Edinger-Westphal nucleus

The oculomotor nerve exits the brainstem ventrally and has two components: motor neurons that originate in the oculomotor nucleus and more peripherally situated parasympathetic fibers which arise from the Edinger-Westphal nucleus.

The Edinger-Westphal (EW) nucleus, which is part of the oculomotor nuclear complex (ONC), was first described in the literature in the 17th century.

Researchers have discovered two different cell populations within the EW nucleus.

The EW nucleus subdivides into the EW preganglionic (EWpg) population and the EW nucleus centrally projecting (EWcp) population. However, accepted nomenclature for these two groups varies.

The EWpg is what is thought of as the classic ONC—sending parasympathetic nerve fibers towards the eye. It is located in the midbrain immediately dorsal to the oculomotor nucleus near the level of the superior colliculus, which is why it is often included in the overarching term oculomotor complex.

The EWcp population of cells (the non-preganglionic EW cells), also referred to as the subgriseal paramedian midbrain neuronal stream to reflect their actual path, differ in function from the EWpg nucleus.

However, the name subgriseal paramedian midbrain neuronal stream has not found favor in the literature due to the complexity of the name and belief that the EW nucleus consisted of only one cell type. These two bodies of cells, while both referred to as the EW nucleus and intermingled from a structural standpoint in the midbrain, have fundamentally different roles in the function [1)].

Unclassified

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