

Approach to Joint Pain in Children

Mummy, my knee hurts!

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Belle

- 5 year old girl
- Wakes up at night with knee pain
- Asks mother to rub her legs
- Pain better within 15 minutes
- Well in the morning
- Occurs 2-3 times each week



Physical examination

- Well thrived and cheerful child
- Normal gait
- No limb length discrepancy
- Joints are not swollen and have full range of movement

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Growing pains/ Benign Limb Pain of Childhood

- Pain typically wakes them from sleep
- Usually large joints or long bones, lower limbs
- **Normal physical findings**
- Episodic; well in between
- Treatment: often none required.
- Reassure parents. Give advice on red flags – joint swelling, persistent/worsening pain.

Cheryl

- 5 year old girl
- History of slow gross motor development, stiff looking gait and bent knees.
- Seen by Orthopaedics at 2 years old- fixed flexion deformities.?Arthrogryposis.
- Went to polyclinic for increasing difficulty straightening elbows and fingers.
- Examination of joints normal.
- XR hands reported periarticular osteopenia
- Referred to Paediatric Rheumatology Clinic

Physical examination

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Physical examination

- Gait: keeps hips and knees flexed. Runs awkwardly
- Multiple joints with swelling and limited range of movement

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Diagnosis?

Kids get Arthritis too



Juvenile Idiopathic Arthritis

- Arthritis of unknown etiology
- Begins before the 16th birthday
- Persists for **at least 6 weeks**
- Occurs in 1 in 1000 children

Arthritis is diagnosed on
history AND physical exam.

Not blood tests or Xrays.

What is arthritis?

- **Inflammation of the joint:**
- Pain
- Swelling
- Warmth
- Erythema
- Limitation of movement

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	Inflammatory arthritis	Non-infl/mech pain
Pain	Better with activity; Worst in morning	Worse with activity; improves with rest
Early morning stiffness (EMS)	>30min	15-30min
Swelling	Yes	Maybe
Warmth	Yes	No
Limited movement	Yes	
Systemic complaints	Yes, e.g. fatigue, poor appetite	No

Clues to inflammatory pain:

- Not usually severe, unless acute flare
- There may not always be pain- children compensate well. Ask about function, play, regression, 'tiredness', irritability, 'clumsiness'

In children, the history is challenging!

- No pain
- Just limitation
- Insidious onset of symptoms

In children, the physical exam is challenging!

- What is normal?
- “pudgy” or “plump”
- Children usually more flexible

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Unable to fully extend,
limb length discrepancy

Diagnosis of arthritis is based on exam

Definition:

- Joint effusion, usually tender
- Painful limited ROM and tenderness
- Limited ROM and joint line tenderness

- Diagnosed only on clinical exam
- Ultrasound or MRI for deep, inaccessible joints

JIA can affect ANY joint!

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Tips to a successful joint exam in a child

- Have fun!
- Check every joint- pGALS
- “Stress” the joint
- Look for symmetry



We don't want these long-term complications

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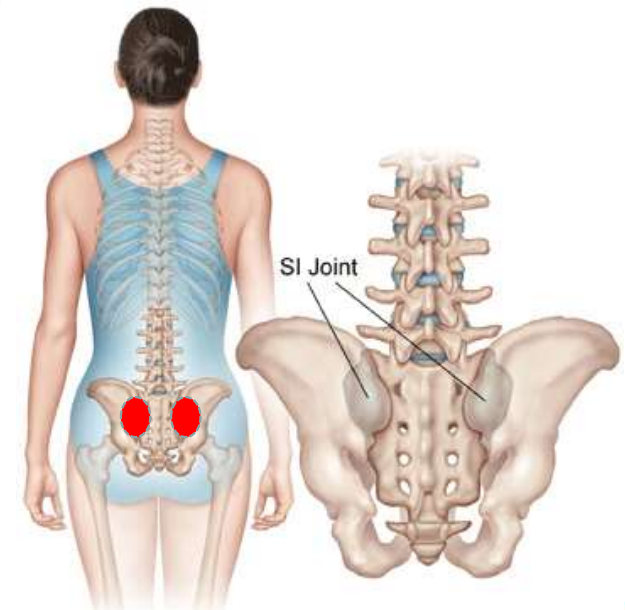
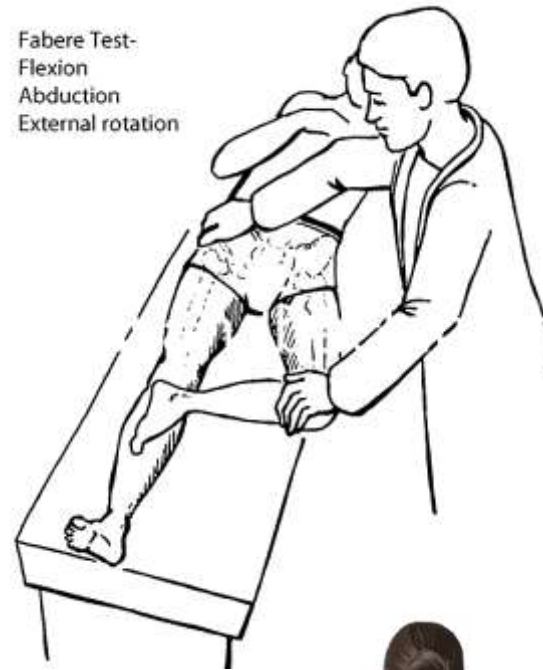
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Dylan

- 14 year old boy, school team soccer captain.
- Lower back pain for 3 months, some times in the buttocks.
- Feels stiff in the morning but gets better by the time he reaches school.

Physical examination

- FABER positive
- Tenderness over the sacroiliac joints
- Neurologically normal



Diagnosis?

JIA with sacroiliitis

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Fusion of sacroiliac joints – future problems with walking, squatting

- Therapy needs to be aggressive as these are important weight-bearing joints.

Elaine

- 9 yr old girl admitted for high fever for the last 6 days.
- Intermittent red rash- trunk, arms, inner thighs; disappears when fever is gone
- Intermittent abdominal pain
- Pain in hands
- Walking slower in last 3 weeks. “Fat ankles”

Physical Exam

- Febrile 40 deg C, miserable-looking
- Small cervical LNs
- Hepatomegaly 4 cm
- Fleeting maculopapular rash over limbs and trunk

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Raise arms up and
look up

Look to the left

Look down

Straighten arms out,
supinate

Swollen fingers, rash



Diagnosis?

Systemic-onset JIA (SOJIA)

- Arthritis AND
- Daily fever x 2 weeks (quotidian x 3 days)
AND one of:
 1. Evanescent red rash
 2. Generalised LN enlargement
 3. Hepato and/or splenomegaly
 4. Serositis

JIA Mimics

Malignancy can present with joint pain too!

Table 3

Red flags suggesting malignancy (after excluding infections)

Pain	Disproportionate to physical examination Not joint centered Migratory Night time pain (except for growing pains)
Arthritis	No morning stiffness Atypical onset: elbow, back
Systemic symptoms	Night sweats Weight loss Fever

Gabriel

- 7 year old girl
- Slight cold then bilateral ankle pain
- Headache
- Abdominal pain
- 2 weeks later, fever and vomiting for 2 days
- Refused to walk
- Investigations unremarkable
- One month later...
- Appetite good.
- No LOW
- Missed school x 1 month

Amplified Pain Syndrome

Investigations for a child with suspected arthritis

- **No diagnostic tests are available.**
- Diagnosis of JIA is based on **clinical** findings.
- Full blood count
- CRP, ESR
- X-ray changes– late sign

Treatment: first line

- **NSAIDS**

naproxen 10 mg/kg **bd** (tab)

ibuprofen 10 mg/kg **tds** (syrup, tab)

STRICTLY

Take after meals to reduce gastritis

**** Start the treatment while awaiting appointment with the Paediatric Rheumatologist****

Treatment: second line - DMARDs

- Intra-articular steroid injections
- Methotrexate PO or SC weekly
- Biologics – SC or IV injections
 - TNF inhibitors: etanercept (Enbrel), adalimumab (Humira), infliximab
 - Anti-IL1, anti-IL6

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JIA Outcomes

- Mortality Rate: ~1%
- 50% mortality in SoJIA
- Oligo JIA - in general, best outcome

The child with joint swelling or pain- an approach

- Is the child sick or well?
- Is one swollen joint or more?

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Summary: Child with Painful Joint

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- Surgical or Medical?
- Children can get chronic arthritis.
- The chronic arthritis may be part of a more systemic inflammatory process.
- Consider non-inflammatory causes of joint pain.
- Fever is not always infection.

When should you refer to a paediatric rheumatologist?

- Arthritis – post-infectious arthritis, JIA
- Autoimmune disorders – SLE, JIA, scleroderma, Kawasaki disease, vasculitis, inflammatory disorders of the muscle/eye/other organs
- Evaluation of prolonged fever / recurrent fever
- Possible inflammatory disease
- Unexplained complaints of chronic musculoskeletal pain, weakness, poor appetite, fatigue
- Unexplained symptoms such as rash, anaemia, weight loss or joint swelling



The Children's Medical Institute

Thank You

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Referrals are seen within 1-3 weeks

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