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Autoimmune Hemolytic Anemia Triggered by Neoadjuvant Pembrolizumab in Triple Negative Breast Cancer: A Case Report

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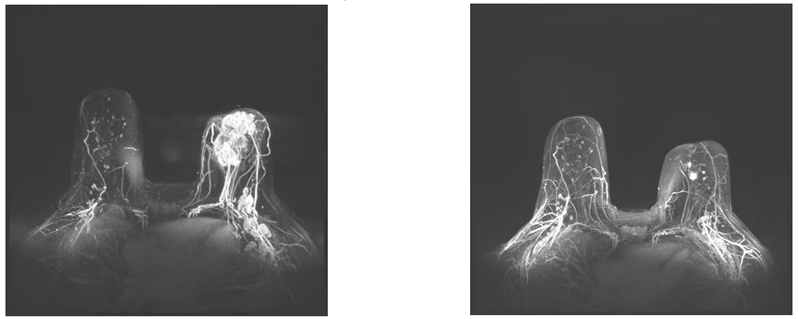
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Background

- Pembrolizumab has improved outcomes in triple negative breast cancer (TNBC), but its use can be associated with serious immune-related adverse events (1).
- Autoimmune hemolytic anemia (AIHA) has been reported in patients treated with immune-checkpoint inhibitors for other malignancies (2) (3) (4).
- To our knowledge, it has not been previously described in patients with breast cancer (BC). Herein, we report a case of pembrolizumab-associated AIHA during neoadjuvant therapy for locally advanced TNBC.

Case Report

- Patient: 72-year-old postmenopausal woman with a left T3N3 triple negative metaplastic breast cancer.
- Treatment:
  - Neoadjuvant Paclitaxel/Carboplatin/Pembrolizumab x 4 → good clinical response.
  - Began dose-dense doxorubicin and cyclophosphamide (AC) with pembrolizumab.
- Presentation:
  - After C1 of AC+Pembrolizumab presented to the ED with neutropenic fever.
  - Labs: hemoglobin of 7.1 g/dL, indirect bilirubin 2.3 mg/dL, haptoglobin less than 10 mg/dL, reticulocyte count 5.8%, and LDH 840 U/L.
- Management:
  - Patient received 1 unit of PRBCs.
  - Pembrolizumab was held.
  - Prednisone 1 mg/kg/day treatment was started.
  - A direct Coombs test was ordered for the patient before starting steroid therapy. However, due to logistical reasons, patient was unable to complete before starting prednisone.
- Outcome:
  - The patient's hemoglobin improved.
  - LDH and indirect bilirubin levels decreased.
  - Patient completed remaining AC without pembrolizumab.
  - There was no recurrence of hemolysis.



A

B

Image 1. Post-contrast T1-weighted FL3D dynamic breast MRI with maximum-intensity projection (MIP) reconstruction. A. Pretreatment showing extent of disease. B Post-treatment showing excellent response

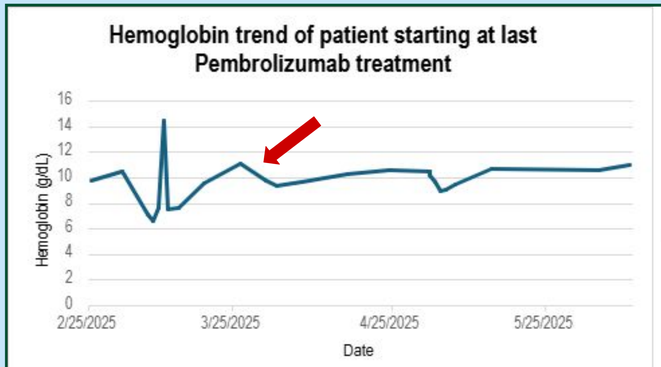


Figure 1: Graph trending patient's hemoglobin starting at last pembrolizumab treatment (Red arrow indicates start of prednisone treatment)

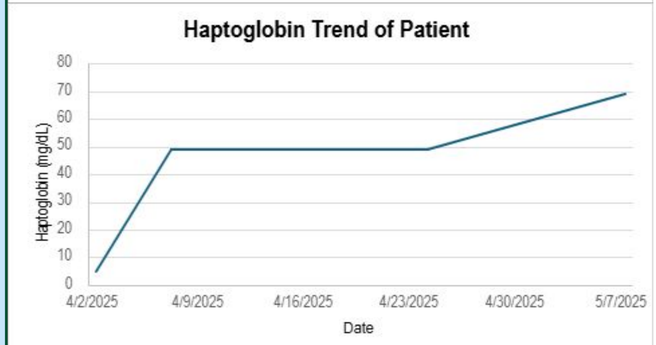


Figure 2: Graph trending patient's haptoglobin (Note: patient did not have haptoglobin measurements before starting prednisone treatment)

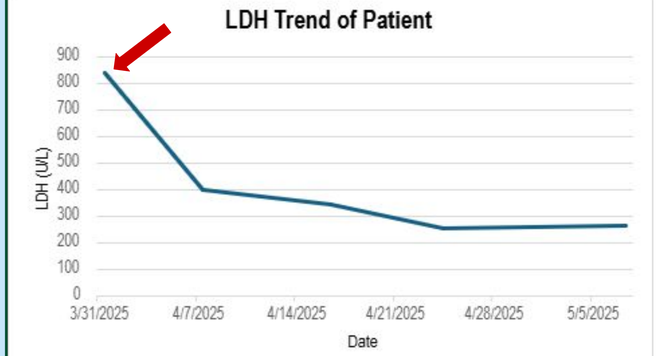


Figure 3: Graph trending patient's lactate dehydrogenase (Red arrow indicates start of prednisone treatment)

Discussion

- Autoimmune hemolytic anemia (AIHA) is an uncommon but potentially life-threatening immune related adverse event associated with checkpoint inhibitors such as pembrolizumab.
- In this patient, laboratory diagnostic clues included anemia with reticulocytosis, elevated LDH/indirect bilirubin, and low haptoglobin.
- While Coombs was negative, it was done after corticosteroid treatment started.
- The temporal association with pembrolizumab exposure and clinical resolution following its withdrawal and steroid therapy support a diagnosis of pembrolizumab-induced AIHA.

Conclusions

- Pembrolizumab-associated hemolytic anemia, though rare, should be considered in patients treated with pembrolizumab who present with rapidly worsening anemia.
- Clinicians should maintain a high index of suspicion since prompt recognition and treatment with corticosteroids are critical.

Limitations

- This is a single case report, which may not be representative of the broader patient population.
- Coombs testing delay limited diagnostic confirmation, however, clinical response was consistent with AIHA.

Future Directions

- Continue investigation of pembrolizumab treatment in patients with breast cancer.
- Develop protocol on when and how to use pembrolizumab for the treatment of breast cancer.

References

1. Shah M, Osgood CL, Amatya AK, Fiero MH, Pierce WF, Nair A, Herz J, Robertson KJ, Mixter BD, Tang S, Pazdur R, Beaver JA, Amiri-Kordestani L. FDA Approval Summary: Pembrolizumab for Neoadjuvant and Adjuvant Treatment of Patients with High-Risk Early-Stage Triple-Negative Breast Cancer. Clin Cancer Res. 2022 Dec 15;28(24):5249-5253.PMID: 35925043.
2. Alkassis S, Fitzsimmons K, Hurvitz S. Pembrolizumab-induced nephrotoxicity in a patient with breast cancer. Ther Adv Med Oncol. 2024 Apr 25;16:17588359241248362. PMID: 38680292; PMCID: PMC11047248.
3. Baek DW, Chae YS. Pembrolizumab-related autoimmune hemolytic anemia in a patient with metastatic lung adenocarcinoma: a case report. Yeungnam Univ J Med. 2021 Oct;38(4):366-370. doi: 10.12701/yujm.2021.00899. Epub 2021 Mar 23. PMID: 33752275; PMCID: PMC8688779.
4. Johnstone P, Khan O. Pembrolizumab-associated autoimmune haemolytic anaemia. BMJ Case Rep. 2019 Oct 25;12(10):e229064. doi: 10.1136/bcr-2018-229064. PMID: 31653618; PMCID: PMC6827724.

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