Medial Tibial Stress Syndrome Cheat Sheet

by Siffi (Siffi) via cheatography.com/122609/cs/26421/

MTSS

- Exercise induced pain along posteromedial border of the tibia
- Eccentric contraction of deep flexors (running/jumping on hard surfaces)
- Repetitive traction on medial tibial crest causes muscle pain, periosteal inflammation and bony stress
- Inflammatory precursor to tibial stress f#
- Bone responds to stress by remodelling itself more densely (occurs when remodelling cannot keep up with excessive/improper training - terrible toos - too much, too fast, too long)

Demographics/Risk factors

- Females more than males
- Prior Hx
- Increased BMI
- Foot hyperpronation

Presentation

- Vague diffuse pain over middle to distal posteromedial tibia
- Worse with exertion (increase in activity intensity/duration/beginning of a workout)
- Pain >5 mins post activity **Consider Stress F#**
- Assess for numbness/paresthesia (compartment syndrome)
- Diffuse tenderness over posteromedial tibial border (at least 5cm)
- Might feel a periosteal reaction of roughness/bumpiness
- Focal & anterior tibial tenderness = Consider stress f# (tuning fork test)
- Single leg hop = painful most of the time
- Tenderness over FDL and tibialis posterior
- Talar bump test (if +ve strong suspicion of stress f#)
- Assess for hypertonicity of gastrosoleus
- Navicular drop test (hyperpronation)
- Assess for postural risk factors:
Inflexability or imbalance of the hamstrings, quads
Genu varus/valgus
Tibial Torsion
Femoral anteversion
Leg length discrepancies
Hip abductor weakness
Excessive ext rot of the hip
- Assess gait/running patterns/joint mobility of LL

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Imaging

Often unnecessary unless red flags, focal tenderness, +ve vibration testing, pain at rest, fail to improve with con care

Radiographs taken >2-3 weeks unlikely to show findings

MRI better than x-ray for stress f# and to grade them as follows:
Grade 1: Periosteal odema
Grade 2-3 Bone marrow oedema
Grade 4: Cortical stress f#

X-ray findings of stress f# = periosteal elevation/calus formation/cortical lucency

DDx

- Stress f#
- External compartment syndrome
- Peripheral vascular disease
- Muscle strain
- Occult f#
- Infection
- Neoplasm
- DVT
- Peripheral neuropathy
- Popliteal artery entrapment syndrome
- LS Radiculopathy
- Vascular claudication

Management

- Remove risk factors - identify training errors and biomechanical risk factors
- Consider non-weight bearing activities (swimming, stationary cycling, pool running)
- Ultrasound, electrical stimulation
- Ice/home ice massage
- Stretching and myofascial release of gastro, soleu, hip ext rots, tibialis posterior and anterior
- Strengthening of tibialis posterior and hip abductors
- SMT/EMT of Spine, SI , pelvis, LL
- Arch supports for pronation
- Return to activity should start slowly (lower intensity and distance then increasing by 10-15% per week)
- Avoid running on hard/uneven surfaces
- Wider step width if narrow gait
- Assess running shoes
- Surgery is rarely indicated (posterior fasciotomy)

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