

Differential diagnosis of acute monoarthritis

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Possible diagnosis	Cause	History and physical examination	Synovial fluid analysis	Common pitfalls
Infectious arthritis	<ul style="list-style-type: none"> Bacteria Mycobacteria Fungi Spirochetes causing Lyme disease Viruses (e.g. HIV, hepatitis B) 	<p>Severe joint pain and tenderness.</p> <p>Heat, marked swelling.</p> <p>Redness.</p> <p>Patient unable to move joint; often refuses passive movement.</p> <p>Patient unable to bear weight.</p>	<p>Opaque.</p> <p>Leukocyte count elevated (often $>100 \times 10^9/L$).</p> <p>PMNs $>85\%$.</p> <p>Culture positive.</p>	<p>Inflammatory response may be blunted in an immunocompromised patient.</p> <p>Culture may be negative if patient previously treated with antibiotics.</p>
Crystal-induced arthritis	<ul style="list-style-type: none"> Monosodium urate crystals (gout) Calcium pyrophosphate dihydrate crystals (pseudogout) Apatite crystals Calcium oxalate crystals 	<p>Severe joint pain and tenderness.</p> <p>Heat, marked swelling.</p> <p>Redness.</p> <p>Patient unable to move joint; often refuses passive movement.</p> <p>Patient often unable to tolerate any pressure on joint.</p>	<p>Translucent.</p> <p>Leukocyte count $1-75 \times 10^9/L$.</p> <p>Often $>50\%$ PMNs.</p> <p>Culture negative.</p> <p>Crystals positive</p>	<p>Patient may have concomitant infectious arthritis with positive culture.</p>
Trauma-induced arthritis	<ul style="list-style-type: none"> Fracture Internal derangement Hemarthrosis 	<p>Joint tenderness on movement.</p> <p>Warmth, mild-to-moderate swelling.</p> <p>No redness.</p> <p>Pain worse with activity.</p> <p>History of trauma; onset of pain within minutes of trauma.</p>	<p>Fluid transparent or blood stained.</p> <p>Leukocyte count $<1 \times 10^9/L$.</p>	<p>History of trauma may not be elicited with osteoporosis.</p>

HIV=human immunodeficiency virus. PMN=polymorphonuclear leukocyte.

Source: *CMAJ* 2000; 162: 1577-1583.