Diagnosis Under Pressure
Peripheral T-Cell Lymphoma as an Elusive Cause of Progressive Eosinophilic Myocarditis

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**Introduction**

Eosinophilic myocarditis (EM) is a rare cause of progressive myocardial dysfunction that has a broad array of inciting diseases processes and many distinct complications. An elusive cause of EM is peripheral T-cell lymphoma (PTCL), a protean entity with varied presentations. We present a case of PTCL that defied diagnosis, stressing the importance of a broad differential for causes of EM.

**Case**

Previously healthy 49-year-old Cantonese woman originally presented for evaluation of chest pressure. Multiple previous presentations for progressive fatigue, workup at that time pertinent for:

- Leukocytosis with prominent eosinophilia (69%)
- PET demonstrated avid bulky cervical and periaortic lymphadenopathy, as well increased uptake in cervical & submandibular adenopathy.

Discharged on empiric trial of systemic steroids

Presented again several weeks later with acute-onset substernal chest pain. Objective findings concerning for:

- Lateral ST depressions on EKG, troponemia, leukocytosis with prominent eosinophilia (69%)
- TTE with preserved EF, but demonstrating apical RV thrombus
- Cardiac MR demonstrating circumferential subendocardial late gadolinium enhancement
- BMBx: basic autoimmune & infectious workup negative,
- FNA of submandibular adenopathy technically suboptimal

**Histology**

- Pleomorphic cell types, most commonly resembling T-cell lymphoma (PTCL)
- Variable findings on immunohistochemistry, characteristically lack typical "B" markers, and vary express mature T-cell markers (CD4,5,8, etc)

**Diagnosis**

The diagnosis is suggested by histology demonstrating a pleomorphic cellular infiltrate of nodal and solid organ involvement without expression of B-cell associated antigens on IHC, and variable expression of mature T-cell markers

**Discussion**

PTCL describes a collection of disease entities with no defining clinical or phenotypic features, and constitute 4-10% of NHL overall. There is an elevated incidence in Asian populations, as PTCL constitutes approximately 20% of all NHL presenting in that group.

Presenting symptoms are non-specific: Classic "B symptoms" only present in 35% of cases. Extra-nodal involvement is present in 49% of cases, solid organ involvement in 17%.

**Lab findings**

- Elevated LDH ~50% of cases
- Thrombocytopenia ~25% cases
- Anemia ~25% of cases
- Eosinophilia – Variable

**Take home points**

- PTCL refers to an array of NHL variants of various phenotypes
- PTCL can manifest with seemingly idiopathic eosinophilia as a paraneoplastic phenomenon: A reactive process generated by constitutive expression of IL-3, which is incompletely responsive to steroids
- The prevalence of PTCL in Asian populations is pronounced, accounting for ~20% of NHL, and special consideration should be given for an atypical phenotype when there is clinical concern for lymphoma.
- The diagnosis is suggested by histology demonstrating a pleomorphic cellular infiltrate of nodal and solid-organ involvement without expression of B-cell associated antigens on IHC, and variable expression of mature T-cell markers
- Diagnostic yield of FNA is low. Excisional biopsy offers more favorable operating characteristics, and should be pursued if possible.

**Microscopic findings in the liver:**


**Microscopic findings in the heart:**

E) Eosinophilic interstitial infiltrate in myocardium.

F) PSIR image captured on cardiac MRI demonstrating late-phase subendocardial gadolinium enhancement involving both the right and left ventricles, which does not respect a vascular territory. The differential includes eosinophilic myocarditis and amyloid deposition.

**References:**