2022 who had recently started her first cycle of chemotherapy and immunotherapy.
- ❖ 10 days after her first chemotherapy cycle during which she also received Keytruda, she presented to the ED for worsening shortness of breath. She was found to be in acute respiratory failure with hypoxia and was immediately intubated. She was started on broad spectrum IV Abx for suspected pneumonia and admitted to the ICU.
- ❖ Cultures returned negative and the patient was not improving on empiric antibiotics; therefore, she was started on 60mg IV Solumedrol Q8hrs.
- ❖ ICI induced pneumonitis was then the working diagnosis.
- ❖ After 6 days she was extubated to HFNC, however, her respiratory status continued to decline. Due to the steroid refractory nature of her illness, oncology started IVIG 0.4 mg/kg x5 days. Unfortunately, her respiratory failure continued to worsen and she passed away 22 days after starting chemotherapy and Keytruda.

Immune check point inhibitor pneumonitis

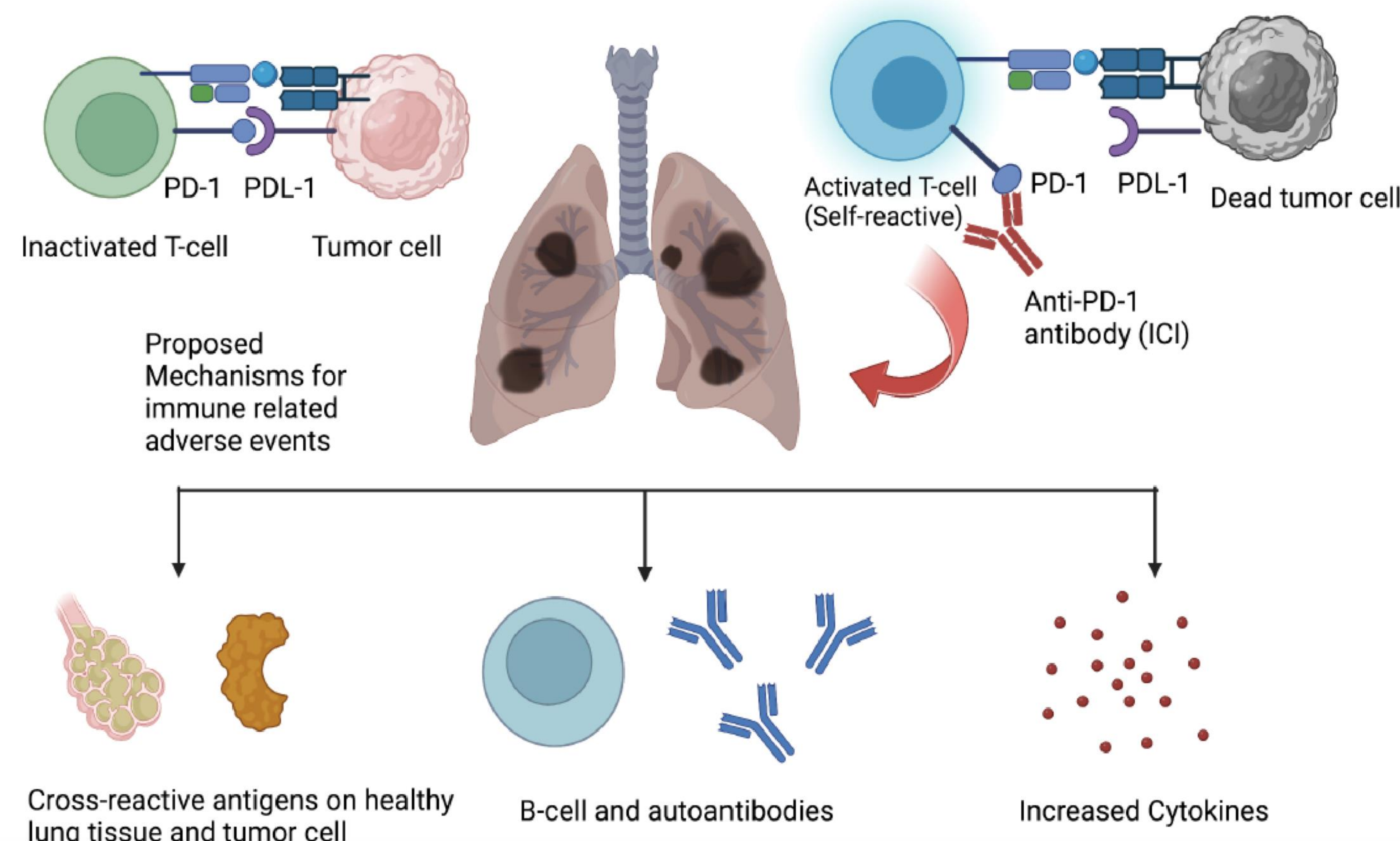


Figure 2 Pathophysiology of ICI induced pneumonitis

DISCUSSION

- ❖ ICI pneumonitis typically presents weeks to months after starting an immune checkpoint inhibitor (1).
- ❖ Treatment for ICI pneumonitis depends on the severity of the patient's symptoms, but it mainly consists of steroids, IVIG, or immunosuppressants like infliximab (2).
- ❖ The patient in this report exhibited symptoms of pneumonitis early on (7-10 days after starting immunotherapy) and she did not respond to steroid therapy.

REFERENCES

1. Andruska N, Mahapatra L, Hebbard C, Patel P, Paul V. Severe pneumonitis refractory to steroids following anti-PD-1 immunotherapy. *BMJ Case Rep.* 2018 Oct 8;2018:bcr2018225937. doi: 10.1136/bcr-2018-225937. PMID: 30301729; PMCID: PMC6194409.
2. Balaji A, Hsu M, Lin CT, Feliciano J, Marrone K, Brahmer JR, Forde PM, Hann C, Zheng L, Lee V, Illei PB, Danoff SK, Suresh K, Naidoo J. Steroid-refractory PD-(L)1 pneumonitis: incidence, clinical features, treatment, and outcomes. *J Immunother Cancer.* 2021 Jan;9(1):e001731. doi: 10.1136/jitc-2020-001731. Erratum in: *J Immunother Cancer.* 2022 Sep;10(9): PMID: 33414264; PMCID: PMC7797270.