Middle cerebellar peduncle

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Carry input fibers from the contralateral cerebral cortex

Anterior view

1. Superior medullary velum

2. Superior cerebellar peduncle

3. Wing of central lobule

4. Middle cerebellar peduncle

4' Inferior cerebellar peduncle

5. Flocculus

6. Horizontal fissure

7. Central lobule

8. Nodule

9. Uvule

10. Retrotonsillar fissure

11. Tonsilla cerebelli

12. Foramen caecum

13. Pyramid

14. Inferior olive

15. Horizontal fissure

16. Vestibulocochlear nerve / facial nerve

17. Trigeminal nerve

18. Crus cerebri

19. Interpeduncular fossa

20. Pons

21. Biventer lobule

22. Inferior semilunar lobule

23. Superior semilunar lobule

24. Simple lobule

A study of Çavdar et al., aims to define the cortical and subcortical and brain stem connections of the cerebellum via the superior cerebellar peduncle (SCP) and middle cerebellar peduncle (MCP) using biotinylated dextran amine (BDA) and Fluoro-Gold (FG) tracer in Wistar rats. 14 male rats received 20-50-nl pressure injections of either FG or BDA tracer into the SCP and MCP. Following 7-10 days of survival period, the animals were processed according to the related protocol for two tracers. Labelled cells and axons were documented using light and fluorescence microscope. The SCP connects cerebellum to the insular and infralimbic cortices whereas, MCP addition to the insular cortex, it also connects cerebellum to the rhinal, primary sensory, piriform and auditory cortices. Both SCP and MCP connected the cerebellum to the ventral, lateral, posterior and central, thalamic nuclei. Additionally, SCP also connects parafasicular thalamic nucleus to the cerebellum. The SCP connects cerebellum to basal ganglia (ventral pallidum and clastrum) and limbic structures (amygdaloidal nuclei and bed nucleus of stria terminalis), however, the MCP have no connections with basal ganglia or limbic structures. Both the SCP and MCP densely connects cerebellum to various brainstem structures. Attaining the knowledge of the connections of the SCP and MCP is important for the diagnosis of lesions in the MCP and SCP and would deepen current understanding of the neuronal circuit of various diseases or lesions involving the SCP and MCP [1)].

1)
Çavdar S, Özgür M, Kuvvet Y, Bay H, Aydogmus E. Cortical, subcortical and brain stem connections of the cerebellum via the superior and middle cerebellar peduncle in the rat. J Integr Neurosci. 2018 Jul 25. doi: 10.3233/JIN-180090. [Epub ahead of print] PubMed PMID: 30056432.