



Recurring Sacral Stress Fractures in a Male Distance Runner



Waugh TJ, Stoller GL, Brooks EK, Dailey SW
Department of Kinesiology and Health
Miami University, Oxford, OH

Background

- Twenty year old male collegiate distance runner (170 cm, 62 kg).
- Complained of low back pain with radiating symptoms down right leg in March 2015.
- Previous history of Sacral pathologies.
- Initial assessment yielded Piriformis Syndrome.
- With no progression via rehabilitation, worsening pain, and given the pre-existing conditions of patient, Magnetic Resonance Imaging (MRI) was ordered.
- MRI revealed a four millimeter long non-displaced stress fracture in right superior portion of Sacral Ala near S1 foramen with a high grade stress reaction present in left superior Pubic Ramus.

Signs & Symptoms

- Right-side low back muscle tightness
- Muscle spasm from right buttocks traveling down into right leg
- Numbness and Tingling
- Pain at night
- Pain with trunk extension and rotation
- Discomfort similar to previous two times Sacral stress fracture was present

NOV 2013

APR 2014

MAR 2015

- Stress Fracture: Left Sacral Ala
- Stress Reaction: Right Sacral Ala
- Exhaustive Running

- Stress Fracture: Left Sacral Ala Inferior to First
- Stress Reaction: Right Sacral Ala
- Athletic Participation

- Stress Fracture: Right Sacral Ala
- Stress Reaction: Left Pubic Ramus
- No Athletic Participation

Differential Diagnosis

- Piriformis Syndrome / Sciatica¹
- Disc Herniation / Degenerative Disc Disease
- Spondylolisthesis²
- Vertebral Compression Fracture
- Sacroiliac Joint Dysfunction / Sprain
- Lumbar Facet Arthropathy / Lumbosacral Strain¹



MRI of Patient's Sacrum in March 2015 showing stress fracture in right Sacral Ala near S1 foramen⁵

Treatment

- Patient prescribed rest without exercise for 6-8 weeks to healing.
- Patient prescribed myofascial release techniques, stretching, and range of motion exercises.
- Pain modulation modalities utilized PRN.
- No participation in repeated load-bearing activities encouraged until source of problem was identified.

Uniqueness

- Sacral stress fractures in males are uncommon due to higher bone density and Testosterone levels.³
- Participants in repeated load-bearing activities are more prone to Sacral stress fractures.³
- Sacral stress fractures normally are seen in women with Female Athlete Triad.⁴
- Research shows influence of energy balance and hormonal fluctuations are factors with injuries in amenorrheic females.⁴

Conclusions

- Calcium levels in this patient were too high causing parathyroid levels to decrease, resulting in low bone density.⁶
- Calcium and parathyroid hormone have an inverse relationship.
 - High calcium levels linked with low parathyroid levels.
 - Moderation between the two is essential.⁶
- Low testosterone levels in patient were causing low bone density.

Clinical Applications

- Diagnosing a Sacral stress fracture is difficult because of wide range of differential diagnoses its symptoms present.¹
- Clinicians should consider the possibility of a Sacral stress fracture when clients present with low back pain, radiculopathy and a history of repetitive loading activity.
- Research is still needed in order to provide the most effective treatment and outcomes for future patients.

References

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