Western Health

Western Health Medical Imaging News Update

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ULTRASOUND OF THE ATHLETIC GROIN

The groin is a region of complex anatomy. Whilst lateral hip pain has a relatively straightforward diagnostic paradigm, pain from the umbilicus to the upper thigh may be the result of a wide variety of different pathologic processes and accounts for up to 6% of all athletic injuries. Clinical diagnosis may be difficult and imaging can play a vital role in diagnosis. Whilst MRI is often seen as a gold standard in soft tissue diagnosis, access can be limited. Ultrasound is the best imaging modality for dynamic assessment of a soft tissue abnormality and for guiding intervention.

Pubalgia
Causes of pubalgia include symphyseal degeneration, osteitis pubis, and adductor enthesopathy and tendinopathy. Plain x-ray examination is useful in the diagnosis of osteitis pubis, and typical findings are that of subchondral erosive change, joint irregularity and sclerosis, which may eventually lead to ankylosis. However, positive findings usually are not apparent until 4 weeks after the onset of symptoms. Ultrasound has a limited role in the diagnosis of osteitis pubis, but is useful for performing therapeutic injections into the symphysis.

Tendinopathy
Tendon disease around the anterior pelvis in the adult athlete most frequently affects the adductor origin on the pubic bone, followed by the rectus femoris and iliopsoas tendon insertions. In adolescents, tendinopathy is rare and apophyseal avulsion is more likely. Differentiation of tendinopathy from a partial tear can be difficult with US. Ultrasound is most useful for guiding peritendinous injections and for confirming tendon rupture or apophyseal avulsion. Iliopsoas tendinopathy is commonly associated with kicking activities and repetitive hip flexion. Bursitis is common, and small bursal effusions will lie anterior to the hip joint often communicating with the hip, which can be easily injected from a lateral approach.

Muscle injury
Muscle tears of the pelvic girdle are common and often present with tightness rather than pain. Muscle tears are graded I to III, grade I (strain injury), grade II (partial tear) and grade III (complete rupture). Grade II and III injuries can be relatively well depicted by ultrasound. Specific roles for ultrasound include: Assessment of intramuscular haematoma and determination of optimum time for aspiration if required, monitoring of muscle healing and identification of muscle hernias.

Hernias
Ultrasound is the primary investigation for clinically suspected hernias. Types of hernias presenting with groin pain include femoral, inguinal and sportsman's hernia. Rarely a varicocele or other lesion of the inguinal canal can mimic a hernia, easily excluded by ultrasound. Femoral hernias are more common in females.

The sportsman's hernia is a more complex and controversial diagnosis. Posterior abdominal wall weakness, tears of external oblique aponeurosis and rectus abdominus- adductor aponeurosis, conjoint tendon have all been proposed as contributory pain generators. Scanning in this region shows a straightening of the posterior canal wall (compared to normal curved) and a reduction in the diameter of the spermatic cord. The condition is not a true hernia and is best assessed dynamically with real time ultrasound.

Snapping Hips
Causes of snapping hips include iliopsoas tendon snapping, ischiofemoral impingement and labral tears of the hip. Iliopsoas snapping is most common in female dancers and gymnasts, due to abnormal rotation. Ultrasound can depict abnormal movement.

Intra-articular Hip pathology
Plain x-ray rather than ultrasound is considered the most appropriate primary imaging modality for pain originating from the hip. However ultrasound of the groin includes the hip to exclude a joint effusion and periarticular pathology such as paralabral cysts. Ultrasound is also used for image guided joint injections and aspirations.

Summary
Ultrasound has a limited but specific role in the evaluation of hip pain in athletes with sporting injuries and can be a useful tool in problem solving due to the dynamic nature of the assessment. Ultrasound also provides accurate guidance for injection-based therapies.

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*Adapted from: Campbell, R. 'Ultrasound of the athletic groin'. Semin Musculoskeletal Radiology. 2013; 1(17):34-42.

WHMI has a number of musculoskeletal radiologists and sonographers working at all sites. WHMI also provides referrers with dedicated musculoskeletal ultrasound sessions at the Williamstown hospital. For case discussions, advice on imaging choice or opinions experienced Radiologist are available on 8345 6234

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