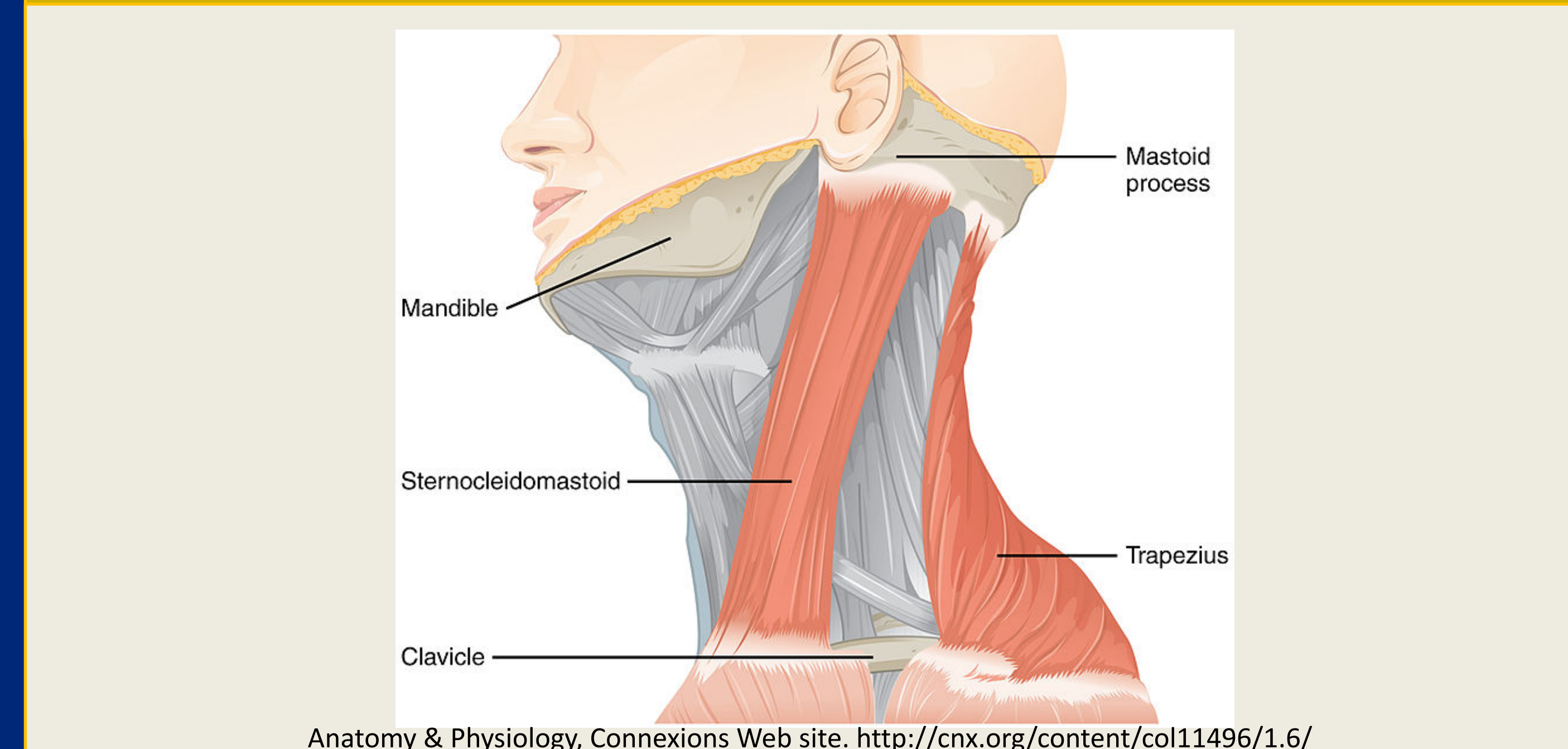


## Case Presentation

- 54-year-old active male presented after a bicycle accident in which the patient was projected down a flight of stairs.
- Initial imaging showed both skull base and C1 vertebral fractures. The patient was managed conservatively with a cervical collar and stayed in the ICU for one week.
- A few months after discharge, the patient began experiencing worsening right shoulder pain and weakness. Physical exam was positive for right trapezius muscle atrophy, winged scapula, and decreased cervical range of motion.
- Needle electromyography confirmed right proximal spinal accessory nerve lesion and marked denervation in the right trapezius and sternocleidomastoid (SCM) muscles.
- The patient was referred to an upper extremity Orthopedic surgeon for evaluation for triple-tendon transfer.

## Anatomy of the Accessory Nerve



**Figure 1. CT head without contrast showing complex skull base fractures and hemorrhage within the left mastoid air cells, middle ear cavity, and bilateral sphenoid sinuses**



## Discussion

- Accessory nerve injuries commonly present with pure motor findings of weakness and depression of the ipsilateral shoulder. Patients report pain radiating to the neck, back, and arm, and can eventually develop atrophy of the trapezius and SCM.
- Conservative management includes physical therapy, shoulder orthoses, and pain control. Surgical intervention should be considered in patients who do not recover after 6-12 months.
- Triple-tendon transfer utilizing the levator scapulae, rhomboid major, and rhomboid minor has shown successful outcomes in patients who fail conservative management.

## Conclusion

- This case demonstrates the interdisciplinary approach to workup and management of accessory nerve injuries using a combination of physical exam, musculoskeletal anatomy, and electrodiagnostic medicine.