



Hip P

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Positron emission tomography (PET) scans: PET scans are used in conjunction with CT scans to detect areas of increased metabolic activity in the hip joint, which can be indicative of conditions like infections or certain types of tumors.

Magnetic resonance arthrography (MRA): MRA combines the benefits of MRI with the injection of a contrast agent into the hip joint to provide a more detailed assessment of structures like the labrum and articular cartilage [7].

Magnetic Resonance

Many pathological conditions of the hip are detected early by MRI due to its high soft tissue resolution and sensitivity. Its accuracy in studying acute hip pain in children has proved to be superior to ultrasound and plain film radiography. However, MRI accessibility and the need of sedation relegate its use to selected cases in which diagnosis is not clear with less demanding techniques. These include differentiating transient synovitis from a septic arthritis or osteomyelitis, diagnosis of inflammatory joint disease or bone tumors, and early detection and follow-up of Perthes disease [8].

MRI findings correlate with prognosis in LCPD. These include extent and distribution of epiphyseal necrosis, subchondral ossified nucleus fracture, involvement of the lateral pillar, and disturbance of physeal growth, including presence of transphyseal neovascularity or bridging.

Recent studies have been focused on the role of diffusion weighted MRI because it does not need contrast medium administration. ADC ratio of the femoral metaphysis was positively correlated with the Herring classification. ADC ratio superior to 1.63 indicates bad prognosis with 89% sensitivity and 58% specificity [9].

In adult patients, MRI is currently playing a definite role in the assessment of osteoarthritis. Although traditionally belonging to the arena of radiographs, the role of MRI has been stressed after the term femoral acetabular impingement was coined in 2003. Growing interest has been focused in accurate diagnosis of the acetabular and femoral morphological abnormalities that may lead to early osteoarthritis.

Tailoring the Diagnosis

The choice of imaging modality depends on the patient's clinical presentation, the suspected underlying condition, and the physician's

judgment. Often, a combination of imaging techniques may be necessary to arrive at an accurate diagnosis [10]. For instance, a patient with chronic hip pain and suspected osteoarthritis may benefit from X-rays to assess joint space narrowing and bone spurs, followed by an MRI to evaluate soft tissue damage and cartilage integrity.

Conclusion

The diagnosis of hip pain has evolved significantly over the years, thanks to advancements in medical imaging technology. From traditional radiography to advanced cross-sectional modalities like MRI and CT scans, healthcare providers now have a diverse toolbox to investigate and understand