

Abbi Johns, MD¹: abbijohns18@gmail.com
Sanu Paul, MD¹, Navneet Kaur, MD¹, Mathew Mathew, MD¹

1. Department of Internal Medicine, Suburban Community Hospital, East Norriton, PA-19401

Background

Tumor fever is an important consideration in patients with fever of unknown origin or with known malignancy. Fever from underlying malignancy accounts for up to 25% of cases of fever of unknown origin⁴. Here we present a case of tumor fever in a patient with lymphoma treated with naproxen.

Case Report

A 78-year-old male with past medical history of Type 2 DM, who was recently diagnosed with metastatic T cell lymphoma (not on any treatment) presented to the ER with worsening abdominal pain of 2-weeks duration. He also reports recurrent fevers which he managed at home with Tylenol. His vitals were temperature 101.9, heart rate 119, respiratory rate 16, blood pressure 107/76 and oxygen saturation of 96% in room air. Abdominal examination was significant for tenderness in bilateral upper quadrants. Labs revealed elevated liver enzymes and pancytopenia. CT chest, abdomen and pelvis were negative for any infectious source but showed multiple metastatic lesions in the liver and spleen.

The patient was started on empiric antibiotics while awaiting culture results. He continued to have spiking fevers even on antibiotics. Infectious disease (ID) was consulted. Cultures came back as negative. ID recommended discontinuing antibiotics and starting naproxen due to concern for tumor fever, which was agreed by Oncologist. His fever improved with naproxen challenge and had no spikes since then. He was discharged with instructions to follow up with the oncologist for further management of his lymphoma.

Discussion

- Tumor fever is a diagnosis of exclusion. All other causes of fever including infection, must be thoroughly excluded before making the diagnosis
- Cytokines are known to be the key factors for tumor fever. These endogenous pyrogens induce prostaglandin E2, which in turn causes hypothalamic set point surge, and hence fever.³
- While the temperatures are usually high (above 40 degrees Celsius), the signs and symptoms are muted when compared to infectious pyrexia. The fevers are generally not associated with rigors, chills, tachycardia, or hypotension.
- Malignancies commonly associated with fever include Hodgkin and non-Hodgkin lymphomas, soft-tissue sarcoma, acute or chronic leukemia, and renal cell carcinoma.
- Naproxen challenge test is a safe and useful test in differentiating neoplastic fever from infectious fever in patients with cancer. In addition, naproxen and other nonsteroidal anti-inflammatory drugs have been effective in the management of neoplastic fever and offer a significant palliative benefit for the patient²
- Tumor fever, a paraneoplastic syndrome caused by cancer itself, represents a diagnostic challenge for the clinician.. Timely recognition of this febrile condition by differentiating it from other cancer-associated fevers, such as infection and drug reaction, is essential for effective patient management.

Conclusion

- Tumor fever is a diagnosis of exclusion. Lymphoma is the most common neoplasm associated with it. Naproxen challenge test is useful in narrowing down the cause of undiagnosed fever in a patient with malignancy.

References

1. Neoplastic fever responds to the treatment of an adequate dose of naproxen., J C Chang and H M Gross ,*Journal of Clinical Oncology* 1985 3:4, 552-558
2. Zell, J.A., Chang, J.C. Neoplastic fever: a neglected paraneoplastic syndrome. *Support Care Cancer* 13, 870–877 (2005)
3. <https://www.clinicalcorrelations.org/2014/08/13/neoplastic-fever-pathophysiology-clinical-features-and-diagnostic-assessment>
4. Fever in Patients with Cancer: <http://www.antimicrobe.org/new/e13.asp>