

The Relationship of the Dentate Nucleus with the Pyramid of Vermis: A Microneurosurgical Anatomical Study

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Abstract : The region of dentate nucleus is a common site for various pathologies like hematomas, tumours, etc. We aimed to study in detail the relationship of this region with the vermis, especially the pyramid using microscopic fibre dissection technique. To achieve this aim, 20 cerebellar hemispheres were studied from the 11 cerebellums. Dissection was performed using wooden spatulas and micro dissectors under a microscope following Klingler's preservation technique. The relationship between the pyramid of vermis and the dentate nucleus was studied in detail. A similar relationship was studied on the MRI of randomly selected trigeminal neuralgia patients and correlated with anatomical findings. Results show the mean distance of the lateral margin of the dentate nucleus from the midline on anatomic specimens was 21.4 ± 1.8 mm (19-25 mm) and 23.4 ± 3.4 mm (15-29 mm) on right and left side, respectively. Similar measurements made on the MRI were 22.97 ± 2.0 mm (20.03-26.15 mm) on the right side and 23.98 ± 2.1 mm (21.47-27.67 mm) on the left side. The amount of white matter dissection required to reach the dentate nucleus at the pyramidal attachment area was 7.3 ± 1.0 mm (6-9 mm) on the right side and 6.8 ± 1.4 mm (5-10 mm) on the left side. It was concluded that the pyramid of vermis has a constant relationship with the dentate nucleus and can be used as an excellent landmark during surgery to localise the dentate nucleus on the suboccipital surface.

Keywords : fiber dissection, micro neurosurgery, the dentate nucleus of cerebellum, the pyramid of vermis

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