Guideline

The limping child

Reason for development

- To standardise/improve patient care

1 Scope

Children within the trust

2 Aim

This guideline is to help the clinician dealing with a child presenting with non-traumatic limp to distinguish those at risk of serious pathology from those children with a benign cause.

3 Introduction

Limping following obvious trauma poses little diagnostic challenge and will not be dealt within this guideline. Two common patterns of presentation exist, namely the **painful hip** and the **acutely swollen joint**. It is important to remember a few general points when approaching the limping child:

- Limping may be due to pain referred from somewhere else (genital/spinal pain referring to the hip and pain from the hip referring to the thigh or knee).
- Certain causes of limping are age dependant.
- Inflicted injury should always be considered.

4 History and examination

The **history** should include questions about trauma, preceding infections or drug exposure, the presence of fever, rashes, features of systemic disease with joint involvement and the rate of onset of the problem.

On **examination** assess:

- Gait: Antalgic gait, running usually accentuates any pathological features.
- Standing: Back and spine (deformity and tenderness), pelvic tilt.
- Supine: examine each joint separately for tenderness, swelling, effusion, erythema, warmth and range of movement: Hip rotation is the most sensitive test and should be symmetrical if there is no pathology. Also examine abdomen and groin and look for muscle atrophy, weakness and abnormal tendon reflexes.

4.1 Differential diagnosis

Common causes of limping in children		
All ages		
•Trauma (fracture, haemarthrosis, soft tissue) •Infection (septic arthritis, osteomyelitis, discitis) •Secondary to various viral illnesses •Tumor •Sickle cell disease •Serum sickness		
Toddler (1-3 years)	**Child (4-10 years)**	**Adolescent (11-16 years)**
•Transient synovitis •Toddler's fracture •Child abuse •Developmental dysplasia of the hip •Juvenile arthritis (pauciarticular) •Neuromuscular disease •Haemophilia •Hennoch-Schoenlein purpura	•Transient synovitis •Juvenile arthritis (pauciarticular) •Perthes disease •Rheumatic fever •Haemophilia •Hennoch-Schoenlein purpura	•Slipped upper femoral epiphysis •Overuse syndromes •Osteochondritis dissecans

4.1.1 The painful hip

There are four common and important diagnoses to be aware of:

Septic Arthritis can destroy a joint within 24 hours. Diagnosis is by exclusion.
Important signs to watch for are:

- Marked pain/spasm
- High fever
- Systemic upset++
- Raised ESR >20

Remember that not all of the features may be present and that the younger the child, the more subtle the presentation can be!

Transient synovitis is a relatively common problem, especially in children between the ages of 3 and 6 years old which is usually self-limiting within approximately one week. There is a higher incidence in boys than girls.

- Rapid onset of hip pain and limping in an otherwise well child
- +/- history of preceding viral illness
- Hip held in flexion and abduction, limitation of internal rotation
- Only mild reduction of hip movements

Perthe's disease (osteonecrosis of the femoral head) tends to be found in the age group of 4 to 12 years and is due to an avascular necrosis of the femoral head. Diagnosis is radiological but x-ray changes may be absent early in the illness.

- Boys : Girls = 4 :1
- 15% may be bilateral
- no systemic features

Slipped upper femoral epiphysis tends to occur in 10 – 15 year olds, often with body weight above the 90th centile. Boys are affected slightly more often than girls and nearly a quarter of patients have bilateral disease. There may or may not be a history of minimal trauma. Diagnosis is radiological.

- Boys : Girls = 2 : 1
- 25% may be bilateral
- AP views alone may miss subtle changes therefore bilateral 'frog view' is required

4.1.2 The acutely swollen joint

The differential diagnosis of an acutely swollen and painful joint is large and initial investigation is aimed at excluding conditions which require urgent treatment. If the diagnosis is still unclear after initial investigations it is essential to organize appropriate follow up. In the vast majority of cases this will be the paediatric A&E clinic on Wednesday mornings. The following table shows some common reasons for arthritis in children and specific management diagnostic issues.

5 Management

- Apply EMLA cream (arms & groins)
- Give analgesia
- Provide parents with **written information leaflet** on discharge

Weekdays 9-5:

- Perform bloods (ESR, CRP, FBC)
- **Consider** an x-ray of the affected joint (if following trauma, history of > one week, aged over 4 years; AP pelvis x-ray with a Frog-lateral view if child over 8 years old)
- Arrange for an ultrasound scan of the hips. An aspiration of the effusion may be considered but **only after** discussion with senior in ED
- Send any aspirate to microbiology for MCS (remember to phone the MLSO) if this has not been done by radiology.

Out of hours and on weekends:

- Perform bloods
- **Consider** an x-ray of the affected joint (see criteria above)
- If bloods and x-ray are normal, ultrasound may be deferred.
  Provided the child is systemically well (afebrile, no vomiting, appropriate analgesia) they can be seen in the Wednesday follow-up clinic.
  Discuss with the departmental senior.

Management of the painful joint			
	Suggestive features	**Investigations**	**Disposal**
Septic arthritis/ osteomyelitis	•Fever, systemic upset, severe limitation of joint movement. •Beware of subtle presentation!	•FBC, CRP, ESR •Ultrasound and guided joint aspiration **may** be possible •X-ray of the joint may show signs of osteomyelitis (late sign)	•Needs urgent orthopaedic in-put •Will require joint wash-out and intravenous antibiotics
Joint trauma	•History of trauma	•X-ray	•Refer to fracture clinic
Irritable hip	•Systemically well	•Bloods as above •Ultrasound if easily available •+/- X-ray	•Follow up in Paediatric A&E clinic Wednesday mornings (7–10 days after onset of limp) •Advise regular analgesia for 48 hrs
Hennoch-Schoenlein Purpura	•Purpuric rash in typical distribution •Abdominal pain •Haematuria	•Urine dipstick and microscopy •Blood pressure	•Paediatric referral and follow-up as per HSP guideline
Haemarthrosis	•If spontaneous or after minor injury consider haemophilia	•Coagulation studies	•Refer to Paeds if clotting abnormal
Rheumatic fever	•Carditis •Erythema marginatum •Migrating polyarthritis •Subcutaneous nodules •Chorea	•ECG/ECHO •Bloods as above +ASOT, DNase B	•Refer to Paeds
Serum sickness	•History of medication, e.g. Cefaclor •Rash	•Bloods as above	•Follow up in Paediatric A&E clinic Wednesday mornings (7–10 days after onset of limp)
Reactive arthritis	•History of recent viral illness •Well child	•Exclude septic arthritis (see above)	•Follow up in Paediatric A&E clinic Wednesday mornings (7–10 days after onset of limp)

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References

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