

Pronator Syndrome

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Pronator syndrome is an upper extremity peripheral entrapment neuropathy involving the median nerve. The pronator syndrome can be confused with carpal tunnel syndrome if care is not taken to adequately evaluate the patient. This entrapment neuropathy occurs where the median nerve passes between the two heads of the pronator teres muscle and under the fibrous arch of the flexor digitorum profundus muscle. Patients may relate an episode or series of episodes of prolonged pronation of the forearm and forced flexion of the fingers, as do carpenters and mechanics during the performance of their everyday tasks.

A patient suffering from pronator syndrome may present with a diffuse forearm ache that is usually the result of prolonged muscular effort. Paresthesia is noted in the median field of the hand which may be exacerbated by forced pronation. Tenderness over the entrapment site maybe present and can lead to pain in the proximal forearm that is increased with pronation. Percussion over the site may result in the generation and transmission of abnormal sensations down the path of the median nerve (Tinel's sign). Motor evaluation of the involved extremity may reveal decreased strength to muscles innervated by the median nerve distal to the entrapment site. Specifically, motor losses may result in a decreased ability to pronate the wrist, a loss of wrist flexion, partial loss of finger flexion, and a loss of thumb opposition. In contrast, patients with carpal tunnel syndrome will not demonstrate weakness in wrist flexion, wrist pronation, or finger flexion.

The pattern of sensory loss associated with pronator syndrome must be differentiated from the pattern of sensory loss associated with carpal tunnel syndrome. The pattern of sensory loss seen with pronator syndrome encompasses the entire median nerve field of the hand. The pattern of sensory loss noted with carpal tunnel syndrome differs in that it spares the proximal aspect of the palm and primarily involves the thumb and fingers. The palmar cutaneous branch of the median nerve, which supplies the proximal region of the palm, arises from the median nerve proximal to the carpal tunnel and traverses over the tunnel to innervate the superficial palmar region. Pathology affecting the median nerve in the carpal tunnel will not affect this branch of the nerve. Thus the proximal portion of the median nerve field will be spared in carpal tunnel syndrome.

References

1. Kopell HP and Thompson WAL. *Peripheral Entrapment Neuropathies*. R.E. Krieger Publishing Company, Malabar, Florida, 1976.
2. Sunderland S. *Nerves and Nerve Injuries*, 2nd ed. Churchill-Livingstone, New York, 1978.
3. Moore K. *Clinically Oriented Anatomy*, Williams and Wilkins, Baltimore, 1980.

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