The tenth thoracic dorsal nerve roots contain afferent somatic and visceral nerve fibers corresponding to the tenth thoracic spinal cord segment. They emerge as two or three rows of rootlets from the posterolateral sulci of the spinal cord. Rootlets of adjacent dorsal roots may communicate via thin branches.

The roots pass infero-laterally to their exit through the intervertebral foramina between the pedicles of T10 and T11. They are slightly larger in diameter than their corresponding ventral roots and larger in obliquity and length than the dorsal roots above; in the lower thoracic region the distance between the spinal cord attachments and vertebral exit of the dorsal roots is at least the height of two vertebrae. They pass over the superior surface of the transverse processes of T11 to join with the tenth thoracic ventral roots to form the tenth thoracic spinal nerves. Each of the tenth thoracic dorsal roots possesses an ovoid spinal ganglion (dorsal root ganglion) proximal to where it joins the tenth thoracic ventral nerve roots.

The roots are covered by a sleeve of pia mater, which is continuous with that of the spinal cord, and loosely invested by a prolongation of dura and arachnoid mater (the dural sleeve) almost as far as the spinal nerves.