

Joint Pain in Children, Part I of VI

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Joint pain is a common complaint in children but seldom a symptom of serious joint disease. How can you determine if a child with knee pain has just a strain/sprain or a more serious joint disease, such as Lyme disease, rheumatic fever, or juvenile rheumatoid arthritis? I'd like to review the more common joint disorders affecting children. It is often difficult to determine the underlying process when there is no associated traumatic incident. Many times the history is the most important factor in determining whether the symptoms are a result of a benign condition or a more serious underlying process. Children are generally not good historians, and many times parents aren't either.

Let's review some of the important points in the history. The age and sex of the patient can narrow the spectrum of diagnoses that need to be considered. Also the mode of onset, whether acute or insidious, leads to a different branch in the diagnostic decision tree.

If the child has had previous episodes of joint pain, a chronic disease process is a more likely cause than injury or infection. A history of injury cannot be relied on as diagnostic. Falls are so common in children that a recent fall in a child with a swollen joint may be only coincidental. A preceding or concurrent illness manifested by a sore throat or viral symptoms may support the diagnosis of reactive arthritis. Also, a recent vaccination (e.g., for rubella) may be significant.

The location of the pain helps the clinician to decide whether its origin is intra-articular or in the muscles or tendons. The pattern of the pain helps the clinician to distinguish inflammatory from mechanical conditions. Inflammatory pain is usually worse in the morning and improves with activity, whereas mechanical pain worsens with activity. If the pain comes and goes in a few minutes or hours, it is less likely to be significant than if it persists for days or weeks. Joint swelling, fever, or skin rash suggests a systemic process, whereas lack of evidence of physical changes often indicates a more benign condition.

Let's summarize the important points to consider during history taking:

- Age
- Sex
- Mode of onset (acute or insidious)
- Any previous episodes of joint pain
- Current or preceding illness or injury
- Recent vaccination
- Location, pattern, and duration of pain
- Joint swelling, rash, or fever

Common benign conditions are often musculoskeletal and include trauma, overuse syndromes, hypermobility syndrome, chondromalacia patellae and benign recurrent limb pains. The diagnosis of these conditions can usually be determined from the history and physical examination alone.

Traumatic joint pain may be diagnosed from a history of excessive or repetitive use of an extremity.

The resulting soreness is particularly exacerbated by the activity in question. Pain occurs mainly in the muscles and at tendon and ligament attachment points, and local tenderness is found on physical examination.

Some children have hypermobility syndrome, which results in ligamentous strains and a tendency for joint dislocation. This condition can be detected by checking for hyperextension of the elbows and knees and excessive mobility of the thumb.

Chondromalacia patellae is a common condition in teenaged girls, resulting in aching of the knees after prolonged sitting or during stair climbing. Occasionally, a small effusion is present in the knee. Symptomatic improvement usually occurs as the patient matures and/or the athletic activity is reduced. However, permanent damage to the cartilage may result, and the patient will experience continuous knee problems as a result.

Many young people maintain a flirting relationship with the disorder. They interrupt their most vigorous climbing or running activity with relatively inactive periods. While they never develop their full potential as athletes, they also keep the disorder somewhat at bay. Other youngsters are dissatisfied with such a compromise. They pose the greatest challenge to the clinician.

When the patient first presents, the primary clinician should advise no climbing, running or squatting until pain has fully resolved. Usually, such a remission occurs within 4-6 weeks. During that time, cartilage healing will usually have proceeded to a point that will allow pain-free resumption of the sport. If the sorts are seasonal, they may manage to participate through the season without great handicap, provided they minimize patellar wear in the off season. The athletes should be advised to maintain condition out of season by swimming or bicycle riding, as these excellent conditioning activities are least wearing to the patellofemoral joint.

Benign recurrent limb pains, sometimes called growing pains, have nothing to do with physical growth but may be related to emotional growth. They can occur in either boys or girls and are most common in grade-school children and young adolescents. The pains may occur anytime during the day or night but are most frequent in the evening and at night. They tend to involve the lower extremities, most commonly the calves or thighs. They usually revolve within an hour or two. There is no evidence for impaired general health or growth. In fact, x-rays and results of laboratory studies are always normal. There may be a history of similar symptoms in family members during childhood, and evidence of emotional disturbances is quite common.

Conditions presenting with musculoskeletal pain that require further investigation and ongoing therapy include Lyme disease, rheumatic fever, and juvenile rheumatoid arthritis. Other possible causes of joint pain are the seronegative spondyloarthropathies and the rarer connective tissue diseases. In addition, joint or bone pain may be the initial manifestation of neoplastic disease. Various orthopedic conditions (Osgood-Schlatter disease, osteochondritis dissecans, slipped capital epiphysis) also are diagnostic possibilities. When a single joint is affected and the onset of pain is acute, infection should also be considered in the differential diagnosis. We will review each major category of disorders that can cause joint pain in children. The following table will be a list of the more common serious types of conditions affecting children and associated with joint pain that we will review in this series of articles.

Osteochondroses: Legg-Calve-Perthes disease, Osgood-Schlatter disease, Blount's disease, Scheuermann's disease, Sinding-Larsen-Johansson disease.

Trauma: Salter-Harris type fractures, slipped capital femoral epiphysis, avulsion injuries.

Arthritides: Still's disease, juvenile rheumatoid arthritis, juvenile chronic arthritis, juvenile-onset ankylosing spondylitis.

Infection: Lyme disease, septic arthritis, rheumatic fever.

Neoplasm: benign tumors and tumor-like conditions, malignant tumors.

There are many more conditions that can cause joint pain in children, but if one is aware of most of these conditions and is able to come up with a good differential diagnosis, you will be considered one of the better diagnosticians in children's joint disease.

References

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