

Tarsal navicular stress fracture in a female gymnast

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Background:

Stress fractures should be considered in any athlete presenting with the insidious onset of pain, especially in the setting of a sudden change in activity or training level. Tarsal navicular stress fractures are high-risk stress fractures typically seen in high-level athletes.

Case presentation:

A 20-year-old female gymnast began to feel pain in her left foot during preparation for the world championship. Her pain began insidiously with no specific incident or trauma. After two weeks, she sought medical attention as she was experiencing difficulty standing solely on the tiptoes of her left foot. During the physical examination, she confirmed the appearance of pain and tenderness to palpation along the dorsal side of the navicular bone, as well as when trying to get up on the tiptoes of her left foot, and as she tried to perform a single leg hop on her left leg. MRI was performed because of a suspected stress fracture. MRI showed low signal intensity in the whole tarsal navicular bone on T1-weighted imaging, and high signal intensity on T2-weighted short T1 inversion recovery imaging. For further assessment of the injury a CT was performed, based on which the method of treatment was determined. A CT scan showed a dorsal cortex stress fracture with the propagation of the fracture line in the proximal one-third of the navicular bone. She was initially treated with cast immobilization and non-weight bearing for six weeks. During the next six weeks, she walked using crutches, gradually increasing the load on her left leg. She returned to sports competition after five months of treatment.

Conclusion:

In athletes with insidious onset of pain in the foot, a stress fracture can be one of the possible diagnosis. Regardless of whether operative or non-operative treatment was performed, tarsal navicular stress fractures require a gradual return to sports.