Conus Medullaris Termination in Adult Females

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INTRODUCTION

- The conus medullaris represents the tapered, distal-most end of the spinal cord.[3]
- The condus medullaris tends to be found somewhere between the L1-L2 lumbar vertebrae and can sometimes be higher or lower.[3]
- We aim to describe the level of conus medullaris termination in a sample of female cadavers.

METHODS

1. Twenty-four female cadavers were dissected as part of Doctor of Osteopathic Medicine curriculum at PCOM.
2. The end of the conus medullaris was defined as the point where tapering ends distal to the last branches of the posterior nerve rootlets (Figure 1).
3. Using the vertebral articulation of the 12th rib as a landmark (Figure 3) the termination of the conus medullaris was noted to be either at the level of an intervertebral disc or vertebral body.
4. In the latter cases the vertebral body was divided into upper, middle, and lower thirds.

RESULTS

- Conus Medullaris termination ranged from the T12-L1 intervertebral disc to the L2-L3 intervertebral disc.
- The L1-L2 intervertebral disc was the most common termination point with 42% of cadavers displaying termination at this level.

Vertebral Level	Number of Cadavers	Percentage
Lower third T12	1	4.17
Intervertebral T12-L1	1	4.17
Upper third L1	2	8.33
Lower third L1	1	4.17
Intervertebral L1-L2	10	41.67
Upper third L2	4	16.67
Middle third L2	1	4.17
Lower third L2	2	8.33
Intervertebral L2-L3	1	4.17

Table 1. Conus Medullaris termination by vertebral level.

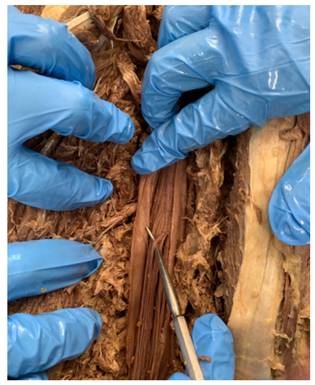

Figure 1. Termination of the conus medullaris distal to terminal branches of posterior nerve rootlets.

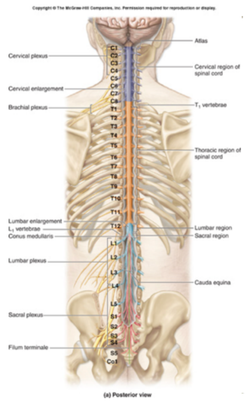

Figure 2. Spinal Cord anatomy showing conus medullaris at L1-L2.

Figure 3. Determination of the vertebral articulation of the 12th rib by palpation of transverse processes.

CONCLUSION

- These results demonstrate that there is variation of spinal cord termination, which can play a role in lumbar punctures, spinal anesthesia, and obstetric anesthesia.
- Due to the risk of cord damage it is imperative to perform any sort of anesthetic procedure fully below the level of L3 in the L3-L4 space or L4-L5 space.
- While a rare complication of epidurals is dural puncture, an epidural injection above the level of L3 may cause severe spinal cord damage if there is dural puncture and an anatomical variant in which the conus medullaris extends to the L3 level.

FUTURE DIRECTIONS

- Compare differences in conus medullaris termination in males vs. females.

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