**What am I treating? Cotton fever masquerading as septic shock in an IV drug user**

**Megan Moleck, MD ♦ Oregon Health and Science University**

### Objectives
1. Recognize the clinical features and natural history of cotton fever.
2. Discuss the differential for fever and septic shock in an intravenous drug user.

### Case Presentation

A 34-year-old man presents to the ED with two days of headache, abdominal/pain, vomiting, and diarrhea that started within 15 minutes of a "bad heroin" injection through a cotton ball filter.

Exam:
- Temp 38.0°C, HR 120s, BP 70s/30s, RR 30s, O₂ saturation >90% on room air
- Severe diaphoretic with diffuse muscle tenderness.
- Mental status intact and neurologic exam without deficit.
- No evidence of rash or stigmata of endocarditis. No murmur.

Labs:
- WBC 26, HGB 12, PLT 106
- CO₂ 15, Lactate 2.5.
- CK 4689
- Na 135, K 3.4
- Creatinine 0.9
- Troponin 49
- Glucose 108
- C-reactive protein (CRP) 38
- Widal test(-)
- ESR 26
- CRP 13
- Urine drug screen: Positive for opiates
- Blood, urine, and stool cultures negative
- HIV antibody and PCR testing negative
- Unremarkable transthoracic echocardiogram
- Unremarkable chest x-ray
- Negative hepatitis A and B serologies

### Discussion

Fever in an IV drug user is a common presentation and can be due to a wide array of infectious and non-infectious etiologies. Cotton fever is a benign febrile syndrome seen primarily in intravenous drug users where the cotton filter used to filter the heroin is colonized by bacteria that release endotoxin. This can cause a febrile response in the intravenous drug user.

Many factors within the population of intravenous drug users increase the risk of infectious complications, including a high risk of endocarditis, endotoxin release, and septic shock.

**Etiology of fever in IV drug users**

- **Endocarditis 12%**
- **Other 23%**
- **Virus 52%**
- **Pharyngitis 26%**
- **Pyrogen reaction 22%**

**Hospital Course**

- **Infectious workup included**:
  - Negative blood, urine, and stool cultures
  - Negative HIV antibody and PCR testing
  - Negative hepatitis A and B serologies
  - Unremarkable chest x-ray
  - Unremarkable head CT
  - Unremarkable non-contrast CT abdomen/pelvis
  - Unremarkable pelvic MRI
  - Unremarkable transesophageal echocardiogram

- Vancomycin was discontinued on day 6
- Piperacillin/Tazobactam was discontinued on day 7
- Remained hemodynamically stable off of antibiotics
- Initiated buprenorphine in the hospital
- Discharged on hospital day 8
- Seen in follow-up in the outpatient setting months later without recurrent infection

**References**