Peripheral Nerve

Definition: A peripheral nerve is a structure of the peripheral nervous system (PNS) composed of bundles of axons (nerve fibers), connective tissue, and blood vessels. It transmits motor, sensory, or autonomic signals between the central nervous system (CNS) and the rest of the body.

Microscopic Anatomy

- **Endoneurium:** Surrounds individual axons.
- **Perineurium:** Encloses fascicles (bundles) of axons.
- **Epineurium:** The outermost sheath surrounding the entire nerve.

Classification

- **Motor nerves (efferent):** Carry impulses from the CNS to muscles.
- **Sensory nerves (afferent):** Carry sensory information from the periphery to the CNS.
- **Mixed nerves:** Contain both motor and sensory fibers.

Clinically Relevant Examples

- Sciatic nerve
- Median nerve – commonly affected in carpal tunnel syndrome
- Radial nerve
- Facial nerve (VII) – cranial, but with peripheral branches

Clinical Relevance

- **Peripheral neuropathy:** Damage to peripheral nerves due to diabetes, toxins, infections, etc.
- **Nerve compression syndromes:** e.g., carpal tunnel, ulnar nerve entrapment.
- **Trauma:** Ranges from neurapraxia to neurotmesis (complete transection).
- **Regeneration potential:** Unlike the CNS, peripheral nerves can regenerate at approximately 1 mm/day.

Images

See Also

- peripheral_neuropathy

- nerve_conduction_study
- axonal_regeneration
- neurotmesis