

CLINICAL CASE SAMPLE

HISTORY: A 17-year-old senior high school football defensive cornerback sustained a neck injury while tackling. During the third quarter of a midseason game, he unintentionally used a spearing technique for a successful tackle. As he drove his head into a ball carrier's chest, his neck was forced into flexion and he developed moderate posterior neck pain. There was no numbness, tingling, weakness or radiation of pain into his upper extremities. Three tackles later, 11 plays later, and during the fourth quarter, he reported his neck pain to the athletic trainer.

PHYSICAL EXAMINATION: Examination on the sidelines revealed moderate tenderness over the spinous processes of C6-T1, mild tenderness of the adjacent paraspinal muscles bilaterally and normal sensation, reflexes and strength of his upper extremities. There was full active range of motion of his neck but flexion and extension were painful. Over the next hour, his neck progressively became stiffer, but he had no neurological symptoms or signs.

DIFFERENTIAL DIAGNOSIS:

1. Strain of cervical paraspinal muscles
2. Fracture of cervical spine
3. Cervical sprain

TEST AND RESULTS:

Cervical spine anterior-posterior and lateral radiographs:

— obliquely horizontal fracture of C7 spinous process with 1/2 cm displacement of fracture fragments

— 2 mm of forward subluxation of C6 vertebral body relative to C7 vertebral body

Lateral cervical spine radiographs with neck actively flexed and extended:

— no further subluxation of C6 vertebrae

— increased distraction of spinous fracture fragments with neck flexion

Cervical spine oblique radiographs:

— normal orientation of facets and pedicles

FINAL/WORKING DIAGNOSIS:

Clay-shoveler's fracture (avulsion fracture of spinous process of C7)

TREATMENT AND OUTCOMES:

1. Immobilization with Philadelphia collar for 6 weeks.
2. Repeat active extension and flexion radiographs at 3 and 6 weeks post injury showed no delayed increase in stability.
3. Neck isometric exercises started 3 weeks post injury.
4. Range of motion and neck strengthening exercises started 6 weeks post injury.
5. Returned to sports 3 months post injury when he had full, painless ROM, normal strength and able to meet the demands of his sport.