Evaluation of Children With Musculoskeletal Complaints

An Evidence-Based Approach

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Case Presentation

A three year old girl was seen by her pediatrician for swelling of her left knee of ten days’ duration.

She had been well until 2 weeks earlier, when she fell off her backyard swing. She fell onto her hands and knees and cried immediately. She seemed to be well until 5 days later, when her mother noticed that she was limping. Two days after the limping started, the child’s mother noticed that the child’s left knee was swollen. She consulted her primary care physician.
Case Presentation (2)

The child was noted to be afebrile. She walked with her left knee slightly flexed. She had swelling of her left knee, and was mildly fretful when the examiner tried to fully extend the knee. She was referred to an orthopedic surgeon.

The orthopedic surgeon examined the child, and obtained plain films of her affected knee. These showed only a small effusion. She was placed in a cast for 2 weeks.
Case Presentation (3)

Casting had no affect on the child’s knee swelling or gait disturbance, and the child was referred to a pediatric orthopedic surgeon. Laboratory work was performed, showing an erythrocyte sedimentation rate of 32 mm/hr (nl 0-20) and an ANA test positive at a titer of 1:160. She was referred for pediatric rheumatology consultation.
Pauciarticular JRA: Do Primary Care Physicians Recognize It?

Referral Patterns: Pediatricians vs. Family Physicians

- Pediatricians: 25
- Family Physicians: 13

- Ortho: 5
- Rheum: 5
Symptoms of Children Presenting With Pauciarticular JRA

Joint swelling 96%
Morning stiffness/gelling 94%
Gait disturbance 86%

Children referred to orthopedic surgeons were no more or less likely to have one of the above than children referred to rheumatologists.
Case Presentation

A thirteen year old girl was referred to the rheumatologist for evaluation of knee pain of two years’ duration.

The pain usually occurred in the late afternoon and was invariably made worse with activity, better with rest. Her primary care physician examined her and found no evidence of joint swelling. However, an “arthritis panel” was sent, and the following laboratory values were found:

- IgM rheumatoid factor – Not detected
- Antinuclear antibodies - + 1:80
Case Presentation 2

At the rheumatologist: The child consistently denied limping, constitutional symptoms (fatigue, malaise, morning stiffness, unexplained fever). Her mother reports that there may occasionally be swelling of the knees for an hour or so when they hurt.

Exam – Increased external rotation of both shoulders, increased extension and flexion of both wrists, increased internal and external rotation of both hips. Both knees demonstrate moderate laxity of the anterior and posterior cruciate ligaments as well as the medial collateral ligament.

Diagnosis – Physiologic hypermobility syndrome
How Often is Pain the Presenting Complaint of Children With Rheumatic Disease?


Julie McGhee – Native American Center of Excellence summer student (currently OU Med. Class of 2005)

Frank Burks, Class of 2004 – OU Summer Honors Research Program and American College of Rheumatology Summer Research Fellow

Julie Sheckles – NW OK State University, Weatherford
Complaints for Which Children Were Referred

- Musculoskeletal pain (n=226)
- Joint swelling (n=107)
- Abnormal laboratory tests (n=153)
- Fever (n=46)
- Gait disturbance (n=38)
- Rash (n=34)
- Fatigue (n=26)
- A.M stiffness (n=15)
- Other (n=39)
# Predictive Value of Pain for Rheumatic Disease in Children

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>JRA</th>
<th>JRA or Other Rheumatic Disease</th>
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</thead>
<tbody>
<tr>
<td>Pain as an isolated complaint</td>
<td>111</td>
<td>0 (NPV* = 1.0)</td>
<td>1 (NPV = 0.99)</td>
</tr>
<tr>
<td>Pain as one of several reasons for referral</td>
<td>217</td>
<td>11 (NPV = 0.94)</td>
<td>19 (NPV = 0.91)</td>
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* NPV = Negative predictive value
Diagnoses Associated With Isolated Musculoskeletal Pain in Children

- Hypermobility syndrome
- Osgood-Schlatter’s disease
- Patello-femoral pain syndromes
- Psychogenic pain syndromes
Most Common Complaint of Children Presenting With JRA: Joint Swelling

P < 0.0001; PPV = 0.51
Duration of Symptoms: Another Useful Clinical Clue

* $P = < 0.0001$ compared with non-JRA diagnoses