Fever of Unknown Origin

Garret Pachtinger, VMD, and Lesley G. King, MVB, Diplomate ACVECC, ACVIM, & ECVIM (Companion Animal), University of Pennsylvania

**Complete Physical Examination** (Repeated at least twice daily while fever persists in hospitalized patients)

- **Ears/nose/throat**: Oral cavity lesions, fundic abnormalities, uveitis
- **Cardiovascular**: Murmur, arrhythmia, heart rate, pulse quality
- **Respiratory**: Harsh, crackles, wheezes
- **Abdomen**: Pain, organomegaly
- **Musculoskeletal**: Lameness; bone, spinal, or neck pain; joint swelling, redness
- **Integumentary**: Redness, erythema, lesions, petechiae, ecchymosis, swelling
- **Lymph nodes**: Lymphadenopathy
- **Rectal**: Prostatomegaly, anal sac abnormalities
- **Urogenital**: Intact vs neutered, pain on palpation of kidneys
- **Neurologic**: Cranial nerve deficits, ataxia

**Diagnostic Tests Specific to Body System**

- **Cardiopulmonary**: Thoracic radiographs, electrocardiography, echocardiography, electrocardiography
- **Abdomen**: Abdominal radiographs or US
- **Fundus**: CBC, serum biochemical profile, infectious disease titers, radiographs, US

**Initial Diagnostic Tests**

- **CBC with blood smear evaluation**
- **Serum biochemical profile**
- **FeLV/FIV/thyroxine (cats)**
- **Tick titers (dogs)**
- **Urinalysis + urine culture & sensitivity**
- **Fecal analysis**
- **Radiographs (thoracic & abdominal)**
- **Coagulation testing**

**Did the repeated physical examination reveal evidence of disease in a specific body system?**

- **Yes**
- **No**

**Repeat physical examination**

**Did diagnostic tests reveal evidence of specific disease?**

- **Yes**
- **No**

**Perform further diagnostic testing specific to body system**

**Did history or physical examination reveal evidence for disease in a specific body system?**

- **Yes**
- **No**
Investigation

**Abdominal US:**
- Organomegaly, abdominal pain, effusion

**Arthrocentesis:**
- Joint swelling, pain, redness, lameness

**Additional infectious disease titer:**
- Lack of preventive medications, abnormal fundic examination, thrombocytopenia

**Skeletal radiographs:**
- Lameness, bone pain

**CT:**
- Computed tomography

**FeLV:**
- Feline leukemia

**FIV:**
- Feline immunodeficiency virus

**MRI:**
- Magnetic resonance imaging

**NSAID:**
- Nonsteroidal antiinflammatory drug

**US:**
- Ultrasound

---

**Additional Diagnostic Tests**

- **Abdominal US:**
  - Organomegaly, abdominal pain, effusion
- **Arthrocentesis:**
  - Joint swelling, pain, redness, lameness
- **Additional infectious disease titer:**
  - Lack of preventive medications, abnormal fundic examination, thrombocytopenia
- **Skeletal radiographs:**
  - Lameness, bone pain
- **Lymph node aspiration:**
  - Lymphadenopathy
- **Echocardiography:**
  - Murmur, arrhythmia
- **Blood cultures:**
  - While fever is peaking
- **CSF tap:**
  - Neck pain, neurologic deficits
- **Bone marrow aspiration:**
  - Abnormal CBC results, smear evaluation
- **Adjuvant infectious disease titer:**
  - Lack of preventive medications, abnormal fundic examination, thrombocytopenia
- **Skeletal radiographs:**
  - Lameness, bone pain
- **Lymph node aspiration:**
  - Lymphadenopathy
- **Echocardiography:**
  - Murmur, arrhythmia
- **Blood cultures:**
  - While fever is peaking
- **CSF tap:**
  - Neck pain, neurologic deficits
- **Bone marrow aspiration:**
  - Abnormal CBC results, smear evaluation

---

**Did additional diagnostic tests reveal evidence of disease in a specific body system?**

- **Yes**
  - Perform further diagnostic testing specific to body system
- **No**
  - Repeat physical examination
  - Review patient history

---

**Advanced Diagnostic Tests**

- **Consider repeating Initial and Additional diagnostics to look for changes or trends**
- **Bone marrow evaluation**
- **Echocardiography**
- **CSF & joint fluid analysis**

- **Bronchoscopy & bronchoalveolar lavage** (See Bronchoalveolar Lavage Fluid Collection, page 58)
- **CT** or **MRI**
- **Laparoscopy, endoscopy, or exploratory surgery**

If invasive procedures, such as endoscopy, laparoscopy, or exploratory surgery are performed, it is essential to maximize the yield of these procedures by obtaining biopsy samples for histopathology, cultures, and special stains.

---

**Consider therapeutic trial**

Always consider the risks associated with treatment without a known underlying cause

- **Antibiotic therapy if bacterial origin is suspected**
- **Doxycycline if tick-borne disease is suspected**
- **Antiinflammatory or immunosuppressive medication** (NSAID or corticosteroid) as indicated for suspected inflammatory or immune-mediated disease
- **Intravenous fluids for hydration**

---

CSF = cerebrospinal fluid; CT = computed tomography; FeLV = feline leukemia; FIV = feline immunodeficiency virus; MRI = magnetic resonance imaging; NSAID = nonsteroidal antiinflammatory drug; US = ultrasound