Specialist LINK Linking Physicians | Primary Care Networks Calgary and Area | Alberta Health Services | University of Calgary

Cumming School of Medicine
Division of Rheumatology

Enhanced Primary Care Pathway: Peripheral Arthritis

1. Focused summary of peripheral arthritis relevant to primary care

Peripheral arthritis is grouped into non-inflammatory and inflammatory arthritides. Non-inflammatory arthritis, most commonly osteoarthritis, is the most frequent form of peripheral arthritis. This form of arthritis can be safely managed in the medical home. Inflammatory arthritis is less common, occurring in approximately 1/100 patients. This form of arthritis, when active, requires a semi-urgent assessment by a rheumatologist (within approximately 6-8 weeks).

Osteoarthritis can affect any joint, but most commonly affects the following joints: the hands (nodal osteoarthritis), carpal metacarpal (CMC), knees, and hips. Risk factors for this form of arthritis include age > 40, female gender, increased BMI, family history and prior joint injury. This type of arthritis is characterized by pain with <30 minutes of am stiffness. Symptoms tend to worsen throughout the day and with activity. This form of arthritis can usually be managed in the medical home with lifestyle modifications (weight loss), pain control (acetaminophen, NSAIDs, intra-articular steroid or hyaluronic acid injections through interventional radiology), physiotherapy and occupational interventions (use of a cane, off-loading knee brace). Management of these patients may be assisted with the use of the CCFP toolkit at http://www.cfpc.ca/oatool. Imaging may be helpful in evaluating patients with mechanical joint pain **(see section 6 below)**. X-ray findings show joint space narrowing, osteophytes, subchondral sclerosis/cysts. Periarticular osteopenia is absent.

Erosive osteoarthritis is a rare form of osteoarthritis in which patients' osteoarthritis may present with inflammatory arthritis symptoms. X-ray findings may reveal central erosions. Patients with erosive osteoarthritis may benefit from a rheumatology consultation.

Inflammatory arthritis is an autoimmune condition that, if left untreated, can lead to significant joint damage and disability. Risk factors for inflammatory arthritis include a family history of inflammatory arthritis, first nations ethnicity, a history of psoriasis, new or severe Raynaud's, rash or recent urethritis/diarrheal illness, a personal or family history of spondyloarthropathy features (psoriasis, uveitis/iritis, ankylosing spondylitis, Crohn's disease or ulcerative colitis, reactive arthritis). This form of arthritis is characterized by joint pain and *swelling with >30 minutes of morning stiffness*. Patients often describe much longer morning stiffness, sometimes lasting most of the day. Symptoms *improve throughout the day and with activity*. Patients may have a single joint (monoarthritis), a few joints (oligoarthritis) or many joints (polyarthritis) involved. Joints involved may be large (knee, ankle, shoulder) or small (wrist, MCPs, PIPs, MTPs). Patients may have nodules or joint deformities in the advanced stages of the disease. Inflammatory arthritides include seropositive and seronegative rheumatoid arthritis (RA), psoriatic arthritis, ankylosing spondylitis, inflammatory bowel disease-related arthritis, systemic lupus erythematosus and scleroderma.

When an inflammatory arthritis is suspected, further investigations should be ordered. Some of these include CBC, creatinine, urinalysis, urate, rheumatoid factor (RF), anti-citrullinated c-peptide (anti-CCP) and c-reactive protein (CRP)**(see section 5 below)**. If there are specific concerns regarding a connective tissue disease or Lupus, an ANA may be helpful. It is important to note that an ANA of 1:80 is considered "negative" no matter what the pattern. Patients with inflammatory arthritis commonly have a normocytic anemia, thrombocytosis, and elevated inflammatory markers. RA patients may have a positive RF or anti-CCP. X-rays of the affected joints should be ordered **(see section 6 below)** with consideration of the lumbar spine and bilateral sacroiliac joints ONLY if co-morbid inflammatory back pain is suspected (i.e. Ankylosing spondylitis). X-rays may show periarticular osteopenia, periostitis, or erosive changes; however, they may also be normal, particularly in early disease. When a patient presents with symptoms that suggest an inflammatory arthritis, he or she should be referred semi-urgently to a rheumatologist for further work-up and management as early intervention can alter the natural course of the disease.

Occasionally, patients with an inflammatory arthritis may present with a monoarthritis. In these cases, a diagnosis of gout or septic arthritis must be considered. Red flags for septic arthritis include rapid onset and systemic symptoms such as fevers. Risk factors for septic arthritis include age > 80, diabetes mellitus or co-existent rheumatoid arthritis, prosthetic joint or recent joint surgery and skin infection. Septic arthritis is a medical emergency and, when it is suspected, patients should be sent directly to the nearest emergency department. Risk factors for gout include a history of podagra, family history of gout, chronic kidney disease, hypertension, and nephrolithiasis, the presence of hyperuricemia, and the presence of gouty tophi on physical examination. Gout may also be safely managed in the medical home. *For further information on the work-up and management of gout, please see the enhanced primary care pathway for gout at www.specialistlink.ca.*

2. Checklist to guide your in-clinic review of this patient with peripheral joint pain.
☐ Absence of red flags
☐ Use of the clinical flow diagram to differentiate whether patient's presentation is consistent with peripheral inflammatory or non-inflammatory arthritis.
☐ Patient's presentation is consistent with peripheral *non-inflammatory arthritis*: see the focused summary in this pathway or the CCFP Toolkit at www.cfpc.ca/oatool for management.
☐ Patient presentation is consistent with peripheral *non-inflammatory arthritis, but has failed to improve with the interventions suggested by the CCFP Toolkit*? Consider investigations as outlined in Section 5 and 6; and/or calling Specialist Link for further advice.
☐ Patient's presentation is consistent with peripheral *inflammatory arthritis*: consider investigations as outlined in section 5 and 6.
☐ Patient's presentation and investigations support the diagnosis of *inflammatory arthritis*: use access pathway to refer semi-urgently to Rheumatology as early intervention can alter the course of the disease.

3. Links to additional resources	
For patients:	Rheuminfo: www.rheuminfo.ca
	The Arthritis Society of Canada: http://arthritis.ca
	Arthritis ID app: http://www.arthritisresearch.ca/tools/apps
For physicians:	Clinical Pathways: www.specialistlink.ca
	Rheuminfo: www.rheuminfo.ca
	ArthritisID PRO app: http://www.arthritisresearch.ca/tools/apps
	Arthritis Research Canada: Osteoarthritis Knee Examination: https://www.youtube.com/watch?v=BS8KbciQSuk
	CCFP Toolkit for Management of Osteoarthritis: www.cfpc.ca/oatool

4. Clinical flow diagram with expanded detail

This AHS Calgary Zone pathway has been developed with consideration of these guidelines.
The following is a best-practice clinical pathway for management of arthritis in the primary care medical home that includes a flow diagram and expanded detail:

Peripheral Joint Pain

RED FLAGS (serious pathologies to consider):

- **Infection** – fever, history of immunosuppression/IVDU, prosthetic joint.
- **Fracture** – History of osteoporosis or risk factors, history of fall.
- **Malignancy** – Unexplained weight loss, significant night pain, severe fatigue, history of cancer.

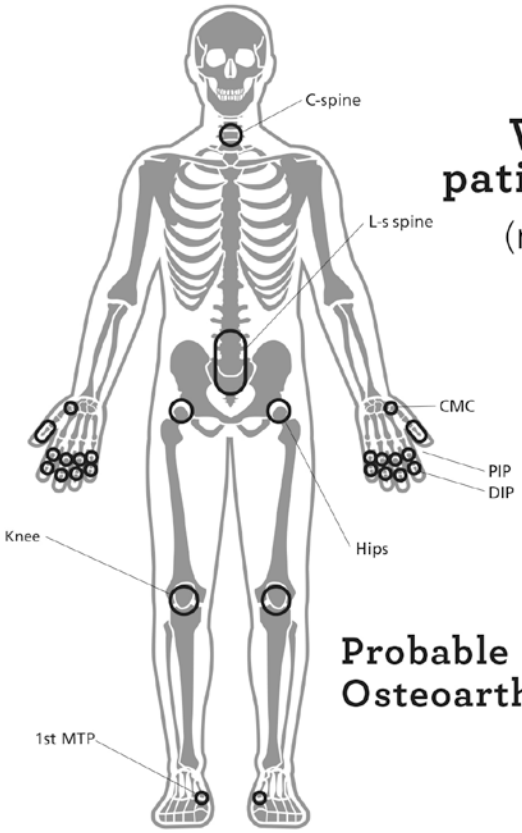
YES

Refer to ER/page rheumatologist on call if red flags present or if your patient needs to be seen immediately.

NO

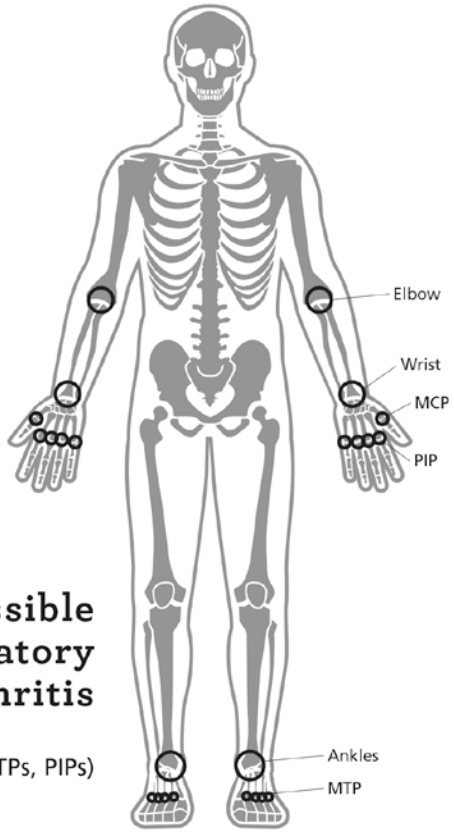
Where is your patient's joint pain?

(refer to diagrams)



Probable Osteoarthritis

If pain pattern matches the joints highlighted in the above diagram, patient likely has osteoarthritis (see page 3 of flow diagram to confirm).



Possible Inflammatory Arthritis

(MTPs, PIPs)

If pain pattern matches the joints highlighted in the above diagram, screen for inflammatory arthritis (see page 2 of flow diagram).

Possible Inflammatory Arthritis

Does your patient have inflammatory features?

- Greater than 30 minutes of morning stiffness
- Acute/New onset joint swelling/effusion
- Symmetrical distribution
- 3 or more joints
- Symptoms improving with activity/worsening with rest.
- Symptoms improving throughout the day (may worsen at end of day).

Does your patient have extra-articular features?

- Psoriasis
- Inflammatory bowel disease
- Uveitis/iritis
- Urethritis, diarrheal illness
- Rash (butterfly/photosensitivity)
- Raynaud's
- Nodules
- Family history of autoimmune disorder.

Does your patient have inflammatory back pain?

- Morning back stiffness > 30 minutes
- Improves w/ activity, worsens w/ rest.
- Alternating buttock pain.
- Nocturnal wakening due to pain in second half of night.
- Improves with NSAIDs.

If you answered yes for any of the above questions, your patient could have Inflammatory Arthritis. Refer to rheumatology and/or call Specialist LINK.

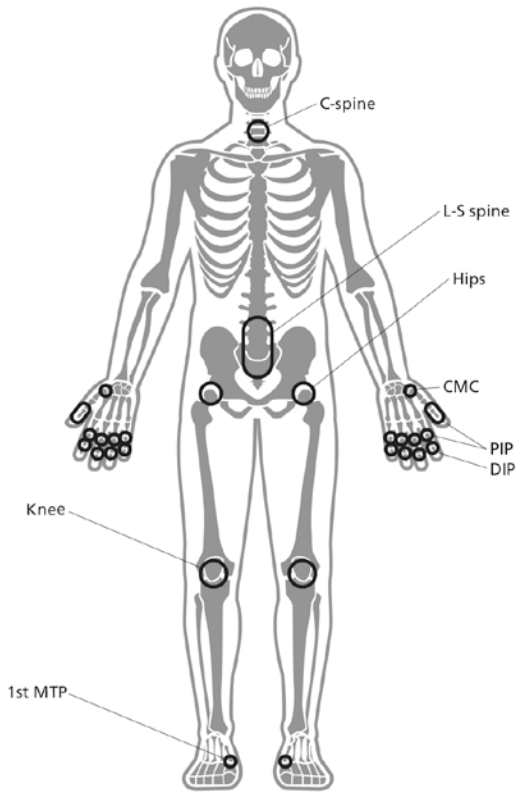
Investigations (see section 5).
CBC, Cr, UA, TSH, calcium, albumin, CRP, +/- urate, RF, anti-CCP, ANA

X-ray symptomatic joints +/- x-ray lumbar/spine and SI joints (section 6).

Probable Osteoarthritis

Are there typical features of osteoarthritis?

- Morning stiffness lasting < 30 minutes.
- Symptoms worsening with use.
- Symptoms worsening throughout the day.
- Typical joints: carpometacarpal (CMC), knee, hip.
- Gradual bony joint enlargement



NO

Proceed with work-up of inflammatory arthritis (page 2 of flow diagram)

YES

CCFP/AAC Toolkit

If conservative management, fails, consider these Investigations:

CBC, CRP, TSH, Albumin, Calcium, +/- urate (section 5).

X-rays of affected joint (sections 6).

5. Common labs useful in the work-up of peripheral inflammatory arthritis

Complete blood count (CBC) – Anemia and thrombocytosis may be subtle signs of inflammation.

C-reactive protein (CRP) – Often elevated in the setting of inflammatory disorders.

Creatinine (Cr) – Some disorders such as connective tissue diseases, may have renal involvement. Creatinine is also useful in the dosing of some medications used in the management of arthritis.

Urinalysis (UA) – Some inflammatory arthritides are associated with renal dysfunction. The presence of proteinuria and hematuria, will trigger the work-up systemic disorders such as lupus and vasculitis.

Urate – Elevated uric acid is often, but not always, associated with gout. Many patients with hyperuricemia do not ever develop gout, therefore, it is not diagnostic of gout. It should be noted that during an acute gout attack, the urate may be low or normal.

Thyroid stimulating hormone (TSH) – Joint pain may be a manifestation of hypothyroidism and resolves with treatment of the thyroid disorder. Hypothyroidism is also a risk factor for pseudo gout.

Corrected Calcium (Calcium/albumin) – Hypercalcemia is often associated with joint pain. Recall "bones, groans, psychological overtones." In addition, hypercalcemia may put patients at risk of pseudo gout.

Rheumatoid Factor (RF) – Rheumatoid Factor (RF) is commonly associated with rheumatoid arthritis, however, it has a sensitivity of only 66% and a specificity of only 82% for rheumatoid arthritis. It is also associated with other systemic diseases such as Sjogren's Syndrome and cryoglobulinemic vasculitis. It can also be present in normal healthy individuals. A higher titre is more predictive of an underlying disease process. RF can be present in patients up to 10 years prior to onset of symptoms.

Anti-citrullinated c-peptide (anti-CCP/ACPA) – This antibody is more sensitive and specific for rheumatoid arthritis, than RF. Specifically, the sensitivity of anti-CCP is 70% and the specificity is 95%. It predicts more aggressive and erosive disease and is useful to prognosticate and triage patients. Anti-CCP/ACPA may be present up to 10 years prior to onset of disease symptoms. A positive anti-CCP/ACPA indicates significantly increases the pre-test probability of rheumatoid arthritis. Patients with a positive anti-CCP/ACPA should be referred to rheumatology.

Anti-nuclear antibody (ANA) – A positive ANA is associated with a variety of connective tissue diseases including lupus, Sjogren's, myositis and scleroderma. Both the titre and the pattern of the ANA may be useful in elucidating the underlying cause of the arthritis. It is important to note that an ANA titre of 1:80 is considered negative, no matter what the pattern. In addition, approximately 5% of normal healthy adults (a higher percentage in pediatric patients) have a positive ANA. While useful in the work up, a positive ANA is not diagnostic of an autoimmune disease. However, in the presence of peripheral joint pain, it may require further investigation. ANA is positive in up to 20-30% of RA patients.

6. Radiographs recommended (if needed) for work-up of peripheral arthritis.

Radiographs may not be necessary in the initial work up of both inflammatory and osteo-arthritis. Scenarios in which they may be considered include: the need to confirm the diagnosis in uncertain cases; cases in which the patient has failed to respond to evidence-based treatment (i.e. CCFP Toolkit for Management of OA); staging disease severity: or when considering a rheumatology or orthopedic surgery consultation. **Please be specific when ordering views.** The following radiographs are recommended for the initial assessment of peripheral arthritis (***non-traumatic*** joint pain) if warranted.

SHOULDER
- AP (anterior-posterior), glenoid, axillary

ELBOW
- AP, lateral, both obliques

WRIST
- AP, lateral, oblique

HAND/FINGERS
- AP, lateral, oblique

HIP
- Weightbearing AP pelvis, AP and lateral of affected hip

KNEE
- Bilateral weightbearing AP and tunnel views (PA flexed 30 degrees), lateral and skyline of affected joint

ANKLE
- AP, mortise, lateral

FOOT/TOES
- AP, lateral, oblique

* Additional special x-ray views can be ordered with appropriate supportive clinical history.

**** MRI is NOT indicated for chronic joint pain and x-ray confirmed osteoarthritis***

* Ultrasound has a very limited role in chronic knee pain, and is generally used to evaluate for: joint effusion pre-arthrocentesis, integrity of the extensor mechanism (quads and patellar tendons), and solid vs. cystic masses (including Baker's cyst)

* ***Ultrasound is NOT indicated for the routine evaluation of osteoarthritis.***

**** Ultrasound is NOT indicated for assessing menisci or cruciate ligaments of the knee.***

The Peripheral Arthritis Enhanced Primary Care Pathway was developed by the following individuals in collaboration with the Calgary Zone Primary Care Networks, the Division of Rheumatology, Alberta Health Services, and the Department of Radiology at the University of Calgary:

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