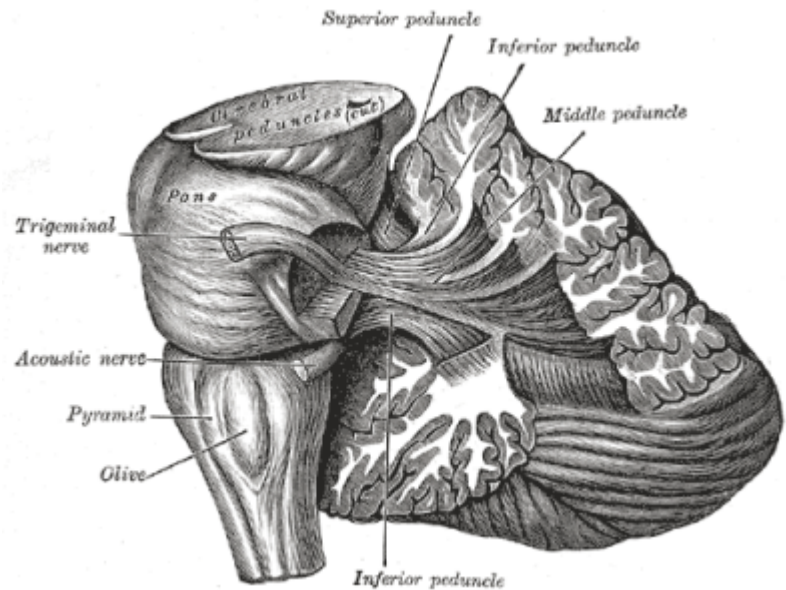


Superior cerebellar peduncle

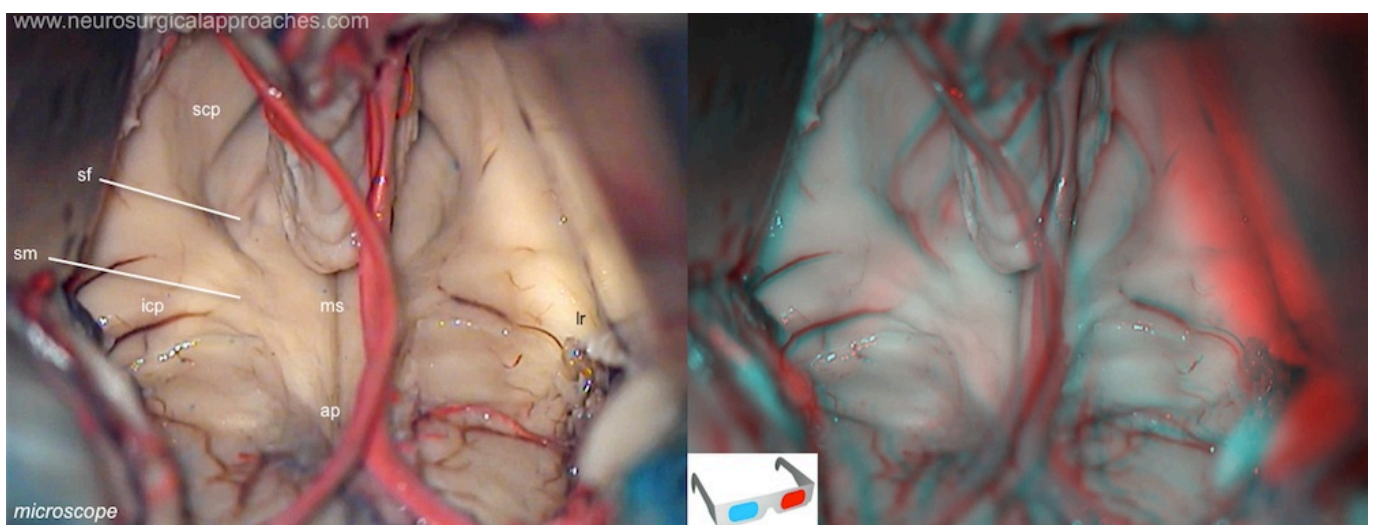


The superior **cerebellar peduncles** (brachia conjunctiva), two in number, emerge from the upper and medial part of the white matter of the hemispheres and are placed under cover of the upper part of the **cerebellum**.

They are joined to each other across the middle line by the anterior medullary velum, and can be followed upward as far as the inferior colliculi, under which they disappear.

Below, they form the upper lateral boundaries of the fourth ventricle, but as they ascend they converge on the dorsal aspect of the ventricle and thus assist in forming its roof.

The ventral spinocerebellar tract enters the cerebellum through the superior cerebellar peduncles, which otherwise mostly contain efferent fibers.



Ap: **area postrema**; icp: **inferior cerebellar peduncle**; lr: **lateral recess**; ms: **median sulcus**; scp: **superior cerebellar peduncle**; sf: **superior fovea**; sm: **Medullary striae of fourth ventricle**.

Longitudinal brain DTI was performed in a cohort of [pediatric patients](#) who underwent resection of [posterior fossa tumors](#). [Fractional anisotropy](#) (FA) of the superior cerebellar peduncles (SCPs) and [middle cerebellar peduncles](#) (MCPs) was measured on preoperative, postoperative, and follow-up DTI. Early postoperative (< 48 hours) and longer-term follow-up neurological deficits ([mutism](#), [ataxia](#), and extraocular [eye movement](#) dysfunction) were documented. [Statistical analysis](#) was performed to determine differences in FA values based on presence or absence of neurological deficits. Statistical significance was set at $p < 0.05$.

Twenty children (mean age 6.1 ± 4.1 years [SD], 12 males and 8 females) were included in this study. Follow-up DTI was performed at a median duration of 14.3 months after surgery, and the median duration of follow-up was 19.7 months. FA of the left SCP was significantly reduced on postoperative DTI in comparison with preoperative DTI (0.44 ± 0.07 vs 0.53 ± 0.1 , $p = 0.003$). Presence of ataxia at follow-up was associated with a persistent reduction in the left SCP FA on follow-up DTI (0.43 ± 0.1 vs 0.55 ± 0.1 , $p = 0.016$). Patients with early postoperative mutism who did not recover at follow-up had significantly decreased FA of the left SCP on early postoperative DTI in comparison with those who recovered (0.38 ± 0.05 vs 0.48 ± 0.06 , $p = 0.04$).

DTI after resection of [posterior fossa tumors](#) in [children](#) shows that persistent reduction of [superior cerebellar peduncle fractional anisotropy](#) (FA) is associated with [ataxia](#) at follow-up ¹⁾.

References

¹⁾

Vedantam A, Stormes KM, Gadgil N, Kralik SF, Aldave G, Lam SK. Association between postoperative DTI metrics and neurological deficits after posterior fossa tumor resection in children. J Neurosurg Pediatr. 2019 Jul 19:1-7. doi: 10.3171/2019.5.PEDS1912. [Epub ahead of print] PubMed PMID: 31323626.

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