Accepted: April 12, 2021; Published: April 15, 2021
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consideration was given to more invasive treatment options. Surgical excision was considered, but due to the patient’s strong desire to return to his competitive swim season, he and his family decided that he would trial an anesthetic/corticosteroid injection for diagnostic and potentially therapeutic purposes. After a discussion of risks/benefits, the patient underwent ultrasound-guided anesthetic/corticosteroid injection into the T1 spinous process fracture.
nous process fracture (Figure 2). This was performed with the patient in a prone position with arms at his side. A pre-procedure ultrasound scan localized the patient’s maximal tenderness to the T1 level with evidence of a displaced fragment off the right side of the T1 spinous process. A 25 gauge, 2 inch needle was advanced from a lateral to medial approach under direct sonographic guidance into the T1 spinous process avulsion fracture interval. A 1 mL mixture of 2 mg/0.5 mL dexamethesone and 0.5 mL of 0.5% ropivacaine was injected with good sonographic flow. There were no complications. The patient noted some initial relief of his neck pain within a few minutes after the procedure. He was instructed to ice the area for pain control, avoid submersion to reduce risk of injection, and avoid vigorous activities for the rest of the day.

At two-week follow up post-procedure, the patient demonstrated complete resolution of pain and symptoms. His physical therapy was progressed, and he was able to successfully return to swimming. At one-year follow-up, the patient reported complete and sustained resolution of symptoms. He had successfully returned to compete in the latter half of his soccer season, and was participating fully in his swimming season until it was cancelled due to the COVID pandemic.

Conclusion

Clay shoveler’s fracture is a rare avulsion fracture of the lower cervical or upper thoracic spinous processes, most commonly at C7 or T1 [1]. This was historically an occupational injury seen in the early 20th century as a result of manual laborers, such as clay shovelers, lifting and throwing heavy objects, hence its name [1,2]. However, this is now more commonly seen in acute traumatic cases, such as motor vehicle accidents, as well as in athletes exerting sudden or rotational forces [1,2]. The pathophysiologic mechanism of this injury is thought to be secondary to shearing forces exerted by forceful contraction of the upper back and neck muscles that attach to the spinous processes, notably the trapezius and rhomboid muscles [1-3]. An acute fracture may also be seen with a direct blow to the spine as well as with neck hyperextension or forceful flexion, all of which can occur in various sports-related activities [1]. This fracture has been described in sports including football, soccer, golf, baseball, wrestling, power-lifting, trail-running, and horse-riding [1-7]. It is especially rare in children and adolescents, with only a few documented cases in the literature [3].

Treatment for clay shoveler’s fracture is typically conservative with rest from painful activity, and most patients recover with a period of relative rest [2,8]. Occasionally, cases of delayed union or non-union fractures can cause ongoing symptoms. In such cases, options are limited, with some reported cases of surgical excision of the fracture fragment after 10 months of painful symptoms [8].

To our knowledge, this is the first case of an ultrasound-guided injection being used to treat this condition, facilitating symptom relief and a relatively rapid return to sport. While in this case the injection provided definitive symptomatic resolution, such an injection may also be useful to confirm pain related to a spinous process delayed union or non-union fracture prior to surgical excision.

Disclosures/Conflicts of Interest

None.

Funding Source

None.

Acknowledgments

None.

References