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PAIN SYNDROMES

1) Fibromyalgia Syndrome Synonyms

Fibromyalgia is a diffuse idiopathic musculoskeletal pain syndrome.

What is it?

Fibromyalgia is a disease causing widespread musculoskeletal pain, tender areas in soft tissues (muscles and tendons), and severe fatigue.

How common is it?

Fibromyalgia occurs mainly in adults. It occurs rarely in children, predominatly in adolescents.
Females are more frequently affected than males. Children with this disease share many characteristics with children suffering from localized idiopathic musculoskeletal pain syndrome.

What are the typical clinical characteristics?

The patients complain of wide-soread pain in deep tissue. The severity of the pain is subjective. The pain occurs in both sides of the body, and in the upper and lower extremities.
Patients find it difficult to sleep and patients feel unrefreshing when they wake up.
Another main complaint is severe fatigue, accompanyed by the decrease of physical capacities.
Patients with the disease frequently report generalized complaints, such as headaches, a sense of swelling of the limbs (not present), and numbness.
These symptoms cause anxiety, depression, and these patients tend to miss a lot of school.

How is it diagnosed?

Diagnosis is made when there is a history of generalized aching in four body areas, lasting more than three months and when a physical examination reveals pain in 11 out of 18 tender points.
Tender points are clinically measurable by thumb pressure, which is equally as reliable as the dolorimeter, a special tool that measures the pain.

What is the treatment?

It is important to address is the anxiety produced by the disease. This needs to be eleviated by explaining to the patient and family that, although the pain is severe and real, there is no damage to the joints, nor a serious physical disease.
Therapy is done by a multidisciplinary team approach (specialists in different areas working together), and is based on treating three areas.

The most important one is to initiate a progressive cardiovascular fitness training program, the best exercise being swimming. The second step is to start a cognitive behavioral therapy, individually or in a group.
Finally, some patients may need to begin a drug therapy course, aimed to restore sleep. The use of a special pillow that maintains neck support during sleep may also be of help.

Prognosis
It is not easy to recover from the disease, requiring a major effort by the patient and essential support from the family. Generally, the outcome in children is much better than in adults and most will recover fully. Compliance with the regular physical exercise program is the most important factor in recovery.

2) Localized Idiopathic Musculoskeletal Pain Syndrome Synonyms
Reflex Sympathetic Distrophy of the Complex Regional Pain Syndrome type.

What is it?
This is a disease consisting of extremely severe limb pain with no obvious clinical cause. It is frequently associated with skin changes.

How common is it?
There is no reliable data on the frequency of this disease. It is known, however, that it is more common in adolescents (the average age of onset is around 12 years of age), and in girls.

What are the main symptoms?
Usually there is a long lasting history of very severe limb pain that increases over time and is unresponsive to different therapies. It can results in a loss of use in the affected limb.
The patient will suffer pain from the lightest of touch, called allodynia.
The combination of these symptoms will affect the daily activities of affected children, who usually miss a lot of school.
Some children will develop changes in skin color (pallid or purple mottled appearance), changes in temperature (usually reduced), or perspiration. Sometimes the child will hold the limb in an unusual posture, refusing to move it.

How is it diagnosed?
Until a few years ago these syndromes received different names. Considering that most are of unknown origin and that their therapy is the same, the current trend is to put them under the same umbrella as localized musculoskeletal pain syndromes. A set of criteria is used for the diagnosis of this set of diseases.
The diagnosis is clinical, based on the type of pain (severe, prolonged, limiting activity, unresponsive to therapy and the presence of allodynia) and the findings of a physical examination. The diagnosis also requires that other diseases b ruled out. Most of the time these diseases have been discarded before the patient sees a pediatric rheumatologist. Laboratory studies are normal.

Therapy
The approach that works the best is the initiation of a substantial therapeutic physical exercise program, supervised by physical and occupational therapists, sometime with psychotherapy. Psychological intervention is usually necessary because of the stress produced by the disease.
Treatment is hard for everyone involved, the children, the family and the medical team.
Lots of different kinds of treatments, alone or in combination (antidepressants, biofeedback, transcutaneous electrical nerve stimulation, behavioural modification) have been proposed without definite results.

Prognosis
This disease has a better prognosis in children than in adults. Almost all children eventually will recover

Every day life
Children should be encouraged to maintain a normal level of activity. Attending school regulary and socializing with their peers.

3) Erythromelalgia
It is also known as Erythermalgia. It is extremely uncommon, although it may run in families.
Most children are around 10 years of age when they present with the disease. It is more frequent in girls.
The disease is characterized by burning sensation with warm, red and swollen feet or, less commonly, hands.
The symptoms worsen upon exposure to heat and are relieved by cooling the extremity, to the point that some children refuse to remove their feet from ice water. The course is unrelenting .
Avoiding heat and vigorous exercise seem the most useful therapeutical measures. The disease in children does not usually respond to nonsteroidal antiinflammatory drugs, which have proved useful in adults. Vasodilators may help.

4) Growing Pains
What is it?
Growing pains is a benign syndrome that refers to a characteristic pattern of pain in the limbs, which usually occurs in children younger than 10 years of age.

How common is it?
Pains in the limbs are among the leading causes for seeking specialist care in pediatrics.
Among them growing pains are the most common. 10-20% of children worldwide experience growing pains, mainly between the ages 3-12 years. Boys and girls are similarly affected.

What are the main symptoms?
The pain appears mostly in the legs (skins, calves, behind the knees or thighs), and is usually bilateral. The pain appears late in the day or at night, often awakening the child.

Parents commonly report that chidren develop the pain on days of increased physical activity.
The duration of the pain is usually between 10 and 30 minutes, although it might range from minutes to hours.
Its intensity can be mild or very severe.
Growing pains are intermittent, with pain-free intervals from days to months. In some cases the pain can occur daily.

How is it diagnosed?
The characteristic pain manifestations combined with a normal physical examination lead to diagnosis. There is no need to perform laboratory tests and X rays studies, which are all normal.

What is the treatment?
Explaining the benign nature of the process reduces the anxiety in the child and the family. During pain episodes local massage and mild analgesics may help. In children with frequent episodes an evening dose of ibuprofen might diminishe or prevent the pain.

Prognosis
Growing pains are not associated with any serious organic disease, and usually resolve by late childhood. In 100% of children the pain disappears as they grow older.

5) Benign Hypermobility Syndrome
What is it?
Benign Hypermobility Syndrome (BHS) refers to pain in the extremities due to an increased mobility (range of motion) of the joints, without any associated congenital or conective tissue disease. Therefore, BHS is not a disease but rather a normal finding.

How common is it?
BHS is extremely common in children, having being reported in 25 to 50% of those younger than 10 years of age. Its frequency decreases with age. BHS frequently runs in families.

What are the main symptoms?
Hypermobility frequently results in intermittent, deep aching, recurrent pains at the end of the day or at night in the knees, feet and/or ankles. In children playing piano, violin, etc. it might affect the fingers instead.
Physical activity and exercise trigger or increase the pain. Rarely mild joint swelling may be present.

How is it diagnosed?
On the basis of a predefined set of criteria that quantify joint hypermobility.

Therapy

Treatment is very seldom necessary. If the child plays certain repetitive impact sports such as football or gymnastics, and develops recurrent sprains / torn joints, muscle strengthening and joint protection (functional braces) should be used.

Every day life
Hypermobility is a benign condition that decreases with age. Families should be aware that its main risk comes from preventing children to live normal lives.
Children should be encouraged to maintain a normal level of activity, including playing any sports they are interested in.

6) Transient Synovitis
Toxic synovitis, Irritable hip.

What is it?
Effusion of the hip joint of unknown cause that resolves by itself leaving no damage.

How common is it?
It is the most common cause of hip pain in children. It affects 2 to 3% of children aged 3-10 years of age. It is more common in boys, to the extent that for each girl, there are three or four boys affected.

What are the main symptoms?
Hip pain and a limp. Hip pain may be present as pain in the groin, upper thigh, or occasionally, in the knee. The pain usually comes on suddenly. The most common first sign is a child who awakens with a limp or who refuses to walk.

How is it diagnosed?
A physical examination will reveal a limp with decreased and painful hip motion. In 5% of the cases both hips are affected. X-rays are normal, so are usually not performed.

Therapy
The basis of treatment is rest, which should be proportionate to the degree of pain. Nonsteroidal anti-inflammatory drugs, are of help to decrease pain. In very severe episodes, traction of the leg may be used. The condition usually resolves without therapy after an average of six to eight days

Prognosis (predicted outcome and course of the disease)
Full recovery is achieved in more than 99% of children. It is not uncommon to develop subsequent episodes of transient synovitis, usually milder and shorter than the first.

7) Patellofemoral Pain - Knee pain

Introduction
Patellofemoral pain is the most common pediatric Overuse Syndrome. This group of disorders result from repetitive motion or sustained exercise-related injury to a particular part of the body.

These disorders are much more common in adults (tennis or golf elbow, carpal tunnel syndrome, etc) than in children.

Synonyms
Patellofemoral Syndrome, Chondromalacia of the patella, Chondromalacia, Anterior knee pain.

What is it?
Patellofemoral pain refers to the development of anterior knee pain from activities that place additional load over the patellofemoral joint (joint formed by the knee cap and the lower part of the thigh bone or femur).
When the pain is accompanied by changes in the inner-looking surface tissue (cartilage) of the patella the term chondromalacia of patella or chondromalacia patellae is used.

How common is it?
It is very uncommon in children younger than eight years of age, becoming progressively more common in adolescents.
Patellofemoral pain is more common in girls. It can also be more common in children with a significant angulation of the knees such as knock-knees, or bow legs, as well as in those with a disease of the knee cap (recurrent instability and malalignment).

What are the main symptoms?
The characteristic symptoms are anterior knee pain that worsens with activities such as running, climbing up or down stairs, squatting, or jumping. Pain is also worsened by prolonged sitting with the knee bent.

How is it diagnosed?
Patellofemoral pain in healthy children is diagnoses from a clinical examination. Lab tests and imaging studies are not necessary. Pain may be reproduced by compression of the knee cap, or by restraining the upward movement of the knee cap when the thigh muscle is contracted.

Therapy
Usually, therapy is not needed, in most children with no associated diseases.
It is a benign condition that resolves by itself. If the pain interferes with sports, or daily activities, the initiation of a program to strengthen the thigh muscles may be of help. Ice may relieve pain after exercise.

Every day life
Children should lead a normal life, but their level of physical activity should be adjusted to keep them pain-free. Children very active in sports may use a knee sleeve with a knee cap strap.

8) Slipped Capital Femoral Epiphysis

What is it?
Displacement of the femoral head (the part of the thigh bone closest to the hip) through the growth plate, with no known cause, such as an accident. The growth plate is a slide of cartilage sandwiched between bone tissue. This the weakest part of the bone and, once it has mineralized and becomes bone itself, the bones stop growing

How common is it?
It is an uncommon disease that affects 3-10 in 100.000 children. It is more frequent in adolescents and boys. Obesity seems to be a predisposing factor.

What are the main symptoms?
Limp and hip pain that gets worse with physical activity, with decrease mobility of the hip. Pain may be felt in the upper (two thirds) or lower (one third) thigh, and increases with activity. In 15% of children, the disease affects both hips.

How is it diagnosed?
It is diagnosed through assessment of the findings of a physical examination, with the presence of decreased hip mobility. The diagnosis is confirmed by x-ray.

Therapy
Surgical pinning, where the femoral head is stabilised by placing pins to keep it in place).

Prognosis (predicted outcome and course of the disease)
Depends on the length of time between the femoral head slipping and diagnosis and on the degree of slippage.

9) Osteochondroses (Synonyms Osteonechroses, Avascular necroses).

Introduction
The word Osteochondroses means bone death. It is a diverse group of diseases, the causes of which are unknown. Bones are mostly made of cartilage at birth, a softer tissue that is replaced over time by a more mineralized and resistant tissue, the bone. This replacement begins at specific sites within each bone, the so called ossification centers, spreading out to the rest of the bone over time. In these diseases there is an interruption of the blood flow to the primary or secondary ossification center of the affected bones.

What is it?
Osteochondrosis refers to the process associated with the loss of blood supply to the ossification center of the bones, and its replacement by reparative bone tissue. Pain is the main symptom of these disorders.
Diagnosis is confirmed by imaging studies. X-rays show, in sequence fragmentation ("islands" within the bone), collapse (break down), sclerosis (increased density, the bone looks "whiter" on the films) and reossification (new bone formation) with reconstitution of the bone contour.
Although it sounds like a serious disease, it is quite common in children and, with the possible exception of extensive involvement of the hip, has an excellent prognosis. Some

forms of osteochondroses are so frequent that they are considered normal variants of bone development.
Others may be included under the overuse syndromes.

9.1) Legg-Calvé-Perthes Disease
What is it?
Avascular necrosis of the femoral head (the part of the thigh bone closest to the hip).

How common is it?
It is not a common disease, seen in ine in 10,000 children. It is more frequent in boys (four or five boys for each girl) between the ages of three and 12 years, but particularly in children between four and nine years old.

What are the main symptoms?
Most children present with a limp and variable degrees of hip pain, sometimes none. Usually only one hip is involved, but in about 10% of cases the disease affects both.

How is it diagnosed?
The mobility of the hip is impaired and may be painful. X-rays may be normal at the beginning, but later show the progression stated in the introduction. Bone scans and Magnetic Resonance detect the disease earlier than plain films.

Therapy
Children with Legg-Calvé-Perthes disease should always be referred to a Pediatric Orthopedic Department. Treatment depends on the severity of the disease. In very mild cases observation may be sufficient.
In more severe cases the therapy is aimed at keeping the affected femoral head within the hip joint, so that, when the formation of new bone starts, the femoral head recover its spherical form.
This goal may be achieved, to variable degrees, by wearing an abduction brace, for younger children, or by surgically reshaping the femur (osteotomy, cutting a wedge of bone to keep the head in a better position), in older children.

Prognosis (predicted outcome and course of the disease)
It depends on how extensive the femoral head involvement is and on the age of the child. It is better if younger than six. The whole process (from fragmentation to regeneration) takes between 12 and 18months. Overall, about two thirds of hips have a good long-term radiographic result.

Every day life
Depends on the treatment applied. Children under observation should avoid heavy impact on the hip (jumping, running). However, they should carry an otherwise normal school life and participate in all other activities that do not involve heavy weigth-bearing.

9.2) Osgood-Schlatter Disease

It results from repeated trauma to the ossification center of the tibial tuberosity (small bone crest present in the upper leg). It is present in about 1% of adolescents, being more common in those who play sports.
Pain worsens with activities such as running, jumping, going up or downstairs and kneeling. The diagnosis is established by physical examination, with tenderness or pain, sometimes accompanied by swelling at the insertion of the patellar (knee cap) tendon into the tibia.
X-rays might be normal, or show small fragments of bone in the tibial tuberosity region. Treatment is based on adjusting their level of activity to keep them pain-free, applying ice after sports and rest. This disease resolves over time.

9.3) Sever's Disease
It is also called Calcaneal Apophysitis. It is an osteochondrosis of the calcaneal apophysis (the heel bone), probably related to the traction delivered by the Achilles tendon.
It is one of the most common causes of heel pain in children. Sever's disease is activity-related and more common in males. Its onset is usually around six to 10 years of age, with heel pain and occasional limping after exercise.
The diagnosis is made by clinical examination. There is no need for therapy other than to adjust the level of activity to keep the children pain-free and, if it does not work, to use a heel cushion. This disease resolves over time.

9.4) Freiberg's Disease
This is osteonechrosis of the head of the second metatarsal bone in the foot (The bones in the middle of the foot). Its cause is probably traumatic. It is uncommon and most cases involve adolescent girls. The pain increases with activity.
Physical exam shows tenderness under the second metatarsal head and occasionally swelling. The diagnosis is confirmed by X-rays, although it may take two weeks from the beginning of the symptoms to show changes.
Treatment includes rest and a metatarsal pad.

9.5) Scheuermann's Disease
Scheuermann's disease, or juvenile kyphosis (roundback), is an osteonechrosis of the ring apophysis of the vertebral body. It is most common in adolescent boys. Most children have poor posture, with or without back pain. When present, the pain is activity related and may be relieved by rest.
Diagnosis is confirmed by x-ray.
To be considered Scheuermann's disease the child has to have irregularities of the vertebral plates and anterior wedging of 5º in at least three consecutive vertebrae.
Scheuermann's disease does not usually require other therapy than to adjust the level of activity of the child, observation. Severe cases may require a bracing, however.