Skeletal Radiol (2016) 45:1319
DOI 10.1007/s00256-016-2423-6

BROWSER'S NOTES

Browser's Notes

Published online: 14 June 2016

Asymptomatic elite young tennis players show lateral and ventral growth plate alterations of proximal humerus on MRI.

Johansson FR, *et al*.
Knee Surg Sports Traumatol Arthrosc. (*2016*); *Feb 5*. *[Epub ahead of print]*; *PMID 26850513*

In a cross-sectional study of 35 adolescent elite tennis players (mean age 17.4 years, 20 female), MR images of the dominant and non-dominant shoulders were compared for differences in proximal humeral epiphyseal configuration, degree of physeal closure and edema-like marrow signal. Subjects with a history of shoulder injury or symptoms within the prior 3 months were excluded. Small, but statistically significant, side to side differences between the humeral epiphyses were measured with longer distances in the dominant arm from the top of the humeral head to the physis at the lateral and anterior margins, but not medial or posterior. Also, the lateral portion of the proximal humeral physis was longer in the dominant arm. There were no side to side differences in the degree of growth plate closure or presence and amount of edema-like marrow signal. These data provide further evidence that bone growth may be altered by biomechanical forces. It is not clear from this study if the growth differences are advantageous or result in an arm at risk for injury.

Diagnostic accuracy of various imaging modalities for suspected lower extremity stress fractures: **A systematic review with evidence-based recommendations for clinical practice**.

Wright AA, *et al*.
Am J Sports Med. (*2016*); *44*(*1*):*255–63*

The reported sensitivities, specificities and likelihood ratios for radiography, MR, CT, bone scan, ultrasound and thermography for stress fracture diagnosis based on 21 articles evaluating imaging of lower extremity stress fractures were reviewed. There were wide ranges for the values of all modalities. The authors found a paucity of high quality articles. While over 3700 unique articles were found by their literature search, most were excluded from review because both sensitivity and specificity were not reported since the studies did not include patients without a stress fracture. They concluded that MR imaging can serve as a "gold" standard having the best overall sensitivity and specificity. Radiographs and CT, on the other hand, have relatively high false negative rates and were not considered useful for exclusion of stress fractures. Ultrasound and bone scan were found to be sensitive but not specific for the diagnosis of stress fracture; ultrasound may prove useful for screening while the radiation dose of bone scan may be difficult to justify. The authors propose an evidence-based algorithm for optimal use of imaging for suspected lower extremity stress fracture beginning with radiographs. If radiographs are negative and the site is considered at high risk of complete fracture, *i.e.* femoral neck, navicular, fifth metatarsal, or anterior tibia, immediate MR imaging would be performed, otherwise delayed radiographs following 2–3 weeks of treatment are preferred. If follow up radiographs remain negative and symptoms persist, MR is suggested.

Abstracted by C. S. Winalski, **M.D**.
September 2016