

LIMPING CHILD

Learners Guide

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PRE READING

Please read the following before the session

Lower Limb Joint Anatomy

Limping in Children

DFTB: Fever and Limp

DFTB: The child with a Limp

And look at one of the following guidelines

RCH Clinical Practice Guidelines : The limping or non-weight bearing child

NICE CKS Acute childhood limp

And aim to listen to this podcast from PEM playbook

Please, Just STOP LIMPING!

CASE 1 (15 MINS)

A 10 year old boy is brought to ED by his dad who is concerned that his son is limping and has left knee pain. He has complained of pain a few times before - especially after sports (which he dislikes) but seems to be in much more discomfort since coming home from school yesterday.

What are the differential diagnoses in this case?

How would you refine your diagnosis further?

A thorough history establishes that the child is systemically well but overweight. He has restricted movement in his left hip. You notice that he externally rotates his hip when you try to flex it. This is his x-ray:



What do you tell the boy and his father about the diagnosis?

What is likely to happen next?

CASE 2 (15 MINS)

A four year old boy is brought to ED as he is unable to weight-bear. He woke up with a slight limp this morning which has steadily worsened throughout the day and he is now unable to walk at all. He has no recent medical history of note. Examination is unremarkable other than a moderately restricted range of movement in his right hip. Despite the fact he is systemically well and has had good doses of analgesia he remains unable to weight-bear.

What investigations (if any) would be appropriate at this stage and why?

What is the most likely diagnosis?

Can this child go home today?

If so, what information would you give to parents and what follow up (if any) would you arrange?

ADVANCED CASE 1 (20 MINS)

You see a 3 year old child with a two day history of fever. He has woken up with a right sided limp. On examination he is febrile with large, pus covered tonsils, cervical lymphadenopathy and discomfort in the right hip – especially on internal/external rotation. You decide to do bloods and the inflammatory markers come back as raised.

What is the role of tonsillitis in this presentation?

How might you distinguish between a transient synovitis and a septic arthritis in this case?

ADVANCED CASE 2 (20 MINS)

A 1 year old girl with a background of sickle cell anaemia attends ED with a history of fevers up to 39°C and diarrhoea for the last two days. Two other family members also have diarrhoea. This morning she is distressed and seems to be in a lot of pain. She is not weight bearing and the family are concerned this could be her first painful crisis.

Examination reveals a painful, hot left ankle with some mild swelling. The child screams in pain when you attempt to move it.

What are the concerning features in this child - what makes her a high risk patient and why?

What are your next steps in managing this child?

Who needs to know about this child?

ADVANCED CASE 2 (20 MINS)

A 10 year old young man, James, with profound learning difficulties presents to the Emergency Department with reduced mobility, a poor appetite and altered behaviour. His mum says he hasn't fallen or hurt himself recently, but she thinks he is in pain and claims that "my son is not himself". He is afebrile and systemically well. You notice that James has an abnormal gait as he walks in from the waiting room. You offer him analgesia.

What further information would you like to elicit from the history?

What is a pGALS screen? Practice a pGALS examination with your colleague.

Your clinical suspicion and sense of pre-test probability tailors your examination to involve a musculoskeletal and joint exam. With mum's help, distraction techniques and imaginative play James manages through an incomplete pGALS examination. He doesn't allow you to complete a comprehensive general examination and mum tells you the last time James had a blood test, the doctor almost got a needle-stick injury.

You suspect a hip problem but you are still unsure. What are you going to do next?

You do bloods and an X-ray which again have been a challenging exercise.



Blood results:

Hb 9.8, **WCC** 15.6, **Plt** 299, **Na** 131, **K** haemolysed, **Urea** 2.4, **Creat** 15 **ESR** insufficient
LDH haemolysed

What do you think the diagnosis is and who should be involved in James care?

Quiz Questions (10 mins)

Question 1.

Which of the following is NOT part of Kocher's criteria for assessing the risk of septic arthritis in a limping child?

A

ESR >40

B

Range of movement <50% normal

C

WCC > 12x10⁹

D

Fever >38.5°C

E

Inability to weight bear

Question 2.

Which of these statements about SCFE/SUFE is TRUE?

A

It is most common in underweight children between the ages of 6-10. It can be a cause of chronic hip pain and is bilateral in approximately 10% of cases.

B

It is a cause of both acute and chronic hip pain, is rarely bilateral and typically occurs in overweight adolescents.

C

It is caused by avascular necrosis of the femoral epiphysis and usually presents as a chronic problem. Radiological detection is improved by requesting a 'frog-leg lateral' view.

D

It is most common in children over the age of 10 and can present with acute or chronic pain. It is bilateral in around 20% of cases and radiological detection is improved by a 'frog-leg lateral' view.

E

It is a common cause of limp and pain in underweight adolescents and is bilateral in one third of cases. Early detection and referral improves prognosis.

Question 3.

In a classical antalgic gait, which phase of walking is affected?

- A**
Strike
- B**
Contact
- C**
Stance
- D**
Propulsion
- E**
Swing

Question 4.

Which of the following bacteria is the most likely to cause septic arthritis?

- A**
E. Coli
- B**
Streptococcus pneumoniae
- C**
Haemophilus Influenza B
- D**
Staphylococcus aureus
- E**
Salmonella

Question 5.

Which of the following statements about Perthes disease is **FALSE**

- A**
It is more common in boys than girls
- B**
It is bilateral in 10% of cases
- C**
It is defined by avascular necrosis of the femoral head
- D**
An older age at diagnosis is associated with a more favourable prognosis
- E**
Physiotherapy, casting and surgery may all form part of the treatment regimen

Question 6.

A 10 year old presents with an acute onset of right hip and wrist pain following a very minor trip and fall onto the ground. Since the incident she has been unable to bear weight. On examination the right hip and wrist showed no obvious deformity and range of movement were normal after her pain was addressed. During the last 2 years she had not presented to the GP but recently she had complained of poor sleep, leading to daytime somnolence, palpitations, anxiety and sweating. A fall in her weight growth curve was noted after plotting her on a growth chart.

Which statements are FALSE?

A

This is a 'red herring' injury commonly reported by patients and their parents and will not require further investigations.

B

For children over the age of 8 years or limping > 7 days an X-ray is an adequate imaging modality as it has a relatively low dose of radiation but is also very likely to show the pathology causing the pain.

C

Blood tests are indicated including thyroid functions because the minor fall is not in proportion to the severity of her symptoms and her unexplained weight loss is of concern

D

Transient synovitis is most common in this age group so cooling, rest and pain relief are adequate therapy.

Finish - infographic of the take home tips (5 mins)

- 1 Age is key in forming your differential diagnosis.
- 2 The majority of children presenting with a limp will have a benign and self-limiting condition.
- 3 Any child with fever and limp warrants further investigation.
- 4 Consider non musculoskeletal causes for limp e.g. referred pain from abdominal or testicular issues.
- 5 Don't forget to ask about systemic symptoms suggestive of serious underlying disease.

REFERENCES

Joint Anatomy

Please, Just STOP LIMPING!

Limping in Children

Clinical Practice Guidelines : The limping or non-weight bearing child

NICE CKS - Acute Childhood Limp

BMJ - Transient Synovitis of the Hip

Perthes Disease - Legg-Calve-Perthes

Hip Septic Arthritis - Pediatric - Pediatrics

Kocher Criteria for Septic Arthritis

Slipped upper femoral epiphysis | Radiology Reference Article

KEY PAPERS

[Kocher MS et al. Differentiating between septic arthritis and transient synovitis of the hip in children: an evidence-based clinical prediction algorithm. J Bone Joint Surg Am. 1999 Dec;81\(12\):1662-70.](#)

[Kocher MS et al. Validation of a clinical prediction rule for the differentiation between septic arthritis and transient synovitis of the hip in children. J Bone Joint Surg Am. 2004 Aug;86-A\(8\):1629-35.](#)

Perry, D. and Bruce, C. (2010) Evaluating the child who presents with an acute limp. BMJ 341, c4250.

Herman, M. and Martinek, M. (2015) The limping child. Pediatrics in Review 36(5), 184-197. [\[Abstract\]](#)