# Joint Pain

## Definition / Supporting Information

Arthralgia is joint pain – the subjective experience of pain that is referable to a bony articulation. In a young child, it might be inferred from the patient's refusal to move a particular extremity or joint.

Arthritis is an inflamed joint and manifests with joint pain, swelling, and restriction.

**Keywords / also known as:** oteomyelitis, septic arthritis

## Essential History

**Ask about:**

- Onset and duration of symptoms
- Number and location of joints involved
- History of trauma or overuse (eg, sports)
- Fever
- Malaise / tiredness
- Joint stiffness, including the time of day stiffness occurs
- Medical history / review of systems
- Family history

## 'Red Flag' Symptoms and Signs

**Ask about:**

- Signs of systemic illness
  - Fever
  - Recent weight loss
  - Sweating
  - Rashes
  - Gastrointestinal symptoms

**Look for:**

- Fever (see Fever in under 5s: assessment and initial management [NICE clinical guideline 160, section 1.2, Table 1])
- Tachycardia
- Signs of arthritis
  - Redness
  - Warmth

  - Swelling
  - Tenderness
  - Pain with motion
  - Reduced range of motion
- Rash
- Lymphadenopathy
- Organomegaly (see hepatomegaly / splenomegaly)
- Skin changes
  - Bruising (see Petechiae and Purpura)
  - Peeling of extremities
  - Pallor
  - Poor perfusion
- Conjunctivitis
- Mucosal changes
  - Erythema
  - Cracked lips
- Signs of abuse
  - Such as bruising, pain, or swelling inconsistent with history
  - See Child maltreatment: when to suspect maltreatment in under 18s [NICE clinical guideline CG89]

## Differential Diagnosis / Conditions

- Rheumatic diseases
  - Juvenile idiopathic arthritis (JIA)
  - Psoriasis
  - Systemic lupus erythematosus (SLE)
  - Ankylosing spondylitis
  - Juvenile dermatomyositis
  - Scleroderma
  - Mixed connective tissue disease
- Infectious / post-infectious
  - Septic arthritis
  - Osteomyelitis
  - Transient synovitis of the hip
  - Acute rheumatic fever
  - Reactive arthritis
  - Discitis
  - Systemic viral and bacterial infections

  - Chronic fatigue syndrome (CFS) / myalgic encephalomyelitis (ME)
    - See Chronic fatigue syndrome / myalgic encephalomyelitis (or encephalopathy): diagnosis and management [NICE clinical guideline CG53]
- Immune-mediated / other systemic conditions
  - Henoch–Schönlein purpura
  - Kawasaki Disease
  - Inflammatory bowel disease
  - Sarcoidosis
  - Polyarteritis nodosa
  - Marfan's syndrome
  - Infantile cortical hyperostosis (Caffey's disease)
  - Familial Mediterranean fever
- Haematological
  - Leukaemia
  - Sickle cell disease
  - Haemophilia
- Orthopaedic / mechanical
  - Perthe's disease
  - Slipped femoral epiphysis
  - Fracture or dislocation
  - Hypermobility syndrome
    - Increased joint laxity with vigorous activity, especially when requiring extremes of joint flexion and extension
  - Chondromalacia patellae
    - Knee pain, experienced as the patella moves in the patellofemoral groove, is usually related to activity.
  - Growing pains
    - Discomfort in the lower limbs and joints
    - Often worse at night
    - Adolescent girls with fibromyalgia syndrome can experience diffuse arthralgia, but pain is more typically muscular or periarticular.
- Physical abuse

## Investigations

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team) or specialist practitioners (eg, Emergency Department / General Paediatric Team(s)):

- Erythrocyte sedimentation rate or plasma viscosity
- C-reactive protein

- Full blood count and film
- If rheumatic disease suspected consider (note that laboratory tests are not diagnostic of JIA and auto-antibodies should not be sent as a 'screening' test):
  - Antinuclear antibody (ANA) test
    - Often positive with transient illness (eg, viral infection) and not diagnostic of JIA or SLE
    - A positive ANA in JIA gives the patient a higher risk of uveitis
  - Rheumatoid factor titre
    - Often negative with JIA
    - If positive in JIA, then add anti-cyclic citrullinated peptide (CCP) antibodies
  - Ferritin
    - High with systemic JIA and very high with macrophage activation syndrome
  - Serum immunoglobulin levels

To be undertaken by specialist practitioners (eg, Emergency Department / General Paediatric Team(s)):

- X-ray
  - If fracture, Perthe's disease or slipped femoral epiphysis suspected
- Blood cultures
  - If septic arthritis or osteomyelitis suspected
- Magnetic resonance imaging
  - If septic arthritis or osteomyelitis suspected
- Further investigation depends on suspected underlying cause

## Treatment Approach

To be undertaken by non-specialist practitioners (eg, GP Team) or specialist practitioners (eg, Emergency Department / General Paediatric Team(s)):

- Management focuses on:
  - Controlling inflammation
  - Preserving normal range of joint motion and strength
- Growing pains
  - A bedtime dose of a non-steroidal anti-inflammatory drug (NSAID) can help to alleviate this pain until it resolves by itself.
- Hypermobility syndrome
  - For some patients, exercises or physiotherapy to increase muscle strength and tone can be beneficial.
- Chondromalacia patellae
  - Avoid strenuous exercise until pain resolves

  - Exercises that strengthen the quadriceps femoris and adductor muscles can produce marked improvement.
  - NSAIDs

To be undertaken by specialist practitioners (eg, Paediatric / Paediatric Rheumatology / Orthopaedic Team(s)):

- Septic arthritis demands immediate arthrocentesis for diagnosis and therapy.
- Systemic bacterial infection
  - After joint aspiration and establishment of strong suspicion of purulent arthritis, the child should be admitted to hospital and appropriate intravenous antibiotic therapy initiated.
  - Prompt, aggressive therapy usually brings about recovery without adverse side effects, although some foci, such as the hip joint, can remain persistent problems.

## When to Refer

Refer urgently to specialist practitioners (eg, Emergency Department / General Paediatric / Paediatric Rheumatology / Orthopaedic Team(s)) if:

- High clinical suspicion for septic arthritis, osteomyelitis, or serious febrile illness causing joint pain
  - See Fever in under 5s: assessment and initial management [NICE clinical guideline 160, section 1.2, Table 1]
- Joint pain occurs with ‘red flag’ signs or symptoms suggestive of systemic disease
- Swollen joint suggestive of arthritis present for ≥ 2 consecutive weeks
- Suspected fracture or dislocation

Refer to specialist practitioners (eg, Emergency Department / General Paediatric / Paediatric Rheumatology / Orthopaedic Team(s)) if:

- Suspicion of rheumatic disease
- Inadequate response to treatment
- Diagnostic uncertainty
- CFS

Refer to physiotherapy team (directly or via Paediatric / Paediatric Rheumatology / Orthopaedic Team(s)) if:

- Physiotherapy support required
  - Joint hypermobility
  - Rehabilitation

Escalate care to Orthopaedic Surgery or Paediatric Rheumatology Team if:

- A surgical procedure is required for evaluation or definitive treatment

  - Operative repair of fracture
  - Ligament tear
  - Septic arthritis
- Further evaluation and specialist treatment is required
  - Suspicion of JIA or other rheumatological disorder
  - Sickle cell disease
  - Haemophilia
  - Inflammatory bowel disease

## ‘Safety Netting’ Advice

- Advise families to seek medical advice if ‘red flag’ symptoms occur or if no / little improvement with treatment measures
- CFS / ME is a diagnosis of exclusion
  - Healthcare professionals and people with CFS / ME should develop a plan for managing setbacks / relapses, so that skills, strategies, resources, and support are readily available and accessible when needed.

## Patient / Carer Information

***Please note: whilst these resources have been developed to a high standard they may not be specific to children.***

- Arthritis (Web page), the NHS website
- Septic arthritis (Web page), the NHS website
- Irritable hip (Web page), the NHS website
- Henoch–Schönlein purpura (Web page), the NHS website
- Joint hypermobility (Web page), the NHS website
- Growing pains (recurrent limb pains in children) (Web page), the NHS website
- Chondromalacia patellae (Web page), Patient

## Resources

### National Clinical Guidance

Fever in under 5s: assessment and initial management (Web page), NICE clinical guideline CG160, National Institute for Health and Care Excellence

Child maltreatment: when to suspect (Web page), NICE clinical guideline CG89, National Institute for Health and Care Excellence

Chronic fatigue syndrome / myalgic encephalomyelitis (or encephalopathy): diagnosis and management (Web page), NICE clinical guideline CG53, National Institute for Health and Care Excellence

Management of chronic pain (Web page), SIGN guideline 136, Scottish Intercollegiate Guidelines Network

## Medical Decision Support

Recognition of Physical Abuse (Web page), RCPCH Child Protection Companion

## Suggested Resources

***Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.***

Pain Management (eLearning - requires log-in), RCPCH Compass

Paediatric Musculoskeletal Matters (Website), Newcastle University and Northumbria University.

TEMPERS! Awareness Raising Leaflet (PDF), Societi

Time to 'Think Kawasaki Disease' (Webinar), Royal College of Paediatrics and Child Health

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