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Introduction

- The FDA approved pembrolizumab for all adult and pediatric metastatic malignancies with MSI-H or mismatch repair deficient tumors that have progressed on prior treatment.
- We report a patient with locally advanced head and neck cancer on chemotherapy and pembrolizumab, diagnosed with autoimmune myocarditis.

Background

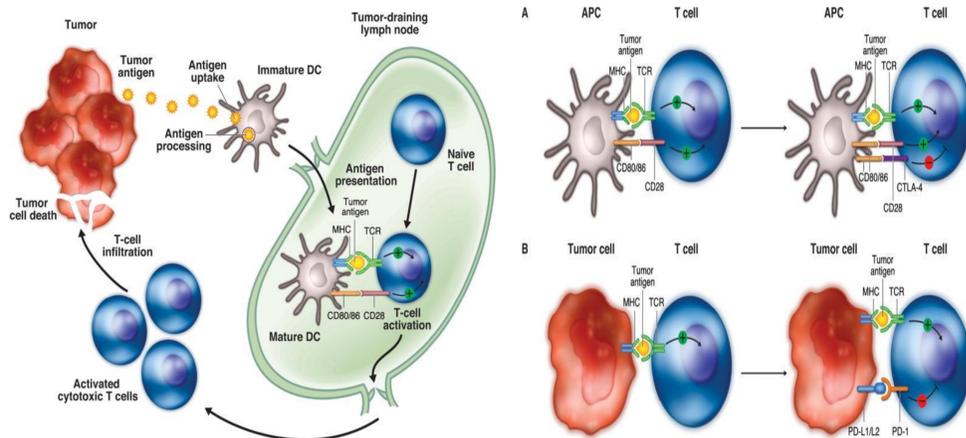


Figure 1. Normal immune response to cancer cells¹

Case reports of serious adverse effects from these therapies:

- Fatal myocarditis with combination ipilimumab and nivolumab for melanoma⁵ and nivolumab alone for lung cancer^{2,7}
- 8 case study of myocarditis/heart failure with ipilimumab⁴
- A case report of acute heart failure due to autoimmune myocarditis with pembrolizumab in a patient with metastatic melanoma⁶

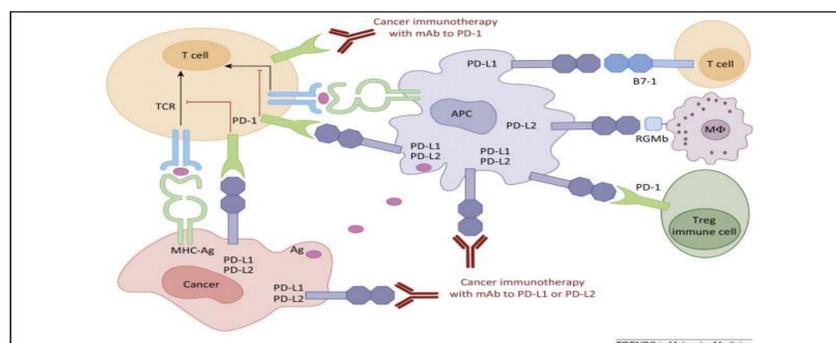


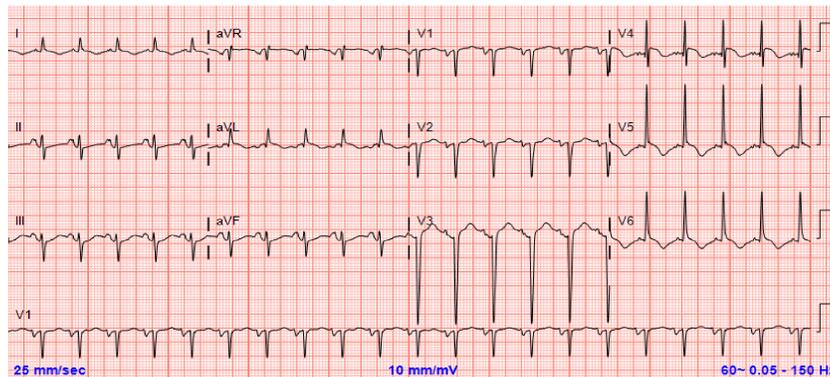
Figure 2. Immunotherapy with anti-PD1 receptor and anti-PD-L1/L2 antibodies.⁸

Case Presentation

- 55 year old man with locally aggressive SCC of the tongue, presented with chest pain and nausea.
- Oncologic history: Randomized to Pembrolizumab + carboplatin + 5-Fluorouracil of Merck study MK-3475-048. Completed 17 cycles of pembrolizumab (2 weeks prior) and 6 cycles of chemotherapy.

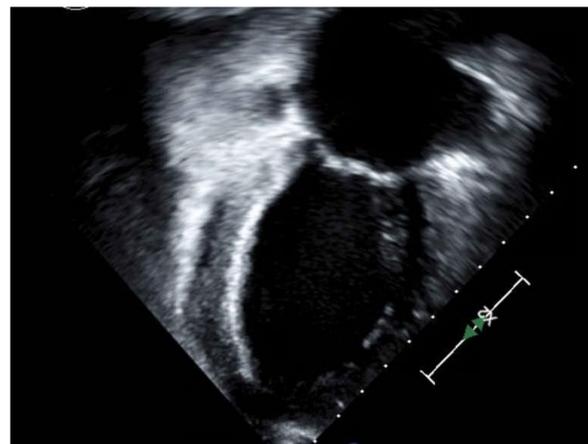
Merck study → pembrolizumab
 → cetuximab+platinum+5-FU
 → pembrolizumab+platinum+5-FU

- EKG with ST elevation in the precordial leads. Troponin on arrival was 4.22, subsequently down-trended.
- Left heart catheterization with patent coronary arteries.



Read as new anteroseptal myocardial infarction, and with prolonged QT.

- He developed respiratory failure requiring MICU transfer.



Initial ECHO- EF 15-20%

- Due to concern for pembrolizumab induced myocarditis, he was started on Solu-medrol 1g IV daily^{3,4} and pembrolizumab was held.

- After two days of IV Solu-medrol, his oxygenation improved and chest pain resolved.



ECHO after 5 days of solu-medrol 1g daily : EF 45-50%

- He was discharged on a prolonged prednisone taper (100mg daily with taper down by 10mg weekly).

Conclusions

- This case report highlights a rare, but severe, side effect of immunotherapy.
- Early recognition and intervention is essential, as side effects from immunotherapy could be reversible. In this case, there was functional cardiac improvement following early recognition of autoimmune myocarditis and treatment with stress dose steroids.

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