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BROWSER'S NOTES

Browser's notes

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Femoral neck stress fractures: MRI risk factors for progression.

Steele CE, et al.
J Bone Joint Surg Am. (2018); 100(17):1496–1502

Over 13 years, 798 MR studies of active duty military personnel were performed for suspected stress fracture of the femoral neck. Three hundred five exams (38%, mean age 22.6 years, 98% male) found unilateral femoral neck stress reactions/fractures. These subjects were grouped by MR findings. Those with a visible fracture line ≥50% of the femoral neck width, $n = 48$ (16%), were treated surgically without delay. The remaining 257 patients with either edema-like marrow signal, but no visible fracture line ($n = 139$) or a fracture line <50% femoral neck width ($n = 118$) were treated conservatively with non-weightbearing for 6 weeks. All of the stress fracture lines were on the compression side of the femoral neck. A 6 week follow up MR was performed in 194 (76%) of the non-operated patients. All of the patients with an initial MR showing edema-like marrow signal of the femoral neck without a fracture line, whether on compressive or tension side, were successfully treated non-operatively, i.e. none developed an MR evident fracture line on the 6 week MR or required surgery. However, 27 (14%) of the patients with a fracture line <50% femoral neck width on the initial MR showed progression of the fracture line prompting prophylactic internal fixation. The only initial MR finding indicating statistically significant risk for subsequent progression was the presence of a joint effusion (8.0 relative risk). Neither the degree of femoral neck involvement nor the focality of the edema-like marrow signal predicted the subsequent need for surgery. In their MR imaging based patient management algorithm, the authors propose patients with femoral neck stress reactions/fractures should have operative fixation when either a visible fracture line involving ≥50% of the femoral neck width or a joint effusion with any fracture line is present. Patients with only edema-like marrow signal or a fracture line <50% femoral neck width and no effusion can be treated with 6 weeks non-weightbearing. Follow up MR imaging at 6 weeks is suggested only for those with an initial fracture line or any patient with non-responsive symptoms. Additional studies are required to determine if these recommendations can be generalized to non-military, older, and female patients.

Nontuberculous mycobacterial infections of the upper extremity: 15-year experience at a tertiary care medical center.

Sotello D, et al.
J Hand Surg Am. (2018); 43(4):387 e381–387 e388

A 15 year retrospective review of medical records identified 44 patients (median age 59 years, range 23–83 years, 61% male) with culture positive non-tuberculous mycobacterial infections involving an upper extremity. 55% of patients were immunocompetent and 45% immunocompromised. The hand (48%), wrist (14%), forearm (16%), and elbow (18%) were most commonly involved. The skin/soft tissue ($n = 23$, 52%) was the most common site of involvement followed by tendon ($n = 16$, 36%). Five patients (11%) each had involvement of the bursa, tendon, joint and bone; 2 patients had bacteremia. *Mycobacterium chelonae-abscessus* (34%), *Mycobacterium marinum* (27%), and *Mycobacterium avium-intracellulare* (20%) were the most common pathogens. There was no significant difference between immunocompromised and immunocompetent patients for the involved site or cultured organism. Of interest, *Mycobacterium marinum* and *Mycobacterium ulcerans* require cultures performed at 30 °C rather than 37 °C. There was a history of injury or trauma related to the infected site for most (92%) of the immunocompetent patients, but only 45% of those with immunocompromise. Local steroid injection was the inciting "injury" for 30% of all infections (50% of immunocompetent patients). Fishing and gardening were other activities commonly related to the infections.

While all infections were culture positive, only 38% had a positive acid-fast bacillus (AFB) smear and pathology showed granulomas in 69%. The delay between clinical presentation and diagnosis was negatively related to patient outcome; the median diagnostic delay in this study was 4 months (range 0–36 months). Since most patients (88% of immunocompetent and 50% of immunocompromised) are treated with surgery and antibiotics, MR imaging plays an important role in demonstrating the extent of disease.

Abstracted by C. S. Winalski, M.D.
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