Use of Cuboid Manipulations in A Women’s Soccer Player
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**Background:** Cuboid syndrome is a painful condition of the lateral mid-foot that is often misdiagnosed. The two most consistent mechanisms reported for cuboid syndrome are plantar flexion and inversion ankle sprains or as an overuse injury. Pain is usually worse when weight-bearing upon waking, ambulating on uneven grounds, and when exercising. Typically symptoms tend to ease with rest. Walking may be difficult and people with cuboid subluxation often walk with an altered gait in an attempt to keep their weight off the lateral aspect of the foot.

**Case Presentation:**
**Patient:** A 19-year old goalie for a division III women’s soccer team was injured during practice when she was coming out of the net to stop a breakaway. She reported her left cleat got stuck in the ground, inverting and plantar flexing her foot. The patient presented to the athletic training clinic complaining of pain on the dorsal aspect of her foot over her cuboid. After evaluation point tender pain over the cuboid with moderate swelling in the area around the bifurcate ligament was noted. The bifurcate ligament is a Y-shaped ligament that runs from the calcaneus to the cuboid and the navicular. Active and passive range of motion for plantar flexion and inversion were painful and all other motions were within normal limits. The patient had pain during gait, primarily during toe off. Other diagnoses that considered but ruled out were a lateral ankle sprain, peroneal tendinopathy, jones fracture, plantar fasciitis and a stress fracture.

**Intervention:** The cuboid whip technique was performed, which was deemed successful with the patient reporting a relief of symptoms, most notably with ambulation. A mulligan taping technique was used to pull the cuboid superiorly to prevent inferior displacement. In order to help pain and swelling, ice and electrical stimulation was utilized. Stretching the gastrocnemius, soleus, hamstring, and peroneus longus, as well as strengthening the intrinsic foot muscles was implemented to help prevent the recurrence of cuboid syndrome.

**Comparative Outcome:** Following cuboid manipulation patients have objectively assessed their level of symptoms using the visual analog pain scale (VAS). An immediate relief of symptoms has been reported after the manipulation and patients are able to return to activity within 24 hours, if not immediately. Some patients require a second manipulation the following day due to their longer duration of symptoms than other patients. Our patient reported immediate relief of symptoms after the cuboid manipulation, but she required about 4-5 days of manipulations before her symptoms fully subsided. She continued to use Mulligan taping in practice for a subsequent week.

**Conclusion:** Cuboid syndrome often goes undiagnosed because there are no special tests or definitive diagnostic procedures. Imaging is limited for identification, so the diagnosis is based primarily on the patient’s history and the presence of signs and symptoms. It is reported that when recognized cuboid syndrome responds exceptionally well to conservative treatment, consisting of cuboid manipulation techniques, with many patients reporting immediate relief of symptoms and increased function after the manipulation.

**Clinical Bottom Line:** Patients reporting lateral foot pain or pain near the cuboid should raise the clinician’s suspicion for cuboid syndrome and it should be considered as a potential differential diagnosis, particularly if an inversion mechanism is reported. If identified clinicians should treat with cuboid manipulation and assess the patient's pain and function.

**Word Count:** 544