Midbrain

Region 1: Crus cerebri

(cerebral peduncle = crus anteriorly and tegmentum posteriorly) - *Artery*: Ventral paramedian branches of PCA - *Lesion*: **Weber's** - Clinically relevant *structures:* - Corticospinal and corticobulbar fibres in the cerebral peduncles - Oculomotor nerve fibres exiting from interpeduncular fossa - Clinical *syndrome*: **i3 + c7u + CHP** - Ipsilateral: Oculomotor palsy ("down and out") - Contralateral: UMN facial, hemiplegia ## Region 2: Tegmentum - *Artery*: Dorsal paramedian branches of PCA - *Lesion*: **Claude's** - Clinically relevant *structures*: - Red nucleus containing fibres from contralateral dentate nucleus of cerebellum (part of dentato-rubro-thalamic pathway) - Oculomotor nerve fibres in the central tegmental region - Clinical *syndrome*: **i3 + CCAt** - Ipsilateral: Oculomotor palsy (CN3) - Contralateral: Cerebellar ataxia ## Region 3: Tectum - *Artery*: Posterior choroidal artery (br. of PCA) at sup. colliculus, superior cerebellar artery (SCA) at inf. colliculus - *Lesion*: **Parinaud's** - Clinically relevant *structures*: - Interstitial nucleus of Cajal at superior colliculus aka rostral interstitial nucleus of the MLF (riMLF) which is the vertical gaze centre - Pretectal nucleus: relays light reflex input arm signals to Edinger-Westphal nucleus, which then relays it to oculomotor nucleus - Clinical *syndrome*: - Vertical gaze palsy (due to riMLF lesion) - Pupillary disorders (e.g. light-near dissociation) (due to pretectal nucleus lesion) # Pons

Ventral (Basilar) Pons

- *Artery*: Basilar artery (lodges in the median sulcus between the two sides of pons)
- *Lesion*: **Millard-Gubler's**
- Clinically relevant *structures*:
  - Corticospinal tract in the paramedian area
  - Axons of CN6 and CN7
- Clinical *syndrome*: ***i6, i7 + CHP***
  - Ipsilateral lateral rectus (CN6) and LMN facial palsy (CN7)
  - Contralateral hemiplegia # Medulla

Posterolateral Medulla

- *Artery*: PICA (posteroinferior cerebellar artery, br. of vertebral)
- *Lesion*: **Wallenberg / lateral medullary syndrome**
- Clinically relevant *structures*:
  - Nucleus ambiguus: motor nucleus of CN 9, 10, 11 - ipsilateral soft palate, pharynx, larynx muscles
  - Spinal trigeminal nucleus and tract: ipsilateral face - pain and temperature senses
  - Lateral spinothalamic tract: contralateral body - pain and tempera-

ture senses
  - Vestibular nucleus
  - Spinocerebellar tracts - coordinate ipsilateral limb movements
  - Descending sympathetic fibres from hypothalamus - ipsilateral Horner
- Clinical syndrome: **i5, 9-11 + CPT***
  - Ipsilateral - 5 (pain and temperature lost at ipsilateral face), [9, 10, 11] (bulbar palsy) lesion; dysequilibrium (vestibular nucleus); ataxia (spinocerebellar tract); Horner's (ptosis, miosis, anhidrosis, enophthalmos)
  - Contralateral - pain and temperature lost (lateral spinothalamic) at contralateral body ## Anteromedial Medulla
- *Artery*: Anterior spinal artery
- *Lesion*: **Dejerine syndrome**
- Clinically relevant *structures*:
  - Pyramidal tract
  - Medial lemniscus
  - Hypoglossal nucleus and nerve
- Clinical *syndrome*: **i12, dc + CHP***
  - Ipsilateral: fine touch, vibration (DCMLS); tongue paralysis (CN12)
  - Contralateral: hemiplegia (pyramidal)