

Diencephalon

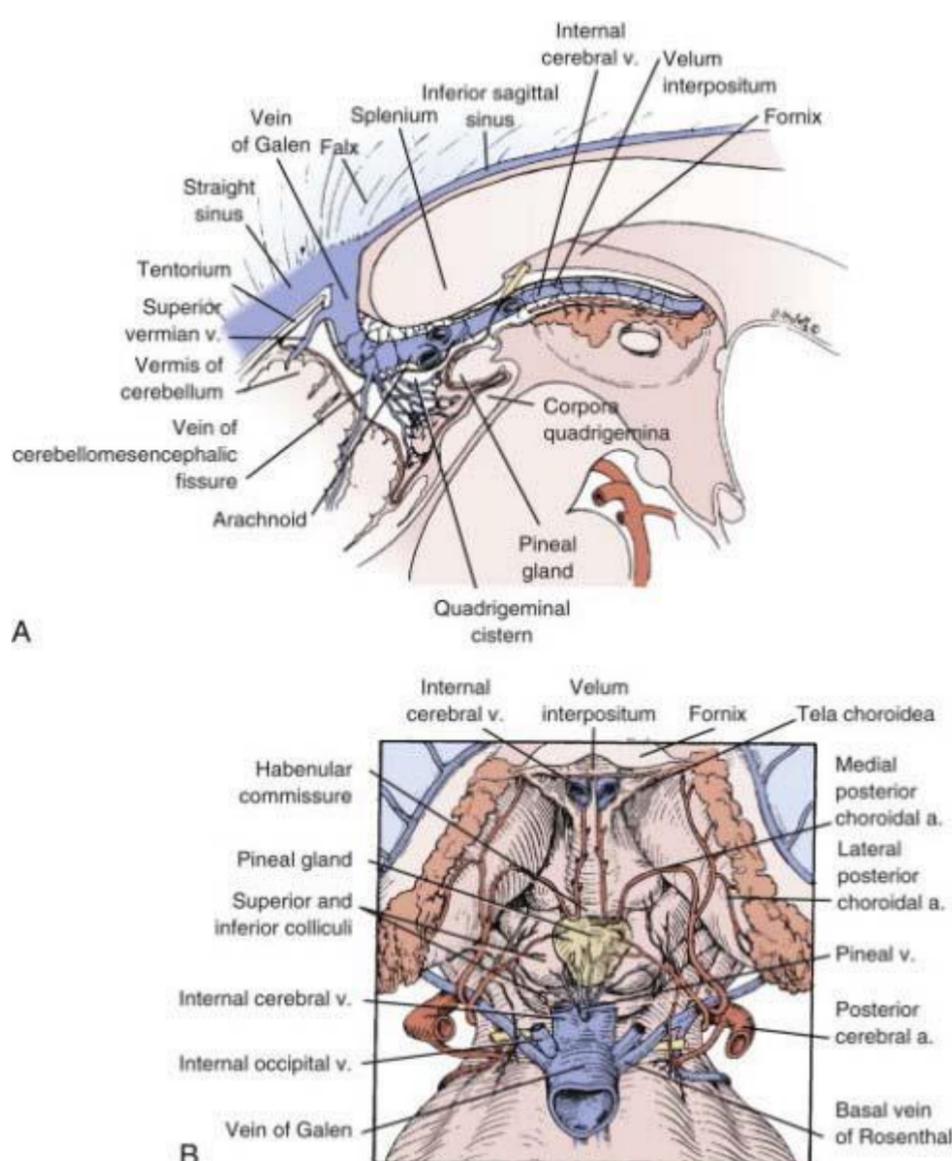
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PINEAL GLAND

also see 2717-2718 (ENDOCRINE SYSTEM)

- encapsulated structure that occupies deep position near geometric center of brain.
- essentially **extra-axial structure** - tumors of pineal gland are readily resectable - surgical plane can often be established between adjacent structures.
- surrounding structures:
 - posterior commissure ventrally
 - corpus callosum superiorly
 - habenular commissure dorsally
- velum interpositum, which incorporates internal cerebral veins and choroid plexus, is intimate with dorsal gland.
- blood supply - branches of medial and lateral choroidal arteries through anastomoses to pericallosal, posterior cerebral, superior cerebellar, and quadrigeminal arteries.



EMBRYOLOGY

Pineocyte is a cell with photosensory and neuroendocrine functions. The ontogeny of the human pineal gland recapitulates the phylogeny of the retina and the pineal organ {1481}. During late stages of intrauterine life and the early post-natal period, the human pineal gland consists primarily of cells arranged in rosettes similar to those of the developing retina. These feature abundant melanin pigment as well as cilia with a 9+0 microtubular pattern. By the age of three months, the number of pigmented cells gradually decreases so that pigment becomes undetectable by histochemical methods {1481}. As differentiation progresses, cells strongly immunoreactive for NSE accumulate. By postnatal age one year, pineocytes predominate.

FIELDS OF FOREL (S. H FIELDS)

- three defined white matter areas of the subthalamus.

Field H1 (s. thalamic fasciculus) - horizontal white matter tract (projections from globus pallidus and cerebellum to the ventral anterior and ventral lateral thalamus); composed of:

- 1) ansa lenticularis - make up the superior layer of the substantia innominata of Meynert. Its fibers, derived from the medullary lamina of the lentiform nucleus, pass medially to end in the thalamus and subthalamic region, while others are said to end in the tegmentum and red nucleus.
- 2) lenticular fasciculus
- 3) cerebellothalamic tracts between the subthalamus and the thalamus.

H1 is separated from H2 by the zona incerta.

Field H2 (s. lenticular fasciculus) - also made up of projections from the pallidum to the thalamus, but these course the subthalamic nucleus (dorsal).

Field H3 (s. field H) - large zone of mixed grey and white matter from the pallidothalamic tracts of the lenticular fasciculus and the ansa lenticularis which combine in an area just in front of the red nucleus.

- grey matter from this field is said to form a prerubral nucleus.

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