Peripheral nerves: dermatoma, myotoma, sklerotoma and angiosoma

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Dermatoma and myotoma are the principles of neurological investigations and bear a high significance with the segmental innervation of the body. Aspects of dermatoma and myotoma are described and the innervation of other structures of the musculoskeletal system, which might be important for localisation are demonstrated.

Dematoma refer to the segmental innervation in the skin, reflecting innervation by radicular segments. The "dermatoma" maps, have been developed by several investigators in different epochs and still have some problematic area of overlap. In addition is postulated that 20 % of nerve roots have intrathecal anastomosis. The precise distinction is necessary not only for neurological discrimination, but also in the identification of pain syndromes. In addition to different peripheral nerve receptors also the anatomies between peripheral nerves is important.

Muscles, like the skin are often innervated by one or more segments, which is important for clinical investigations. The distribution of muscle innervation is termed myotoma. Yet the pain perception of muscles and the segmental distribution of deep muscle pain is not well described. This is also true for fasciae, which are often densely innervated and are often the origin of muscle. This the fascial system contributes eminently to the complex musculoskeletal system.

Sklerotomas define areas, which are innervated by single spinal nerves. This is important as the bones and periosteum are also segmentally innervated, but this is not congruent to our usual dermatomal vision. The knowledge is important to localize pain in the skeletal system and also for referred pain.

Angiosomas consist of a 3 D vascular bundle supplying tissue, including cranial nerves, nerve plexus and individual nerves. The distribution is important for dermatological issues and plastic and reconstructive surgery. In neurology the distribution is important in cranial nerves, as well for the vascular supply of peripheral nerve.

The anatomical concept of dermatome, myotoma, peripheral nerve distribution is established and useful in clinical neurology and is further subject to research.