Non-inflammatory joint pain

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INTRODUCTION

• Musculoskeletal disorders are among the most common reasons for outpatient clinic visits.

• They are the most common causes of severe long term pain and physical disability.

• Their prevalence increases with age and many are affected by lifestyle such as obesity and lack of physical activity.

• In Kenya, musculoskeletal pain was reported in 12% of inhabitants of Nairobi in a community study.

2. erepository.uonbi.ac.ke/handle/11295/61257
The dilemma

• Often when the clinician is confronted with a patient with MSS pain, several questions with implications to therapy may be asked:
  • Is there malignancy or infection (are there RED FLAGS)?
  • Is it generalized or regional?
  • Is it articular or not?
• And if articular is it inflammatory or not?
• Non inflammatory non-specific joint pain still account for majority of outpatient visits to the rheumatologists.
<table>
<thead>
<tr>
<th>RED FLAGS</th>
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<tbody>
<tr>
<td>(Raise concern about infection, malignancy or non-accidental injury)</td>
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</tbody>
</table>

- Fever, malaise, systemic upset (reduced appetite, weight loss, sweats)
- Bone or joint pain with fever
- Refractory or unremitting pain, persistent night-waking
- Incongruence between history and presentation (such as the pattern of the physical findings and a previous history of neglect)
### Distinctive features of regional syndromes

<table>
<thead>
<tr>
<th></th>
<th>Periarticular pain</th>
<th>Articular pain</th>
<th>Neurogenic pain</th>
<th>Referred pain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enquiry</strong></td>
<td>Only a few selective movements are painful</td>
<td>All joint movements are painful</td>
<td>Dysaesthetic Aggravated by compression of nerve or movement of the spine</td>
<td>Unrelated to movement “Visceral” timing Poorly localised, may be improved by rubbing</td>
</tr>
<tr>
<td><strong>Pain on motion</strong></td>
<td>Active &gt; passive Selected movements</td>
<td>Active ~ passive Several directions</td>
<td>Normal If root pain: pain on movement of the affected spine segment</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Range of motion</strong></td>
<td>Active movement may be limited by pain. Passive movement: full</td>
<td>May be limited equally for both active and passive movement</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Resisted active movement</strong></td>
<td>Pain on specific manoeuvres</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
</tr>
<tr>
<td><strong>Local palpation</strong></td>
<td>Tenderness over affected periarticular structure (away from joint line)</td>
<td>Possible tenderness over joint line, crepitus, capsular swelling, effusion, increased heat</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Neurological examination</strong></td>
<td>Normal</td>
<td>Normal</td>
<td>May be abnormal</td>
<td>Normal</td>
</tr>
</tbody>
</table>
## Joint Pain: Is it Mechanical or Inflammatory?

<table>
<thead>
<tr>
<th></th>
<th>Inflamed joint</th>
<th>Damaged joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early morning stiffness</td>
<td>prolonged</td>
<td>brief</td>
</tr>
<tr>
<td>Inactivity stiffness</td>
<td>prolonged</td>
<td>brief</td>
</tr>
<tr>
<td>Increased warmth</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Stress pain</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Capsular soft-tissue swelling</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Effusion</td>
<td>+++</td>
<td>+/-</td>
</tr>
<tr>
<td>Coarse crepitus</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Malalignment/deformity</td>
<td>-</td>
<td>+/-</td>
</tr>
<tr>
<td>Instability</td>
<td>-</td>
<td>+/-</td>
</tr>
</tbody>
</table>
AA 7 years old boy

• C/O Recurrent right knee pain worse in evening X 6/12.
• No early morning stiffness.
• No trauma. No back pain.
• FSH: Mum says most of her family members have very flexible joints.
• Work up for malignancy, inflammatory disorders negative.
• No evidence of cardiac disease.
Benign hypermobility syndrome
Benign joint hypermobility

- BJH refers to hypermobility with associated symptoms such as:
  - Chronic pain in 1 or more joints,
  - back pain,
  - joint subluxation or dislocations,
  - soft tissue injuries,
  - Marfan syndrome-like habitus
  - skin features.
- It is diagnosed using the 1998 Brighton criteria
- More common in Asians and least in Caucasians.
- Affects Females > Males.

- Pain most commonly involves the weight bearing joints of knee and ankle
- Physical activity often exacerbates the pain.
- Pain usually occurs later in the day.
- Morning stiffness is uncommon.

Tofts et al. Pediatric Rheumatology 2009
Table 4: The 1998 Brighton criteria for a diagnosis of Benign Joint Hypermobility Syndrome[8].

<table>
<thead>
<tr>
<th>Major Criteria:</th>
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</thead>
<tbody>
<tr>
<td>1. Beighton Score of ≥ 4/9</td>
</tr>
<tr>
<td>2. Arthralgia for &gt; 3 months in &gt; 4 joints</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Beighton score of 1–3</td>
</tr>
<tr>
<td>2. Arthralgia in 1–3 joints</td>
</tr>
<tr>
<td>3. History of joint dislocation</td>
</tr>
<tr>
<td>4. Soft tissue lesions &gt;3</td>
</tr>
<tr>
<td>5. Marfan-like habitus</td>
</tr>
<tr>
<td>6. Skin striae, hyperextensibility or scarring</td>
</tr>
<tr>
<td>7. Eye signs, lid laxity</td>
</tr>
<tr>
<td>8. History of varicose veins, hernia, visceral prolapse</td>
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</tbody>
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For a diagnosis to be made either both of the major criteria must be present or 1 major and 2 minor or 4 minor.
Management of Joint Hypermobility Syndrome

- Ensure to rule out other connective tissue/ collagen disorders including:
  - Ehlers danlos,
  - Marfan’s and
  - osteogenesis imperfecta.

- Counseling
  - Diagnosis with explanation of the condition
  - Condition is benign with no long-term consequences.

- Severe cases may benefit from physiotherapy and occupational therapy.
- Simple analgesics may give relief.
AN 5 years old girl

• C/O Recurrent pain in the legs that wake her up from sleep X 6/12.
• Pain is often relieved by gentle rubbing and soothing her and she returns to sleep.
• She wakes up in the morning without any trace of pain and is able to play and run around normal.
• No early morning stiffness.
• The family is concerned because of the recurrent nature of the problem and are worried that she has a serious condition.
• Your examination is normal and work up for malignancy and infection is negative.
Growing pain (GP) – Benign nocturnal limb pain

• The prevalence of GP ranges from 3–37% of children.
• Age: children of 3–12 yrs most affected.
• Clinical characteristics:
  • Usually non-articular, often occurring in the shins, calves, thighs.
  • Pain usually occurs late in the day or at night; often awaking the child.
  • The episodes last from minutes to hours and often respond to rubbing and simple analgesia.
  • By morning the child is almost always pain free.

Management

• Rule out other conditions (danger signs), JIA.
• Counseling of family to explain the benign course of the GP, thus decreasing anxiety and fear.
• Comforting, local massage, simple analgesics during attacks may ameliorate pain.
• Cognitive behavioral therapy, as well as physical activity programs to increase fitness & decrease pain sensitivity may decrease painful episodes.
• The natural history is benign with disappearance of most attacks of pain by adolescence.

Uziel et al. Pediatric Rheumatology 2007
Legg-Calvé-Perthes Disease

Background 1

- Legg-Calvé-Perthes disease (LCPD) is avascular necrosis (AVN) of the proximal femoral head due to compromised blood supply.
- Peak age: 4-10 years.
- Boys are more commonly affected than girls (M:F 4:1).
- The condition is rare, with an incidence of approximately 4 of 100,000 children.
- Onset is often insidious and may occur after injury to the hip.
- It is often unilateral; involvement of both hips occur in less than 10% of cases.
• Children with LCPD have been noted to have delayed bone age and a mildly shortened stature.

• LCPD may be idiopathic, or it may result from
  • a slipped capital femoral epiphysis,
  • trauma,
  • steroid use,
  • sickle-cell crisis,
  • toxic synovitis, or
  • congenital dislocation of the hip.
Clinical manifestations

• Intermittent, often painless, limp especially after exertion,
• Mild or intermittent pain in the anterior part of the thigh.
• On examination, the patient may present with limited range of motion of the affected extremity.
Investigations

• **Laboratory Studies**
  • There are no diagnostic tests.
  • Complete blood count (CBC) with differential and erythrocyte sedimentation rate (ESR) are often normal.

• **Imaging Studies**
  • Hip radiographs,
  • MRI of the hip may be required in early cases or if in doubt.
Radiograph showing Perthe’s disease  left hip
Management

• Initial therapy involves minimal weight bearing to protect the joint.
• The femur is maintained in abduction and internal rotation so that the femoral head is held well inside the rounded portion of the acetabulum.
• This is achieved through bracing or surgery (osteotomy).
• Most children with Perthe’s grow into adulthood without further hip problems.
• If there is deformity in the shape of the femoral head, persistent hip pain and early onset arthritis is likely to occur.
Slipped Capital Femoral Epiphysis

- **Age:** 10-16 years.
- **Incidence:** In USA is 10.8 cases per 100,000 children
- **Boys > girls (M: 1.6:1)**
- **Race:** more common in blacks.
- **Clinical presentation:**
  - Pain in the Hip, medial thigh or knee.
  - Limp and decreased range of motion of the hip.
  - 20% have bilateral involvement at presentation.

emedicine.medscape.com/article/91596-overview
Risk factors

• The risk of SCFE is increased in:
• children who are obese,
• children with other medical conditions such as:
  • hypothyroidism,
  • low growth hormone level,
  • pituitary tumors, craniopharyngioma.
• Downs syndrome.
Management

• Immediate internal fixation is the treatment of choice of SCFE.
Osgood schlatter disease

• Age: 10-15 years, growth spurt period in athletic adolescents.
• Caused by repetitive traction of patella tendon at insertion on tibial tubercle.
• A 13-year-old boy presented to with a 4-week history of pain in both knees.
• He was an active footballer and reported no specific trauma.
• A physical examination of the right knee showed mild soft-tissue swelling and tenderness over the tibial tubercle.
• Plain radiographs of both knees, showed fragmentation of the tibial tubercle in both knees.
Osgood schlatter
Osgood schlatter disease
Management of Osgood schlatter

• Most cases improve with supportive care.
• Ice therapy.
• NSAIDs (nonsteroidal antiinflammatory drugs)
• Physiotherapy
• Outcome: Osgood-Schlatter is a self-limited disease and generally ceases with skeletal maturity.

Other causes of Bone pain

- Infections
- Malignancy
- FOP
- Osteochondromas
- Osteoid osteoma