Case Report

Van Neck–Odelberg disease: A rare cause of pain in pediatric pelvis

ABSTRACT

Van Neck-Odelberg disease or ischiopubic osteochondritis, is a rare cause of pain in the pediatric pelvis due to late closure in synchondrosis ischiopubic, whose main symptom is an asymmetric pain that can cause a limitation in movement or limp. The different characteristics by images from simple radiography, computed tomography, MRI and bone scintigraphy scan will increase certainty diagnosis and will allow the correct differential diagnosis with fractures, posttraumatic osteolysis, infections or tumors, that leads to unnecessary invasive procedures, this being a benign disease with an evolution and improvement that occurs in weeks or months with conservative treatment. A case of a 15-year-old boy who consulted our hospital with an extra-institutional diagnosis of right ischiopubic fracture. After being evaluated by different imaging methods, a diagnosis of Van Neck-Odelberg or ischiopubic osteochondritis was made.

Keywords: Hip pain, inguinal pain, ischiopubic synchondrosis, osteochondritis, Van Neck–Odelberg

INTRODUCTION

Van Neck–Odelberg disease, also known as ischiopubic osteochondritis, is only seen in childhood and is considered a rare cause of pain. It is located in the pelvis, in the junction between the ischium and the pubic bone and will ossify as a physiological process before puberty. It is usually an asymptomatic process, but it can be associated with pain and limitation in movement, due to mechanical stress, creating a challenge in its diagnosis due to its imagenological similarity to pseudotumoral diseases and other pathological entities, such as fractures. An early diagnosis will allow adequate treatment, avoiding unnecessary invasive procedures.

CASE REPORT

A 15-year-old boy consulted our hospital for pelvic pain of 3 months duration; this pain was constant, non-radiating, predominantly in the right iliac fossa and hypogastrium, sharp stabbing type, 8/10 in the analogue pain scale, associated with right side gait limitation, without any other finding on physical examination. The laboratory tests were within normal limits. A radiography of the hips and magnetic resonance imaging (MRI) were performed at another institution, which were initially interpreted as a fracture of the right ischiopubic ramus.

Bone scintigraphy with a fusion of tomographic images (single-photon emission computed tomography/computed tomography [SPECT/CT]) was requested. Focal increased uptake at the site of ischiopubic synchondrosis was documented, and a fracture was ruled out. It correlated with the aforementioned extra-institutional images, in which a prominence and focal expansion of the middle portion of the right ischiopubic ramus corresponding to the synchondrosis was identified, associated with an increase in signal intensity in sequences with T2 information with

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fat saturation due to bone and adjacent soft-tissue edema. Findings represent a stress-related lesion at the level of ischiopubic synchondrosis, diagnostic of ischiopubic osteochondritis, which is also called Van Neck–Odelberg disease.

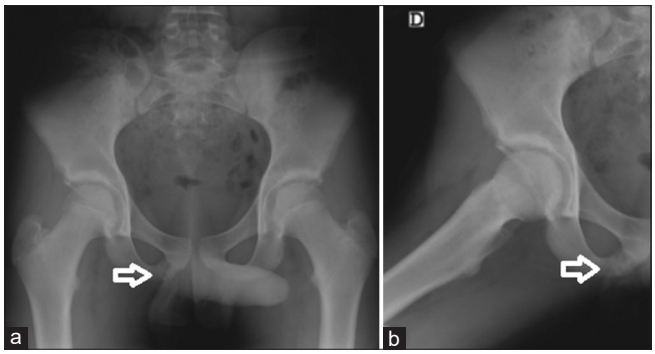

Figure 1: Anteroposterior and right lateral hip X-ray (a and b). On the right, a well-defined, rounded radiolucent area with sclerosis inside is identified, which represents ischiopubic synchondrosis

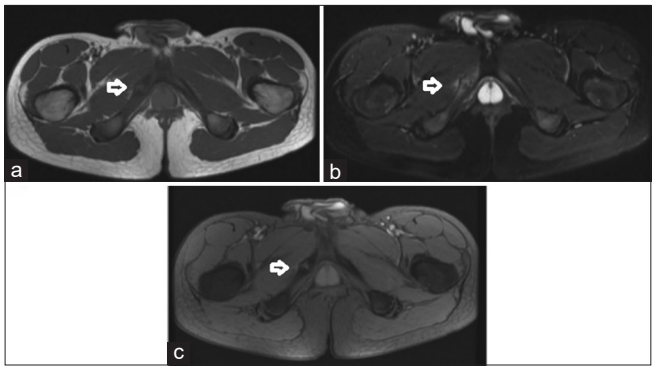

Figure 2: Axial images T1, short-tau inversion recovery and T2. (a-c) The enlarged right ischiopubic synchondrosis is identified with increase in the signal in sequences with T2 information due to bone edema, with presence of a hypointense central band in its interior along with bone bridges and signal alteration of adjacent soft tissues due to edema

DISCUSSION

Pain in the hips in the pediatric age is a diagnostic challenge due to the similar appearance in the diagnostic images in a wide variety of entities that may have disabling sequelae in future. Among the most frequent causes of pain are stress fractures, slipped epiphysis, septic arthritis or osteomyelitis, and bone tumors.

Ischiopubic synchondrosis is a normal temporary joint in the pediatric age during the development of skeletal maturation, which is located between the ischium and the pubic ramus, developing symmetrically, consisting of two ossification centers and a cartilaginous center, with normal bilateral enlargement of the joint during growth until its final bone fusion at puberty.[1] However, since 1924, ischiopubic osteochondritis, is also called "Van Neck-Odelberg" disease, named after Odelberg and Van Neck,[2] who first described it. In this disease, the main symptom is pain, which can cause a limitation in movement or limp, as a result of mechanical stress due to excessive traction of the ischiotibial muscles at ischiatic tuberosity[3], which will produce a delayed closure of this synchondrosis, and as a consequence, an inflammatory reaction and a delay in the cartilage junction and the ossification centers;[4] this process occurs unilaterally, mainly in older children, associated with sports, mostly affecting the left or nondominant leg, since it receives the weight of the body balance and the greater tension of the adductor, iliopsoas and twin muscles,[3] its diagnosis is a challenge being a rare pathology.

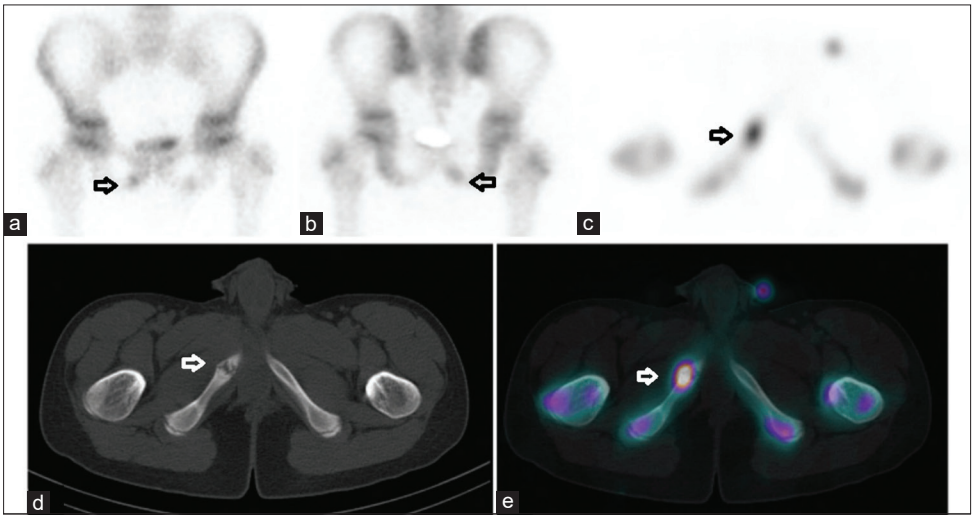

Figure 3: Bone scan ^{99m}Tc-MDP (anterior, posterior and axial) with single-photon emission computed tomography/computed tomography. (a-e) Increased uptake area in lower ischiopubic branch which in fusion images confirm the site of the ischiopubic synchondrosis

On x-ray [Figure 1] and CT of the hip, a fusiform shaped hyperostosis will be observed, with a hypodense area inside and bone callus formation secondary to increase in tension that will enlarge the joint, which creates the appearance of a pseudotumor due to its morphology; cystic areas of absorption and an increase in density can also be seen later.[5]

MRI [Figure 2] can provide early and more sensitive diagnosis. There is an increase in signal intensity in sequences with T2 information with fatty saturation or short-tau inversion recovery, secondary to bone edema at the site of synchondrosis, with evidence of bone bridges and cartilage inside. These not only help rule out a neoplasm, such as Ewing's sarcoma, and increase the diagnostic certainty,[6] but might be misinterpreted due to inexperience.

Bone scintigraphy allows the detection of an increase in focal radiotracer uptake secondary to an abnormal early osteogenic activity, and fusion with tomographic images (SPECT/CT) [Figure 3] allows a better anatomical correlation which increases its sensitivity in the diagnosis of a stress-related lesion involving the ischiopubic synchondrosis.[7,8] Knowledge of this pathology helps differentiate from a avoid being confused with fracture, posttraumatic osteolysis, infection, or tumor in symptomatic children that may lead to unnecessary invasive procedures.

The course of the disease is benign, and improvement occurs in weeks or months with adequate conservative treatment; changes in the images can last for a longer time until complete ossification of the joint.[9]

CONCLUSION

Ischiopubic osteochondritis, or Van Neck–Odelberg disease, is a rare and little known entity in pediatric age, and is difficult to diagnose. Even though it is a pathology with a conservative treatment and a good prognosis, it might be misdiagnosed and lead to unnecessary invasive management. Knowledge of anatomy and physiology of this normal temporary joint, in addition to the typical findings of this pathology on the different imaging modalities, can help accurate identification and differential diagnosis of this pathology.

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Conflicts of interest

There are no conflicts of interest.

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