Mononucleosis In Athletes
See also Epstein Barr Virus Pharyngitis
See also Mononucleosis

Background
1. General information
   o Self limited infection
   o Typically seen in adolescents/ young adults
   o Can delay return to play in athletes
     • Fatigue
     • Fear of splenic rupture

Pathophysiology
1. Etiology
   o Epstein Barr virus (EBV)
     • DNA herpes virus
2. Symptoms
   o Pharyngitis
   o Fatigue
   o Lymphadenopathy
   o Fever
   o Tonsillar edema
   o Transient palatal petechiae
3. Concomitant infection w/ Group A Beta-hemolytic Streptococcal pharyngitis (GABHS)
   o Affects between 3-40 % of those with mononucleosis
   o Test all w/ rapid strep test
   o If rapid strep test is positive tx appropriately
     • Do not use amoxicillin or ampicillin: may cause rash
4. Potential complications of infectious mononucleosis
   o Pneumonia
   o Seizure
   o Meningoencephalitis
   o Guillain-Barre Syndrome
   o Thrombocytopenia
   o Mild hepatitis

Diagnostics
1. Clinical suspicion may be high
2. Tests to confirm dx/ determine return to play
   o Delayed or serial testing is more accurate
   o IgM heterophile antibody test (Monospot)
     • Done rapidly
     • Either positive or negative
     • Detects transient IgM antibodies
       • Incr between 1st and 3rd wk of infection
       • Decr after 3rd month of infection
- False-negative in 10-20% of cases
- False-positive in 5-15% of cases
  - EBV Capsid Antigen (VCA – Ag) IgM
    - >1:10 signifies acute EBV infection
  - EBV-VCA Ag IgG
    - >1:80 indicates previous infection
  - EBV Nuclear Antigen (EBNA)
    - >1:10 indicates immunity
- CBC
  - Atypical lymphocytes
  - Lymphocytosis
  - Leukocytosis
- Liver function tests
  - Associated mild hepatitis common
  - Values 2-3x greater than normal

**Differential Diagnosis**
1. Streptococcal pharyngitis
2. Adenovirus
3. Herpes virus
4. CMV
5. HIV
6. Rubella
7. Hepatitis A
8. Toxoplasmosis

**Therapeutics**
1. Symptomatic tx
   - NSAIDs for pain and fever
   - Steroids
     - Studies show no effect on clinical course of illness at 1 and 3 mo
     - Mainly for eminent upper airway obstruction d/t tonsillar hypertrophy
     - Steroids reduce tonsillar inflammation/edema
     - Consider in mononucleosis induced myocarditis, hepatitis, or neurologic findings (controversial use of steroids)
   - Antibiotics if concurrent Group A Beta hemolytic streptococcus infection

**Prognosis**
1. Splenic rupture
   - Leading cause of death w/mononucleosis
   - Most important concern for return to play
   - Prevalence
     - Occurs in 0.1-0.2% of cases
     - 30% mortality in this pt group
   - All patients should be considered at risk for splenic rupture b/c clinical severity, labs, and physical exam are not reliable predictors of rupture
   - Most ruptures occur within 4 weeks of symptom onset (SOR:B)
   - Half of ruptures in athletes are atraumatic
   - Only occurs w/splenomegaly
Palpation is insensitive
May be confirmed w/ultrasound
• No standards for spleen size on ultrasound
Spleens that rupture are typically 2 -3 times larger than normal
Presence of splenomegaly does not correlate w/severity of laboratory values
• 7% of those w/mononucleosis have splenomegaly at presentation
  o Illness severity and splenic rupture susceptibility do not correlate
  o Recommendation:
• Refrain from vigorous physical activity for at least 4 wks post infectious mononucleosis symptoms (SOR:C)
• No return to play in first 3 wks
• May do limited activity in wk 4
• If other symptoms resolved may return to vigorous activity at wk 5
• No recommendation for routine use of ultrasound
  • May use selectively
  • Standards variable for normal spleen size

2. Athletes often recover sooner than non-athletes
3. Strict bed rest not needed
  o Promotes deconditioning
4. Light training may begin 3-4 wks after dx
  o Negative liver enzymes
  o Pt ready for return to play, symptoms resolved
5. Usually 4-6 wks to fully regain typical athletic abilities
6. Top athletes may need 3-6 mos to regain prior level of performance

References
2. Bell, Mark. "Epstein-Barr virus infectious mononucleosis". American Family Physician. 2004 October; 70(7)

Evidence-based Inquiry
1. Can we prevent splenic rupture for patients with infectious mononucleosis?
2. What test is the best for diagnosing infectious mononucleosis?

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