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Visual Case Discussion

Radial nerve neurapraxia

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A 30-year-old woman with a history of borderline personality disorder and opioid use disorder presented to the emergency department for left hand and forearm numbness (Figs. 1 and 2). She admitted to snorting one bag of heroin daily as well as occasional clonazepam use. The patient fell asleep after snorting heroin and taking clonazepam on the morning of presentation and woke up with numbness and tingling in her left forearm and hand as well as the inability to extend her wrist. Upon examination she is found to have wrist-drop, likely from neurapraxia of the radial nerve. Management included splinting the wrist into a neutral position to allow for recovery over time as well a prescription for non-steroidal anti-inflammatory medication to take as needed for pain.

Questions

1 A 30-year-old woman with a history of borderline personality disorder and opioid use disorder presented to the emergency department for left hand and forearm numbness. She admitted to snorting one bag of heroin daily as well as occasional clonazepam use. The patient fell asleep after snorting heroin and taking clonazepam on the morning of presentation and woke up with numbness and tingling in her left forearm and hand as well as the inability to extend her wrist. Upon examination she is found to have wrist-drop, likely from neurapraxia of the radial nerve. Management included splinting the wrist into a neutral position to allow for recovery over time as well a prescription for non-steroidal anti-inflammatory medication to take as needed for pain. Which of the following is NOT characteristic of a radial nerve palsy?
   a Inability to extend wrist
   b Inability to flex wrist
   c Loss of sensation in the dorsal forearm
   d Loss of sensation in the dorsal hand between the thumb and second phalanx
2 Which scenarios pose the greatest risk for radial nerve palsy?
   a 25-year-old placed in the “recovery position” (semi-prone position with head resting on forearm) by their friend after losing consciousness secondary to opioid intoxication
   b 40-year-old lying supine in their bed with their arms abducted between 0 and 45 degrees
   c Intoxicated 21-year-old falling asleep on a wooden chair with their arm hanging over the back
   d A and C
   e B and C
   f A and B

Answers

1 (Inability to flex wrist). The radial nerve provides sensation to the dorsal forearm and dorsal hand covering the first 3.5 fingers up to the distal interphalangeal joint. Additionally, motor function of the nerve includes elbow and wrist extension.[1]
2 (A and C). Although radial nerve palsy most commonly occurs from humerus fractures, neurapraxia can occur from continual pressure to the nerve for an extended period of time. The recovery position has the head resting on the forearm, which results in the focal application of pressure in the path of the nerve. Falling asleep on a hard chair with an arm hanging over the back also applies focal pressure to the humeral groove/axilla, where the radial nerve traverses. While lying supine with the arms mildly abducted, there is minimal to no strain on the brachial plexus nerves and would be very unlikely to awaken with a nerve palsy.[2]

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Fig. 1. Left radial nerve neuropraxia anterior view.

Fig. 2. Left radial nerve neuropraxia lateral view.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100610.

References

1. Practice advisory for the prevention of perioperative peripheral neuropathies 2018: an updated report by the American society of anesthesiologists task force on prevention of perioperative peripheral neuropathies*. *Anesthesiology.* 2018;128(1):11–26. https://doi.org/10.1097/ALN.0000000000001937.
2. Rains Derek D, Rooke GAlec, Wahl Christopher J. Pathomechanisms and complications related to patient positioning and anesthesia during shoulder arthroscopy. *Arthros J Arthroscop Relat Surg.* 2011;27(4):532–541 ISSN 0749-8063 https://doi.org/10.1016/j.arthro.2010.09.008.