

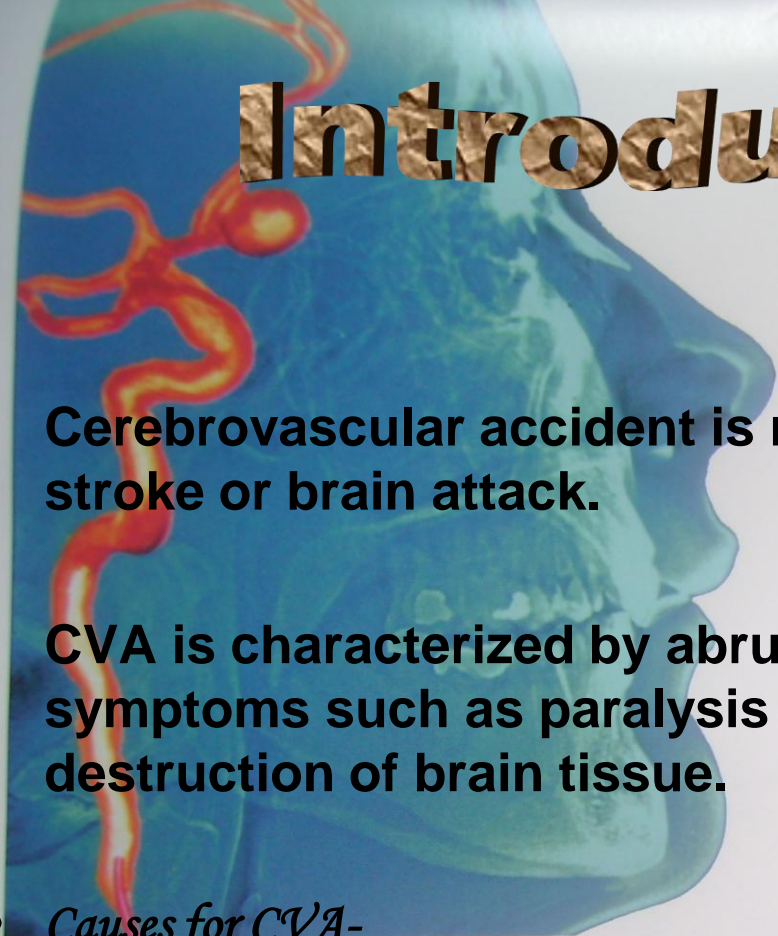
Cerebrovascular accidents



FIGURE 3.16 MRI of the brain showing the pituitary gland in sagittal section.

Lobes

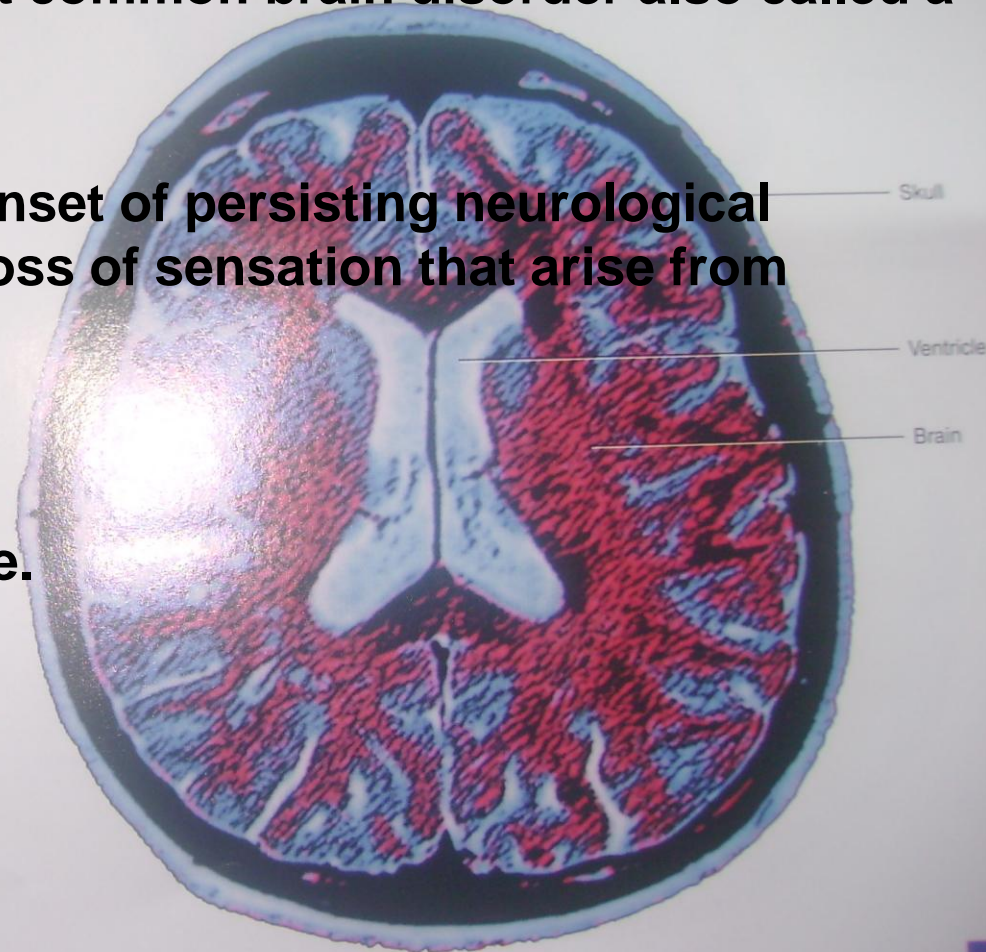
Introduction



- Cerebrovascular accident is most common brain disorder also called a stroke or brain attack.
- CVA is characterized by abrupt onset of persisting neurological symptoms such as paralysis or loss of sensation that arise from destruction of brain tissue.

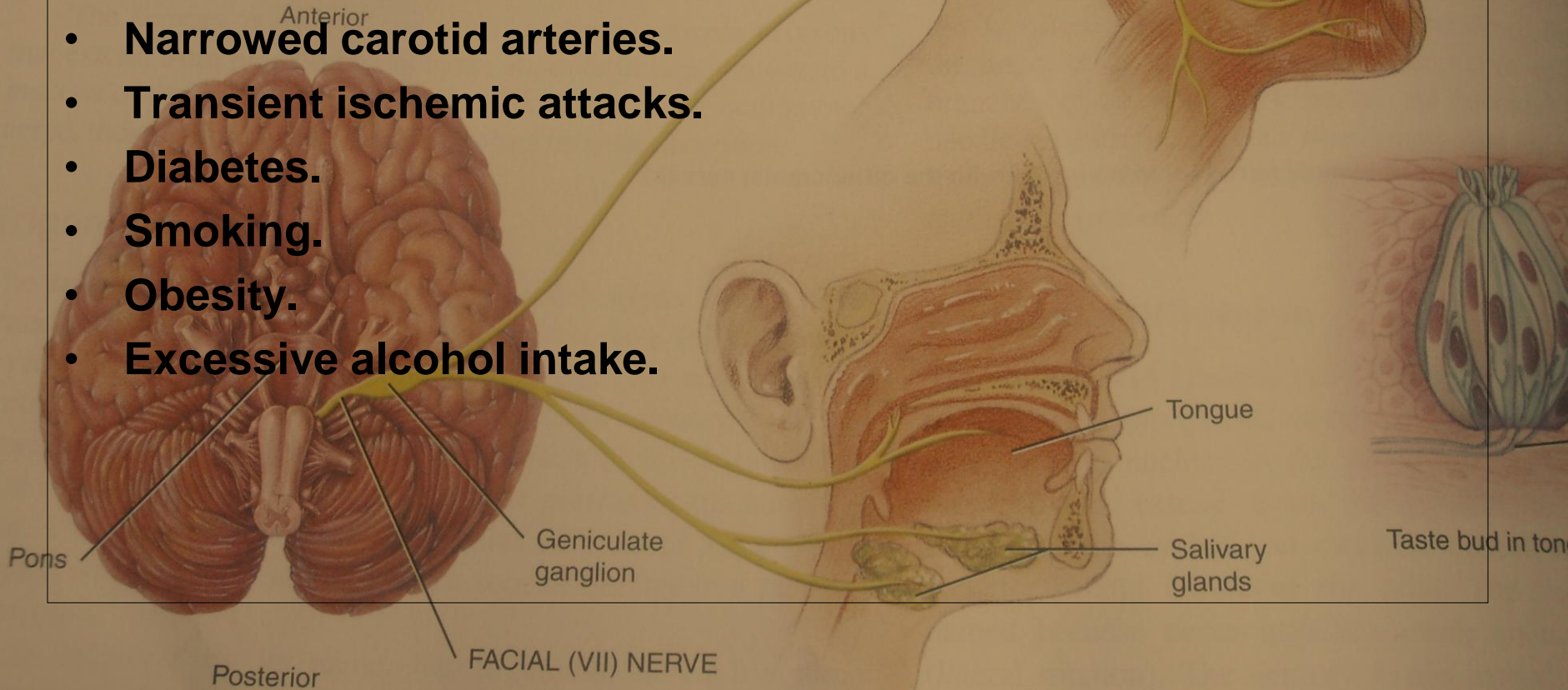
Causes for CVA-

- Intracranial cerebral haemorrhage.
- Embolism.
- Atherosclerosis.



Risk factors implicated in CVA

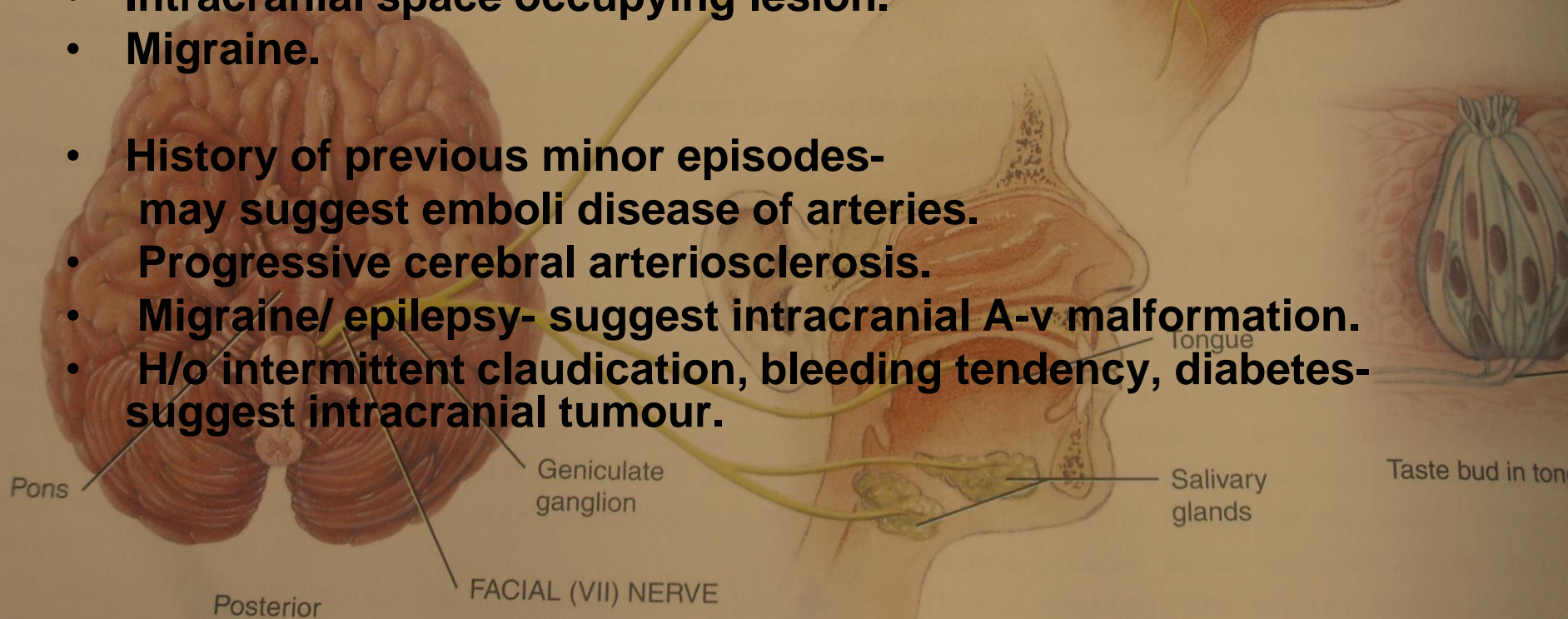
- Increased B.P.
- Increased blood cholesterol.
- Heart disease.
- Narrowed ^{Anterior} carotid arteries.
- Transient ischemic attacks.
- Diabetes.
- Smoking.
- Obesity.
- Excessive alcohol intake.



Diagnosis & investigation

History

- Age- young patients consider-
- Cardiac disease- Infective endocarditis, Mitral valve stenosis.
- Vascular disease- HTN, vasculitis, arteritis of intracranial vessels.
- Aneurysm/ A-V Malformation.
- Intracranial space occupying lesion.
- Migraine.
- History of previous minor episodes- may suggest emboli disease of arteries.
- Progressive cerebral arteriosclerosis.
- Migraine/ epilepsy- suggest intracranial A-v malformation.
- H/o intermittent claudication, bleeding tendency, diabetes- suggest intracranial tumour.

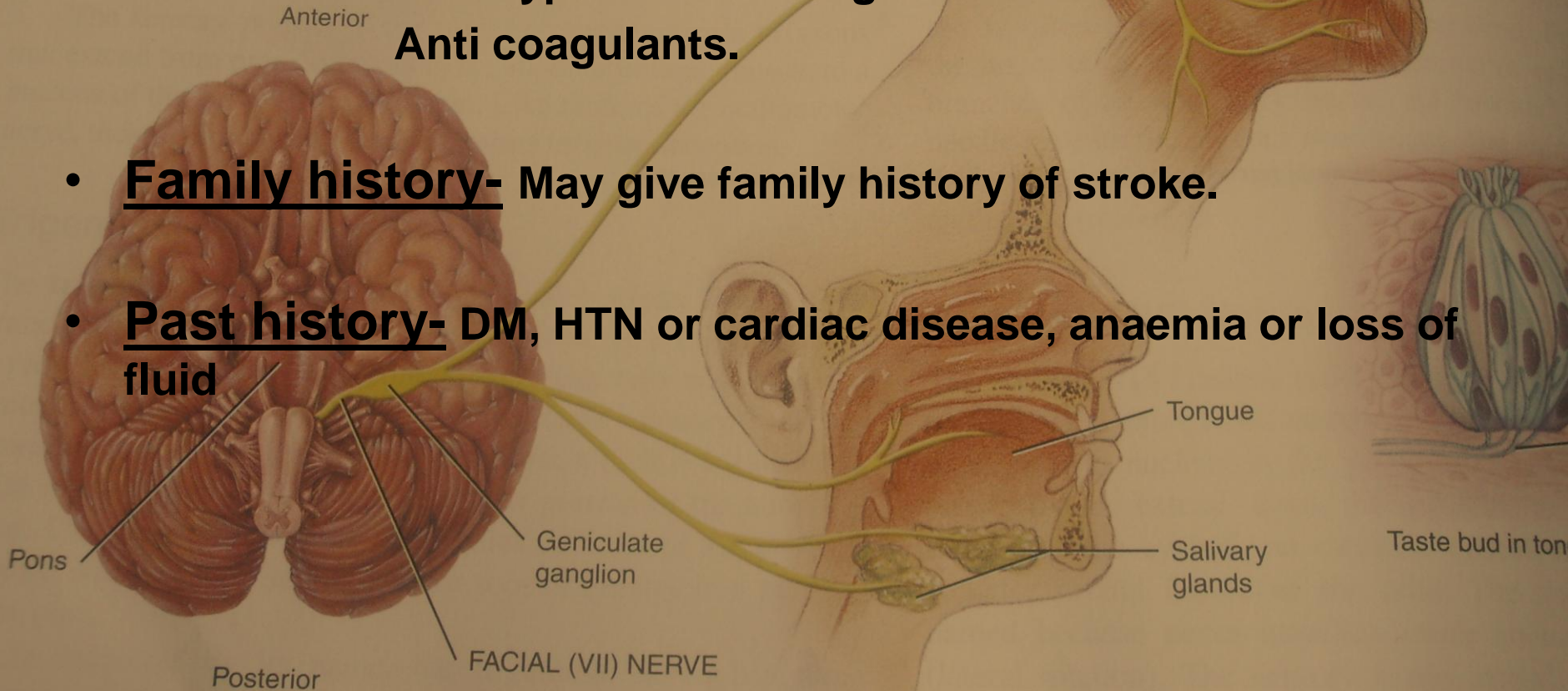


- **H/o head injury**- depressed fracture
subdural haematoma.

- **H/o drugs**- contraceptive pills.
Anti hypertensive drugs.
Anti coagulants.

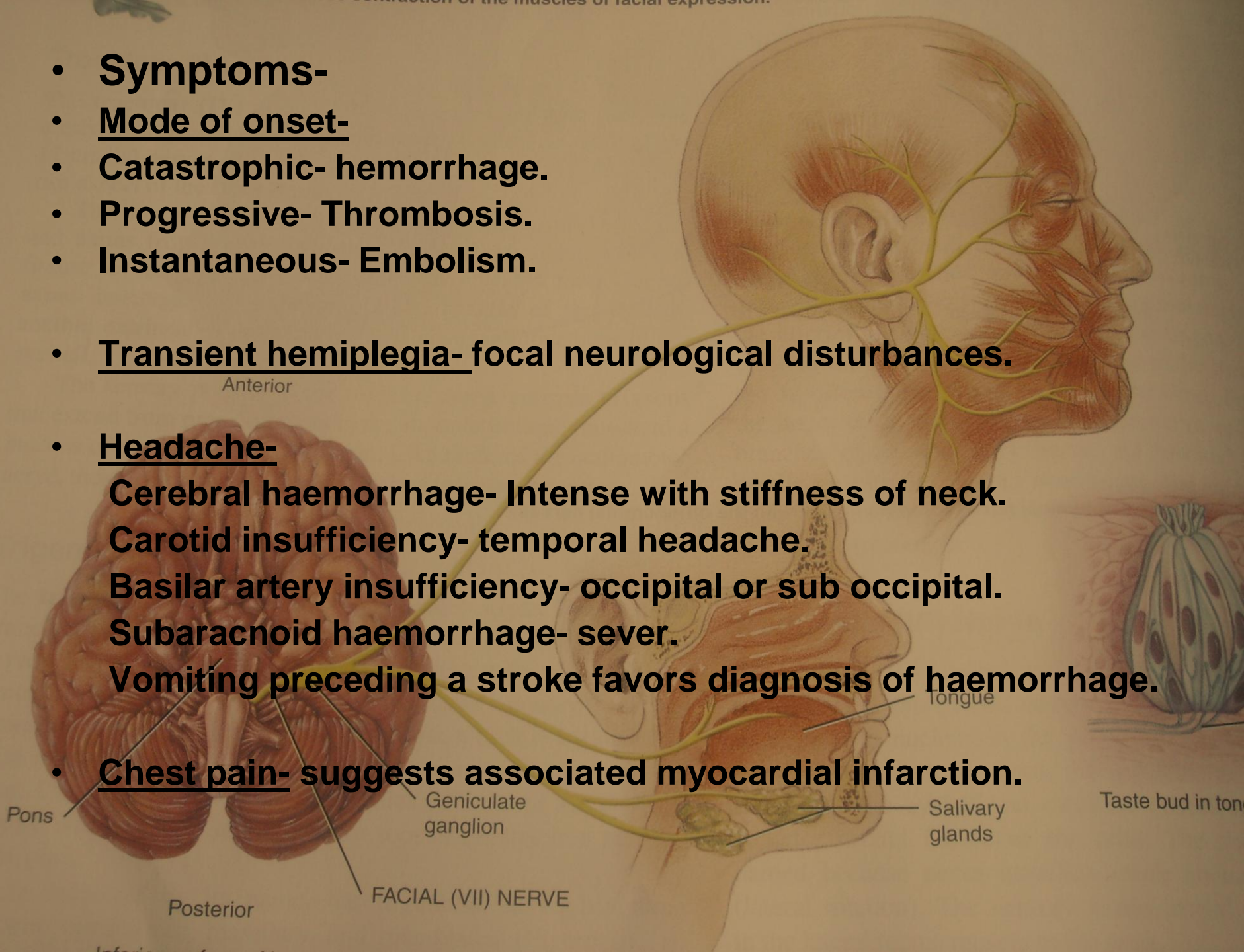
- **Family history**- May give family history of stroke.

- **Past history**- DM, HTN or cardiac disease, anaemia or loss of fluid

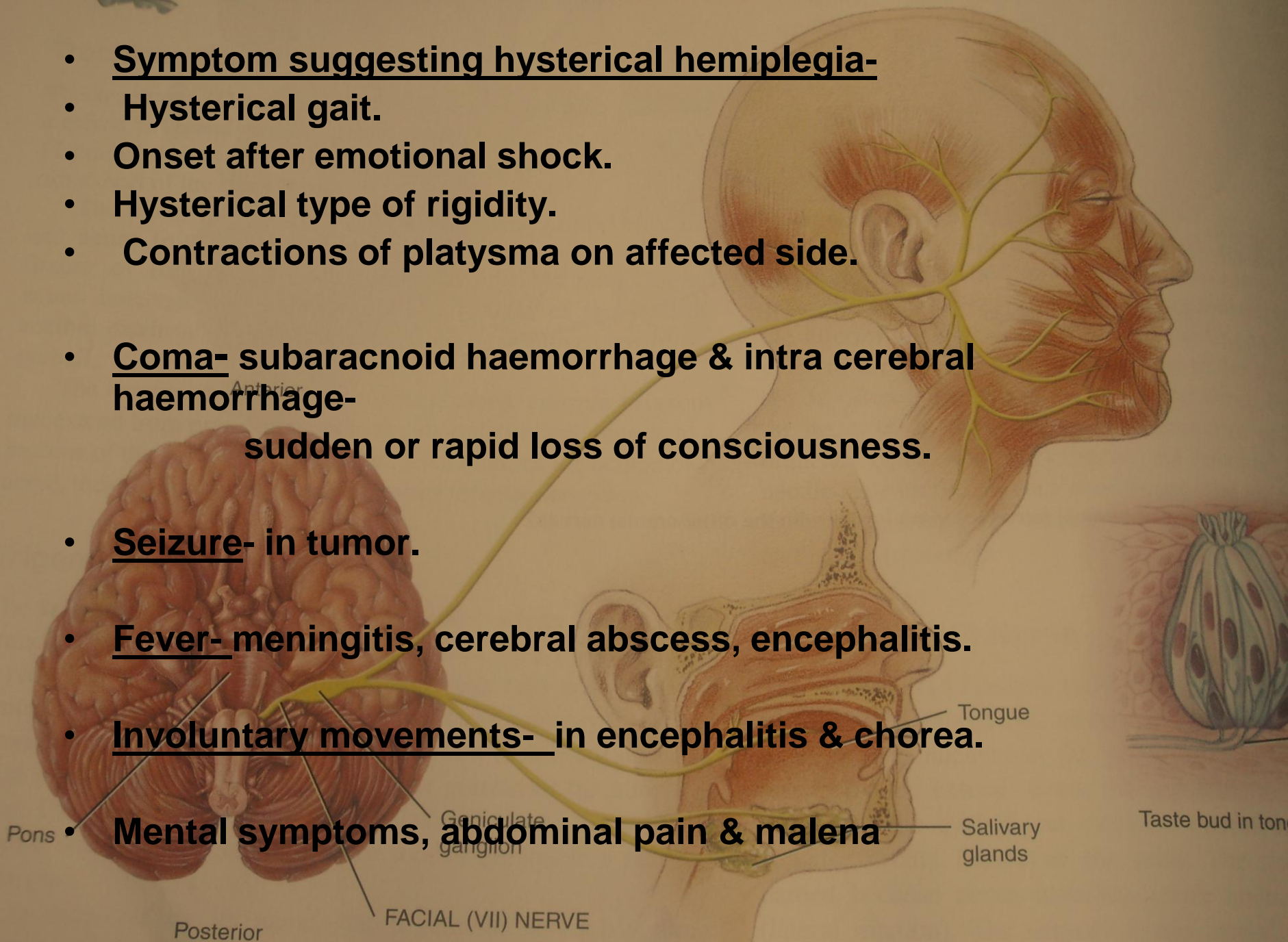


- **Symptoms-**
- **Mode of onset-**
- **Catastrophic- hemorrhage.**
- **Progressive- Thrombosis.**
- **Instantaneous- Embolism.**
- **Transient hemiplegia- focal neurological disturbances.**
- **Headache-**
Cerebral haemorrhage- Intense with stiffness of neck.
Carotid insufficiency- temporal headache.
Basilar artery insufficiency- occipital or sub occipital.
Subarachnoid haemorrhage- sever.
Vomiting preceding a stroke favors diagnosis of haemorrhage.

- **Chest pain- suggests associated myocardial infarction.**



- Symptom suggesting hysterical hemiplegia-
- Hysterical gait.
- Onset after emotional shock.
- Hysterical type of rigidity.
- Contractions of platysma on affected side.
- Coma- subarachnoid haemorrhage & intra cerebral haemorrhage- sudden or rapid loss of consciousness.
- Seizure- in tumor.
- Fever- meningitis, cerebral abscess, encephalitis.
- Involuntary movements- in encephalitis & chorea.
- Mental symptoms, abdominal pain & malena



Physical examination

- Neurological-

- State of consciousness- full conscious- stupor, semiconscious or coma.

- Speech- slurred dysarthria.
Dysphagic speech.

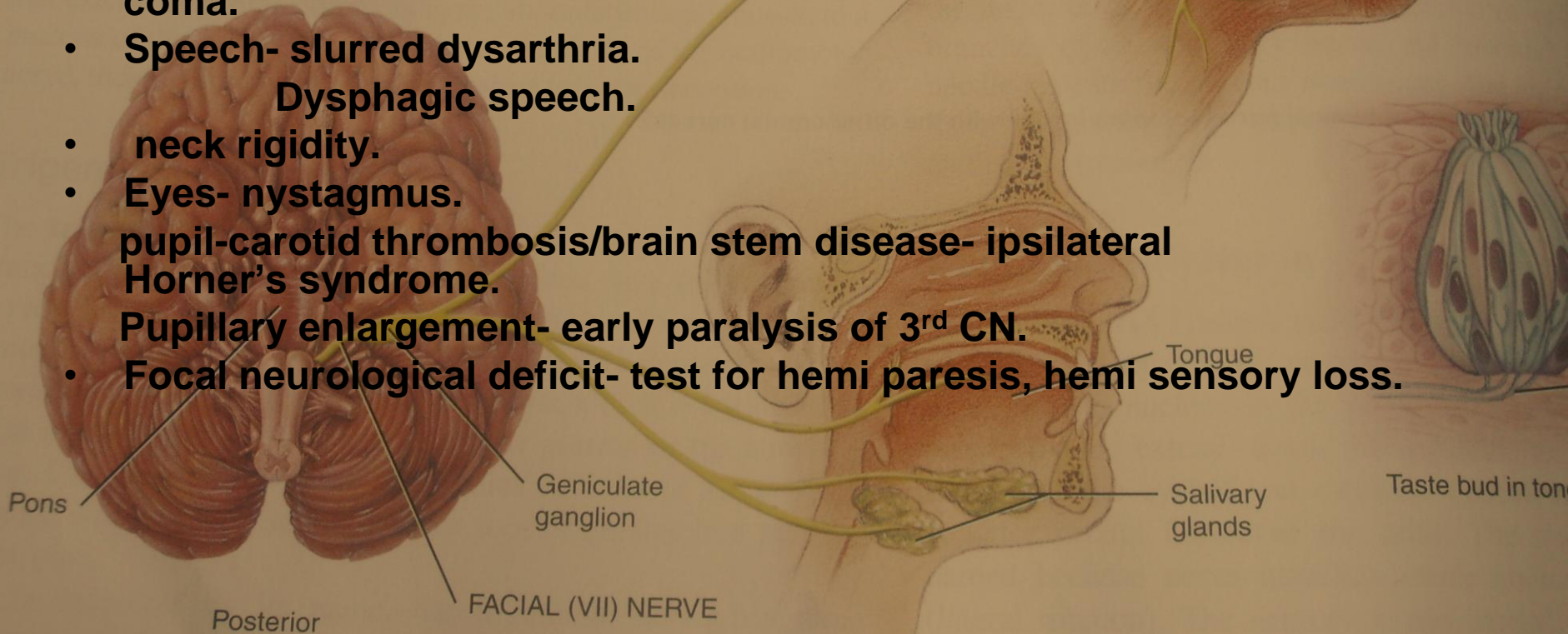
- neck rigidity.

- Eyes- nystagmus.

pupil-carotid thrombosis/brain stem disease- ipsilateral Horner's syndrome.

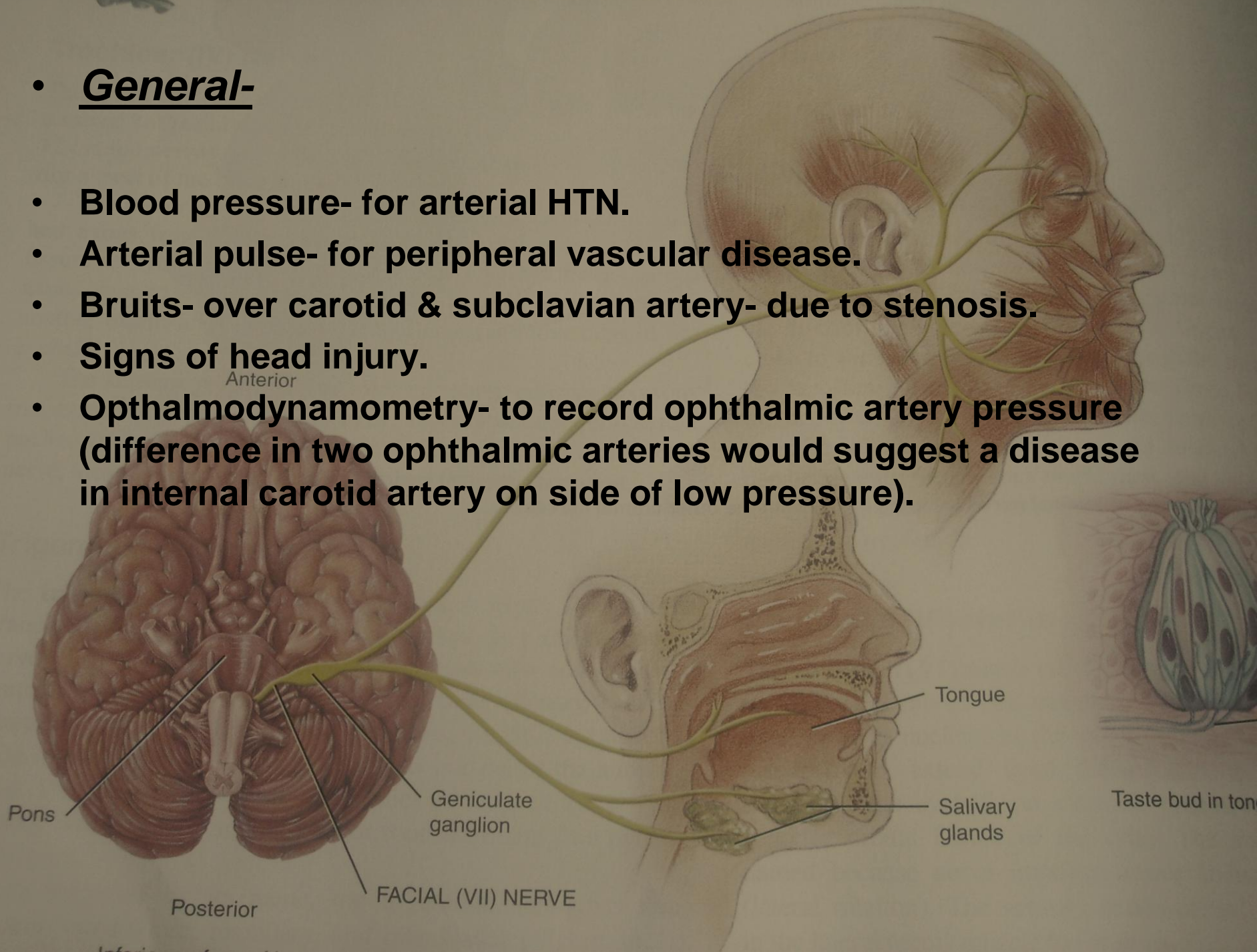
Pupillary enlargement- early paralysis of 3rd CN.

- Focal neurological deficit- test for hemi paresis, hemi sensory loss.



• General-

- Blood pressure- for arterial HTN.
- Arterial pulse- for peripheral vascular disease.
- Bruits- over carotid & subclavian artery- due to stenosis.
- Signs of head injury.
- Ophthalmodynamometry- to record ophthalmic artery pressure (difference in two ophthalmic arteries would suggest a disease in internal carotid artery on side of low pressure).



Investigation

- **CT Scan- Indication-** To establish pathological diagnosis-
Infarction.
Haematoma.
Tumour.
- **MRI-** more sensitive to small area of ischemia than CT.
- **MRA-** for non invasive detection of carotid artery stenosis & occlusion.
to image distal vertebral & intracranial vessels.
- **Digital subtraction angiography-**
to confirm occlusion.
to diagnose source of bleeding insubarachnoid & intracranial hemorrhage.

Cerebrum

Cerebellum

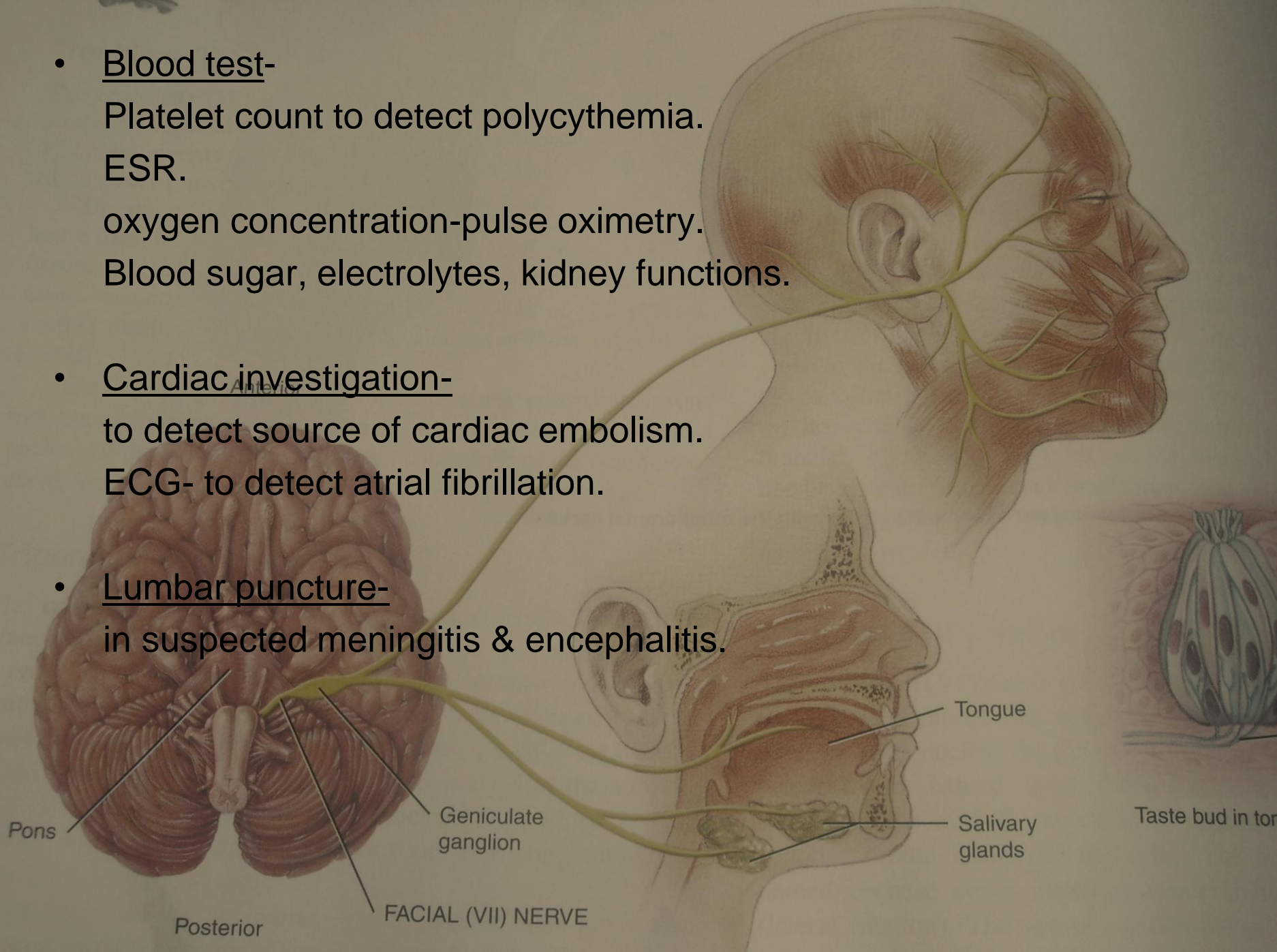
Brain stem

Spinal cord

- Blood test-
Platelet count to detect polycythemia.
ESR.
oxygen concentration-pulse oximetry.
Blood sugar, electrolytes, kidney functions.

- Cardiac investigation-
to detect source of cardiac embolism.
ECG- to detect atrial fibrillation.

- Lumbar puncture-
in suspected meningitis & encephalitis.



Differential diagnosis of vascular causes-

	Embolism	Thrombosis	Haemorrhage
Age <i>Anterior</i>	young	Middle/old	Middle/old
Nature of onset	instantaneous	Sudden/progressive	Catastrophic.
Premonitory symptoms	Absent	Difficulty in speaking, weakness of arm or leg	Absent.
Common cause	Mitral stenosis with atrial fibrillation or carotid stenosis.	Arteriosclerosis with or without HTN	HTN almost invariable.

Pons

Geniculate ganglion

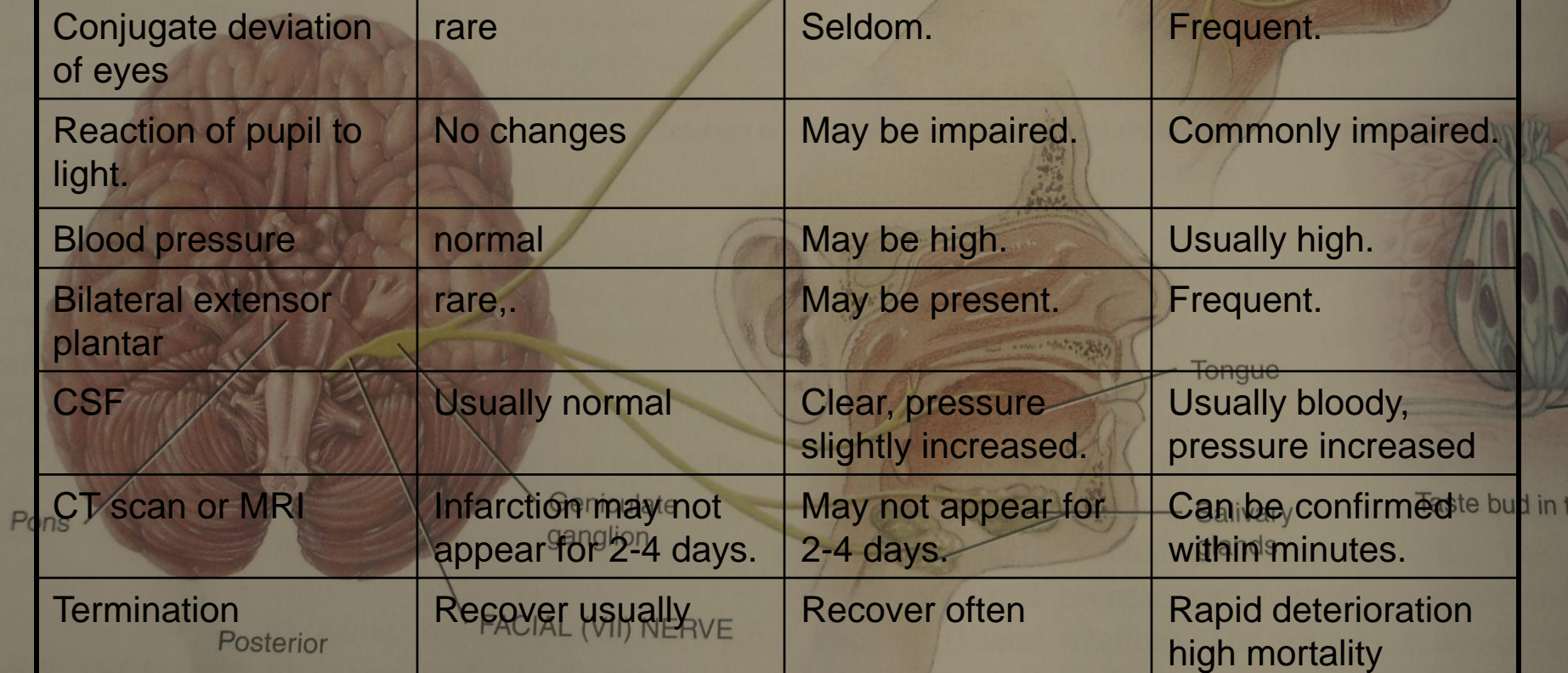
Posterior

FACIAL (VII) NERVE

Salivary glands

Taste bud in tongue

Clinical feature.	variable	Slight or absent	Severe.
headache			
Vomiting at onset	rare	rare	common
Convulsions.	common	rare	Common
coma	Rarely deep	Varies with extent of thrombosis.	Deep
Cheyne strokes breathing.	Not common	seldom	Common.
Stiff neck	rare	rare	Frequent.
Conjugate deviation of eyes	rare	Seldom.	Frequent.
Reaction of pupil to light.	No changes	May be impaired.	Commonly impaired.
Blood pressure	normal	May be high.	Usually high.
Bilateral extensor plantar	rare,,	May be present.	Frequent.
CSF	Usually normal	Clear, pressure slightly increased.	Usually bloody, pressure increased
CT scan or MRI	Infarction may not appear for 2-4 days.	May not appear for 2-4 days.	Can be confirmed within minutes.
Termination	Recover usually	Recover often	Rapid deterioration high mortality



Location of lesion-

- Cortex – Flaccid hemiplegia, Aphasia is common convulsions may occur.
- Internal capsule- commonest site, Hemiplegia, no loss of consciousness. spasticity marked. (Hemianaesthesia-post 1/3rd).
- Thalamus- Impairment of superficial & loss of deep sensation on opp. side of lesion, ataxia, tremors etc.
- Midbrain- upper level- 3rd nerve palsy. lower level- 3rd nerve affection on side of lesion, ataxia & hypertonia.-opp. Side.
- Pons- Millard- Gubler syndrome, Foville's Syndrome, Avellis's syndrome, Horner's syndrome.

Anterior

Pons

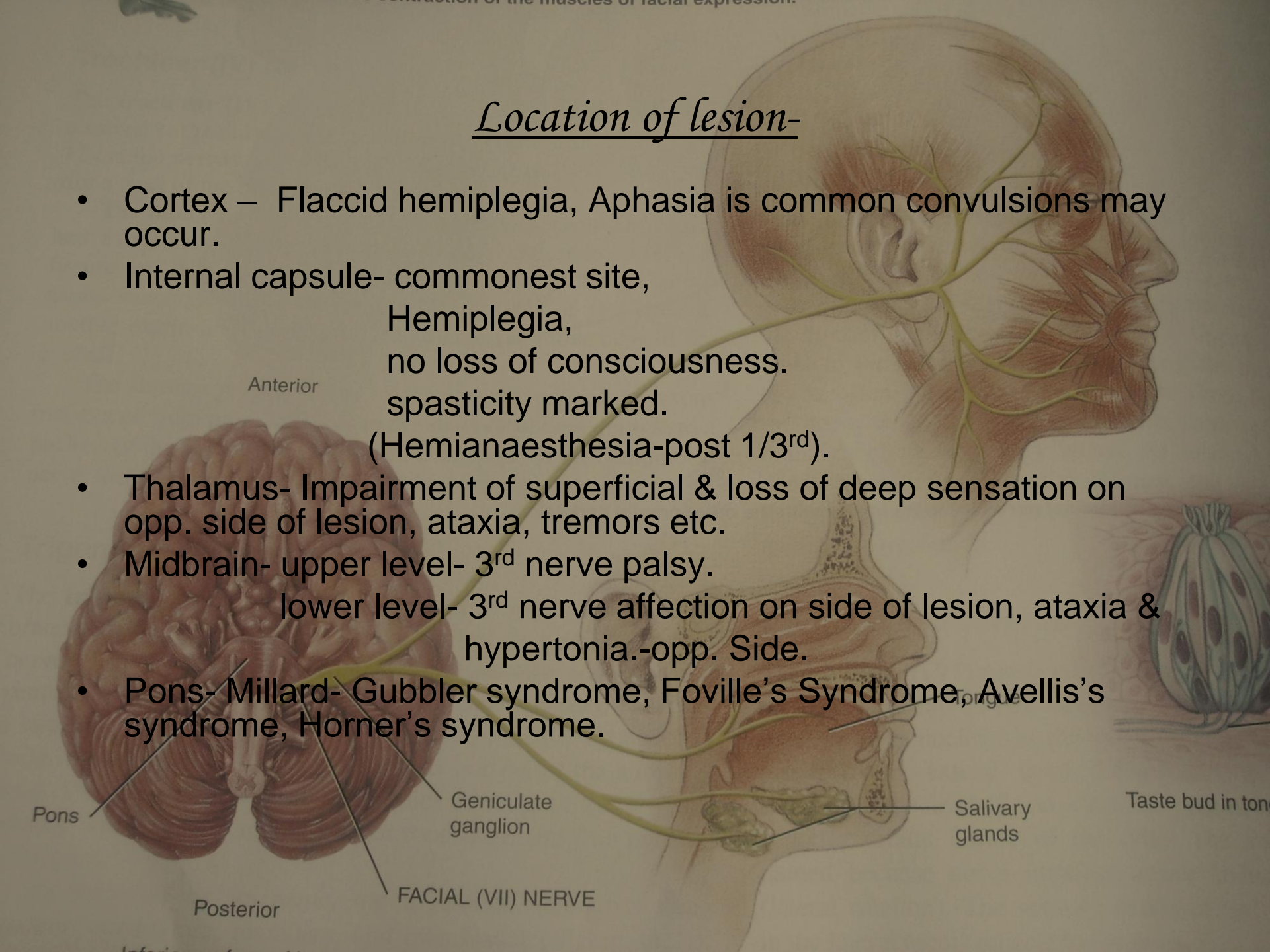
Geniculate ganglion

Posterior

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- Medulla- Medial medullary syndrome, Lateral medullary syndrome.
- Temporal lobe- deep post. Lobe- hemiplegia with hemianopia.
Anterior lobe- hemi paresis with aphasia.
- Spinal cord- spinal hemiplegia involving the limbs of the affected side but without paralysis of muscles.

Management –

Hospitalization.

Hemorrhage- surgical evacuation of haematoma.

Thrombosis & Embolism- position.

maintenance of airway, hydration & nutrition.

Treatment of associated conditions- DM ,HTN, Hypotension, Infection.

Drugs- to reduce cerebral edema- Mannitol.

Anticoagulant-Heparin.

Antiplatelet drugs- aspirin (300mg)

Thrombolysis.

Pons

Posterior

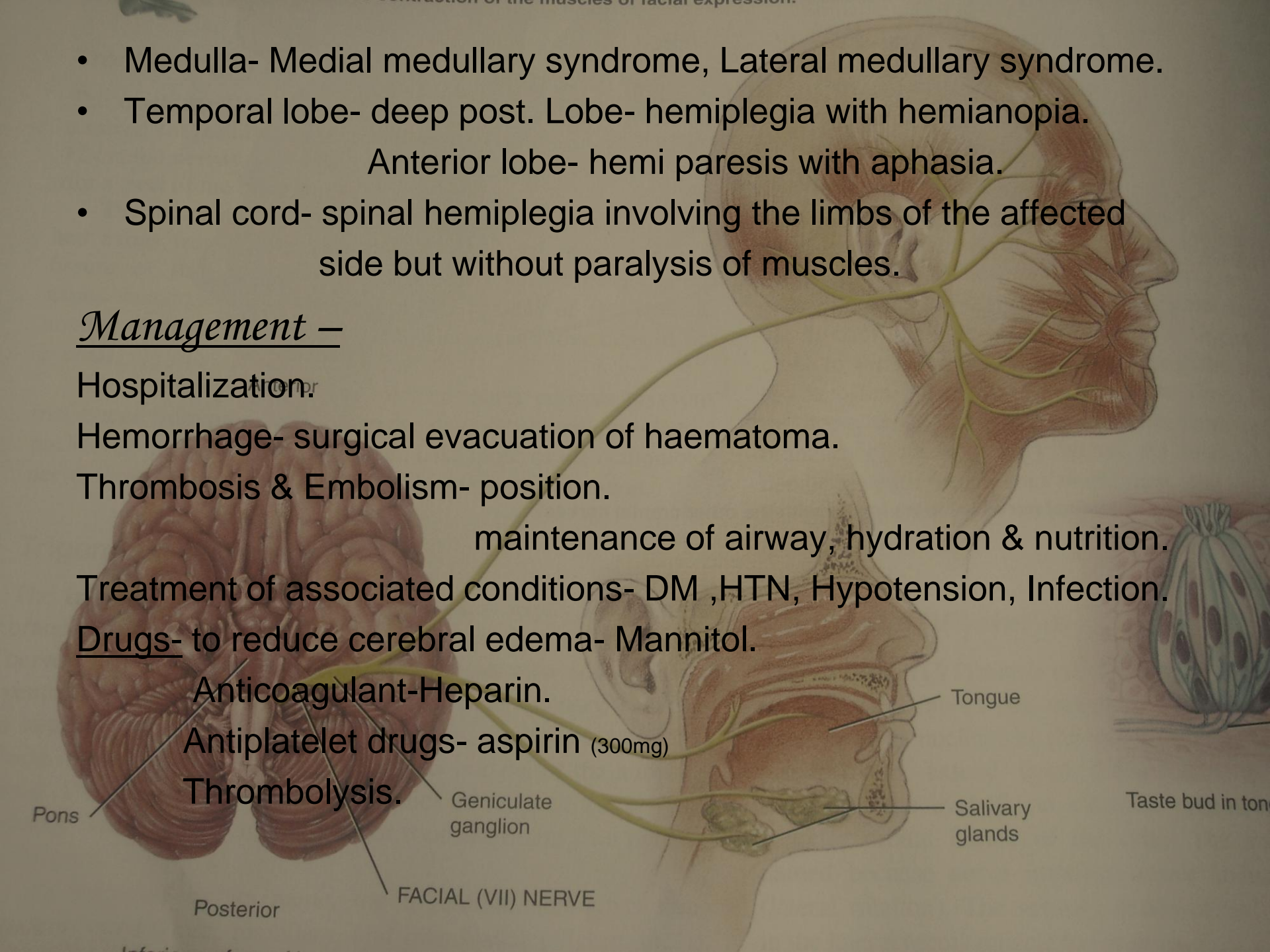
FACIAL (VII) NERVE

Geniculate ganglion

Tongue

Salivary glands

Taste bud in ton



• *Ayurvedic correlation- Pakshaghaata*

Pakshavadha

Ardhangavaata

