

# PAIN & DISABILITY<sup>SM</sup>

**Call Today 201-656-4324**

191 Doctors, 191 Palisade Ave.  
Jersey City, NJ 07306-1112

## Neck Pain - CLINICAL

### Causes:

- **Penetrating trauma:**

*Neck Injuries may be due to:*

- Penetrating injury originates from knives in 50% of cases, GSWs in 45% of cases, and shotguns in 5% of cases.
- GSWs, particularly high-velocity bullets
- Vascular injuries arising from penetrating trauma may occur directly, causing a partial or complete transection of the vessel or inducing formation of an intimal flap, arteriovenous fistula, or pseudoaneurysm.
- Injury to the pharynx or the esophagus occurs in 5-15% of cases.
- The larynx or the trachea is injured in 4-12% of cases.
- Major nerve injury occurs in 3-8% of patients sustaining penetrating neck trauma.
- Spinal cord injury originating from penetrating trauma occurs infrequently, and almost always results from direct injury, rather than secondary osseous instability.
- Penetrating neck trauma may precipitate an air embolism.
  - Suspect this entity in patients developing unexpected hypotension and/or arrhythmia, especially in the setting of an increase in central venous pressure.

- **Blunt trauma:**

- Blunt trauma to the neck typically results from an MVA, but it also occurs in sports ("clothesline tackle"), strangulation, blows from the fists or the feet, and excessive manipulation.
- Blunt neck trauma is capable of provoking injuries that range from a minor contusion or abrasion to life-threatening events.
- Of utmost concern is cervical spine injury.
  - Suspect cervical spine injury in all patients sustaining significant blunt trauma to the head and/or the neck.
- Nonpenetrating trauma is capable of injuring a blood vessel through a multitude of mechanisms.
  - Direct forces are able to shear the vasculature.
  - Excessive rotation/hyperextension of the cervical spine causes distention and stretching of arteries and veins to the point of rupture.
  - Intraoral trauma may extend to the blood supply.
  - Basilar skull fractures may disrupt the intrapetrous portion of the carotid artery.
- Impact to the exposed anterior aspect of the neck may crush the larynx or the trachea, particularly at the cricoid ring, and compress the esophagus against the posterior spinal column.
  - A sudden increase in intratracheal pressure against a closed glottis (e.g., improper wearing of a seat belt), a crush bruise (e.g., clothesline tackle), or a rapid acceleration/deceleration action may cause a tracheal injury.
- Perforation of the pharynx or the esophagus following blunt neck trauma rarely occurs.
  - Initially, the patient may relate no complaints, and the physical examination fails to detect injury.
  - Since the walls of the esophagus are fragile, iatrogenic injury can follow endoscopy, passage of a nasogastric (NG) tube, or inadvertent esophageal intubation.
- Brachial plexus injuries sustained from blunt trauma usually involve the upper nerve roots (C-5 to C-7), diminishing capacity of the upper arm, while sparing strength and sensation of the lower arm.
  - A radical avulsion of the brachial plexus results in a flaccid, anesthetic extremity.

- Strangulation may result from hanging (partial or complete suspension of the body from the

neck), ligature suffocation, manual choking, and postural asphyxiation (e.g., seen in children when the neck is placed over an object, and the body weight produces compression). Significant cervical spine and spinal cord damage only truly happens in those hangings that involve a fall greater than the body height. Simple asphyxiation is not the major cause of death in hanging injuries.

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