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DIAGNOSTIC CHALLENGE

Diagnostic challenge

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What is the probable diagnosis of a six-year old male patient complaining of insidious onset pain in the right knee, without clinical and radiological changes in the knee, but with the following radiological findings?

a) Epiphysiolysis
b) Osgood-Schlatter disease
c) Growth pain
d) Legg-Calvé-Perthes disease
e) Bone tuberculosis

Legg-Calvé-Perthes disease is the osteochondrosis of the femoral head, originated from avascular ischemic necrosis at the secondary ossification nucleus of the proximal femoral epiphysis during child development. Although its etiology is not fully understood, it is known that this disease arises from an insufficiency in local blood flow, which may be caused by numerous factors, such as prolonged use of glucocorticoids and hereditary thrombophilia. Legg-Calvé-Perthes disease has highest incidence in four- to eight-year-old children, with a predominance of males (4:1). Most commonly, the disease affects the left side, but may be bilateral.

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Disease onset is insidious and can manifest with claudication and pain in the inguinal region upon ambulation. Radiated and/or referred pain in the knee and anterior thigh area due to obturator nerve compression, caused by antalgic muscle contracture, may also occur.Limitations on abduction and internal hip rotation may be observed upon physical examination.

Radiological findings depend on the stage of the disease but, typically, reduction of growth nucleus with apparent increase in articular area is observed during early disease processes.The treatment is conservative (with or without load) or surgical, according to the indication of the orthopedist, who should be consulted in such cases.

Epiphysiolysis is the secondary slip of the epiphysis over the metaphysis of the femur and is the main differential diagnosis for Legg-Calvé-Perthes disease. Its occurrence is also higher in males; however, it is more frequent in overweight or obese adolescents. Clinical presentation is similar to Legg-Calvé-Perthes disease and the diagnosis is based on imaging studies. Antero-posterior and Lowenstein position radiography of the hip reveal the sliding of the femoral epiphysis, which may occur in varying degrees.

Osgood-Schlatter disease is the most common osteochondrosis in adolescents, and manifests as pain in the anterior tibial tuberosity (below the patella), with possible increase in local volume.

Bone tuberculosis can manifest as arthritis and/or chronic osteomyelitis. When arthritis involves a superficial articulation, such as the knees, inflammatory characteristics such as pain, morning stiffness, warmth, swelling and movement limitation can be observed upon physical examination. Nonetheless, when it involves deep articulations such as the hip, movement limitation and pain may be the only observable signs upon physical examination. If the patient has osteomyelitis, bone pain may be one of the findings. Generally, inflammatory markers such as erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) are increased. Likewise, PPD is reactive.

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