

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

GROSS ANATOMY OF SCALP

By

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OBJECTIVES

1. Layers of scalp
2. Nerve supply
3. Blood supply
4. Lymphatic drainage
5. Applied anatomy
 - a) Dangerous area of scalp
 - b) Black eye
 - c) Emissary vein

SCALP

✿ **Soft tissue which covers the calvaria of skull**



EXTENT

Front :

supraorbital margin

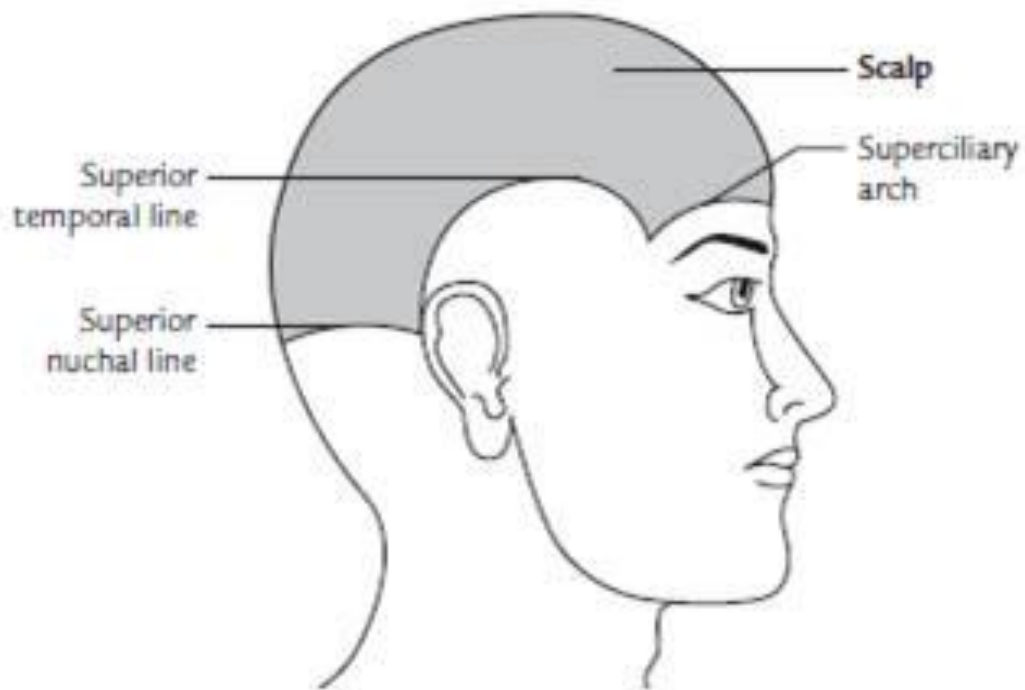
Behind :

**external occipital
protuberance & superior
nuchal line**

On each side :

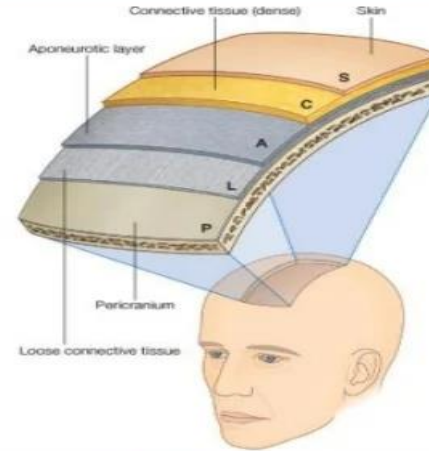
zygomatic arch





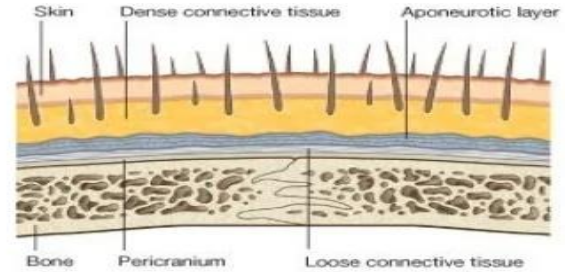
5 LAYERS OF SCALP

1. **S** – Skin
2. **C** – Cutaneous tissue (subcutaneous tissue)
3. **A** - Aponeurosis (Galea aponeurotica covering the occipitofrontalis muscle)
4. **L** – Loose areolar tissue (subaponeurotic tissue)
5. **P** – Pericranium (outer periosteum)



S - SKIN

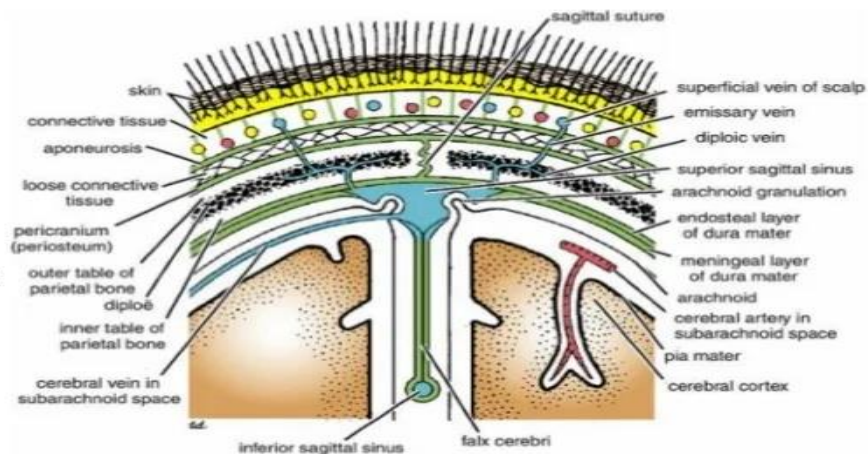
- **Hairs**
- **Sebaceous gland**
- **Sweat glands**



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C – CUTANEOUS TISSUE (Subcutaneous tissue)

- ▶ Composed of fibro-fatty tissue
- ▶ Contains blood vessels & nerves
- ▶ Walls of blood vessel adherent to fibrous tissue – (minor scalp injury causes profuse bleeding)
- ▶ To arrest bleeding- apply firm pressure over the underlying bone



The skin of the scalp possesses numerous sebaceous glands, the ducts of which are prone to infection and damage by combs. for this reason, sebaceous cysts of the scalp are common.

C – CUTANEOUS TISSUE cont...

- ▶ **Subcutaneous haemorrhage – localised in extent**
- ▶ **Inflammation painful**
- ▶ **Good healing**

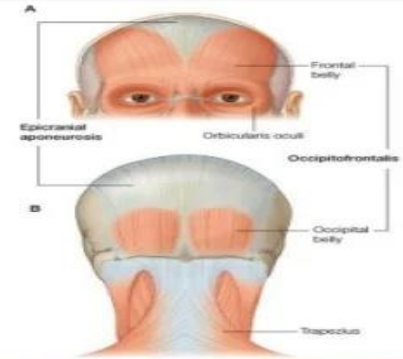


A - APONEUROSIS

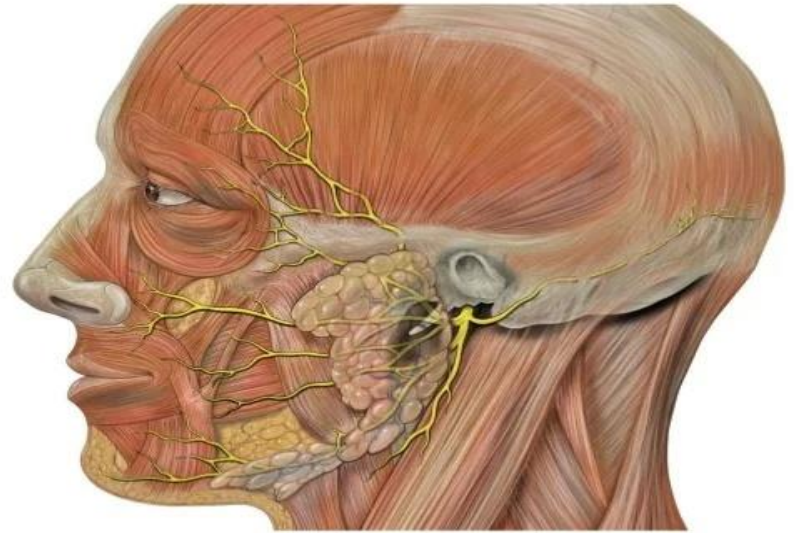
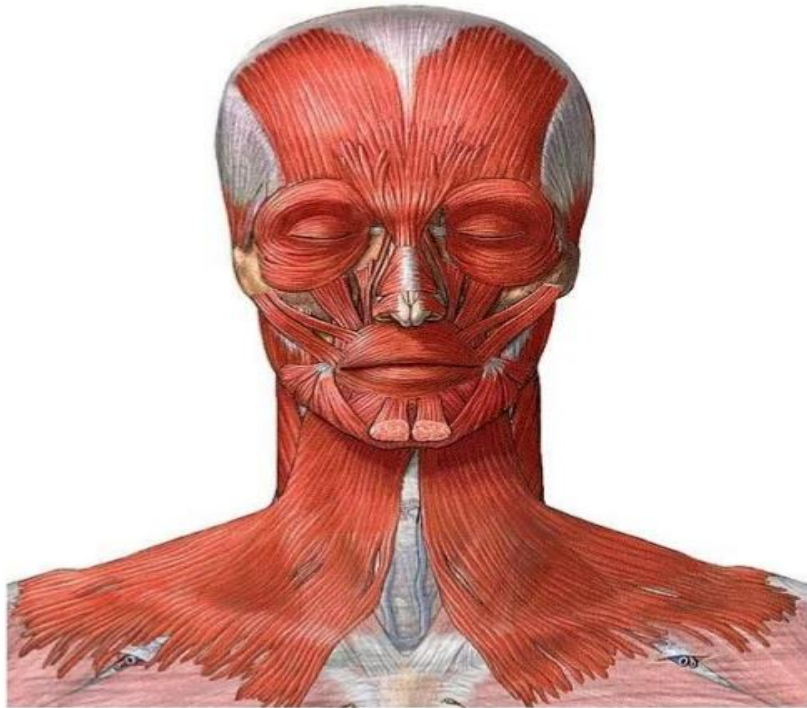
(Galea aponeurotica covering the occipito-frontalis muscle)

Epicranius muscle & it's aponeurosis

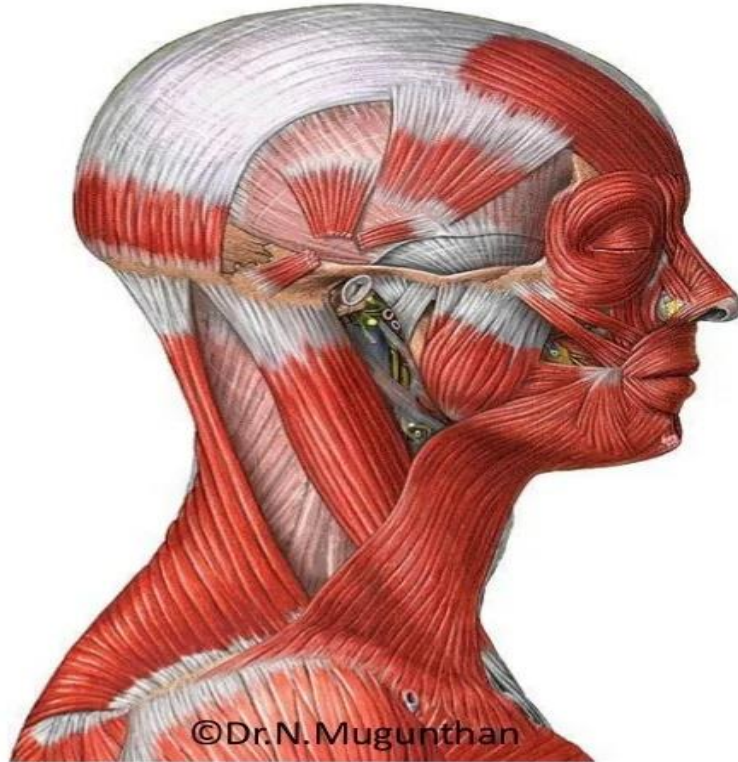
- Occipito – frontalis
- Temporo- parietalis



OCCIPITO - FRONTALIS



TEMPORO- PARIETALIS



A – APONEUROSIS cont...

Galea aponeurotica (epicranial aponeurosis)

- ✓ Sheet of fibrous tissue
- ✓ Connects occipitalis & frontalis muscles

Extent:

Behind :- ext. occi. protub
& highest nuchal line

Front :- blends with
subcutaneous tissue of root
of nose

Sides :- zygomatic arch



A – APONEUROSIS cont...

Galea aponeurotica

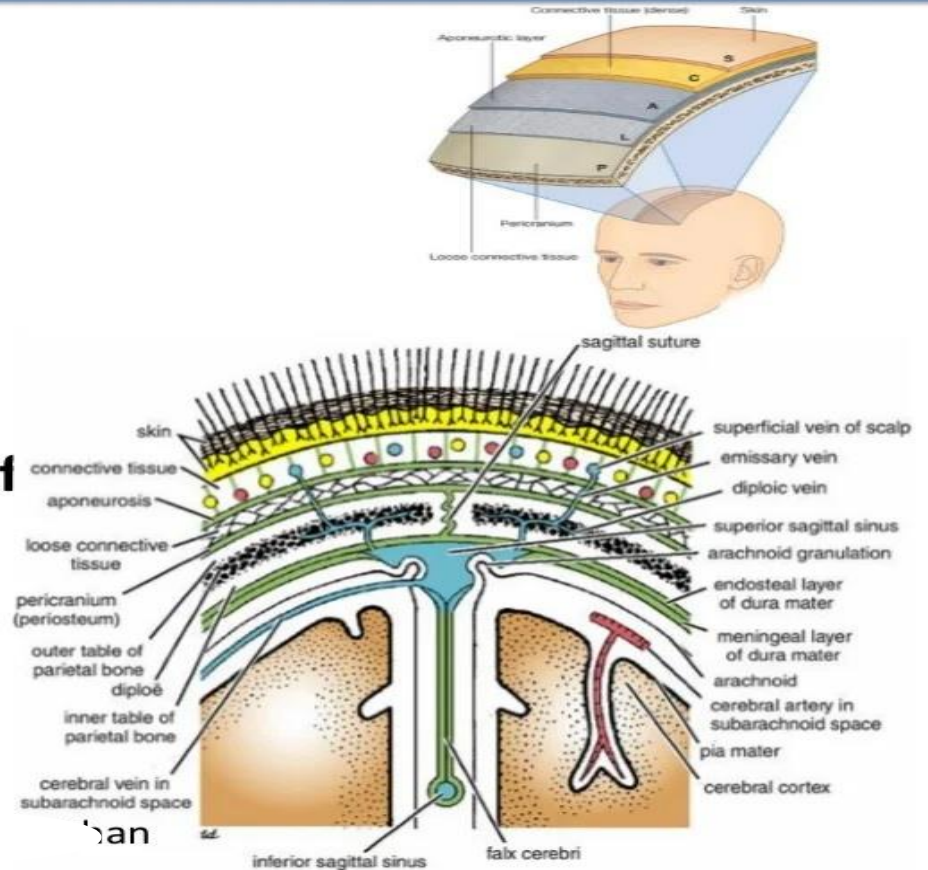
Applied:

If cut trasversely produce
wounds of the scalp gape

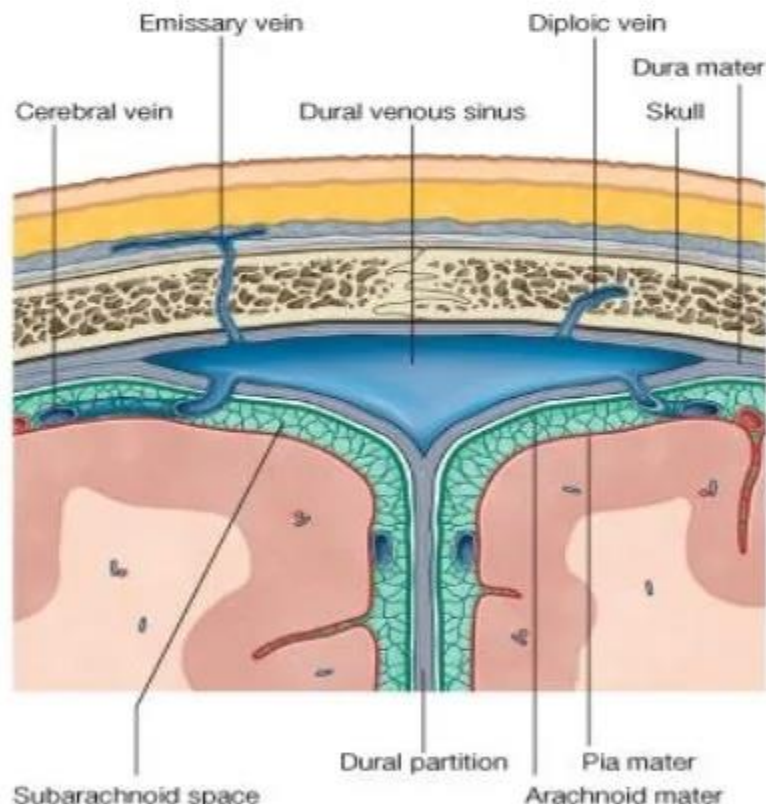


L – LOOSE AREOLAR TISSUE

- Loose subaponeurotic tissue
- Potential space contains emissary vein
- Emissary vein – are devoid of valves and communicates the veins of scalp with intracranial venous sinuses

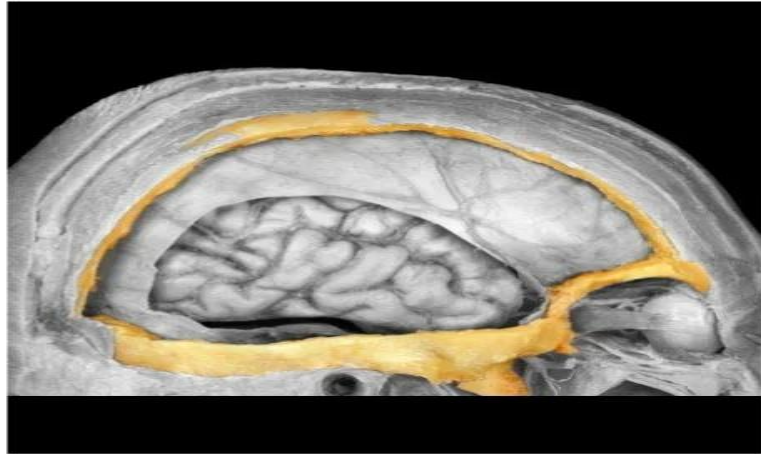


- **The 4th layer of scalp (loose areolar tissue)**
- **Infection in the subaponeurotic space with pus collection readily spread to intracranial sinuses through emissary veins (valveless)**



P-PERICRANIUM

- ✚ Outer perosteum of skull
- ✚ Loosely covers the bone
- ✚ At the sutures it is continuous with endocranium through sutural membrane



BLACK EYE

- ✓ **Blow on the skull**
- ✓ **Collection of blood in the subaponeurotic space produce generalised swelling affecting the whole dome of skull**
- ✓ **Blood slowly gravitates into the eye lids because the frontalis has no bony attachments**



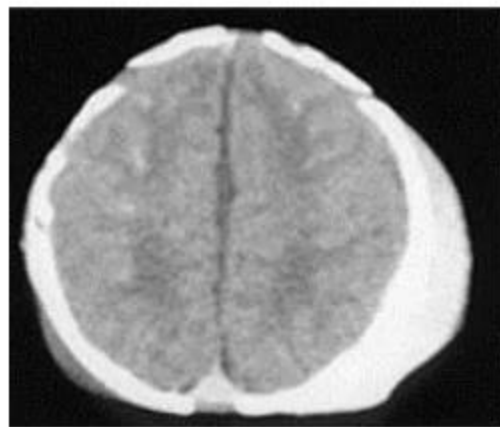
CAPUT SUCCEDANEUM

- **Temporary swelling in newborn**
- **Oedematous condition of a portion of scalp**
- **Due to interference of venous return while passage through birth canal**

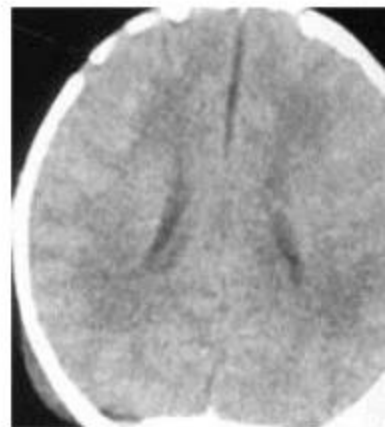


CEPHALHAEMATOMA

- ✓ **Collection of blood beneath the pericranium**
- ✓ **Localised swelling which assumes the shape of related bones**



Vacuum-assisted birth



Forceps-assisted birth



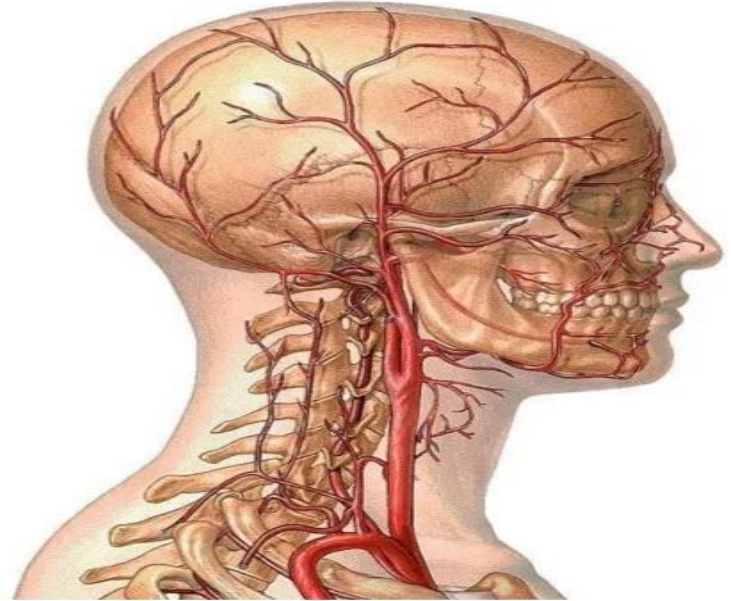
BLOOD SUPPLY



ARTERIAL SUPPLY

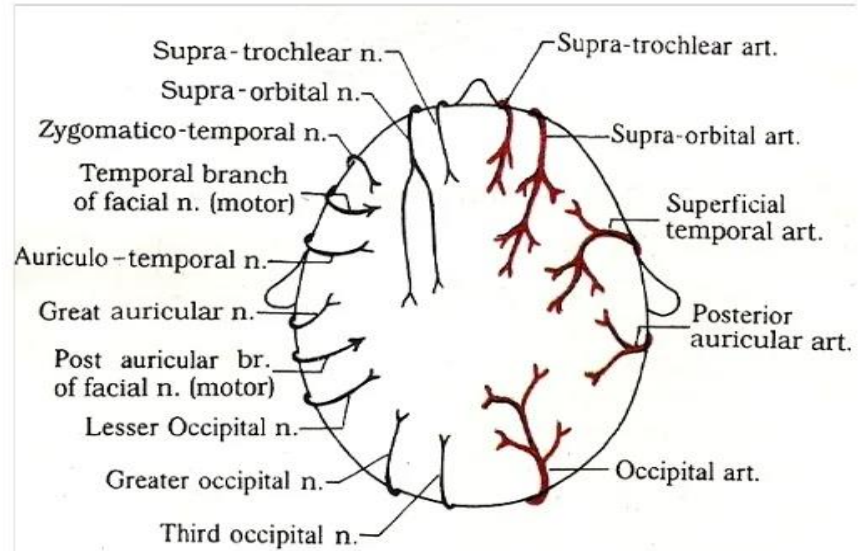
5 sets of arteries on each side of scalp

- 3 in front of auricle
- 2 behind the auricle
- Ⓢ Out of 5, 2 arteries (indirectly) from ICA
- Ⓢ 3 arteries (directly) from ECA



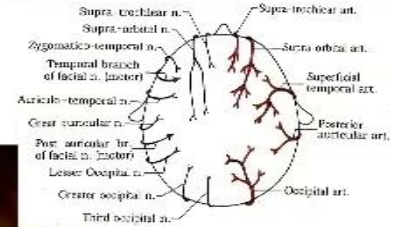
ARTERIES BEHIND THE AURICLE

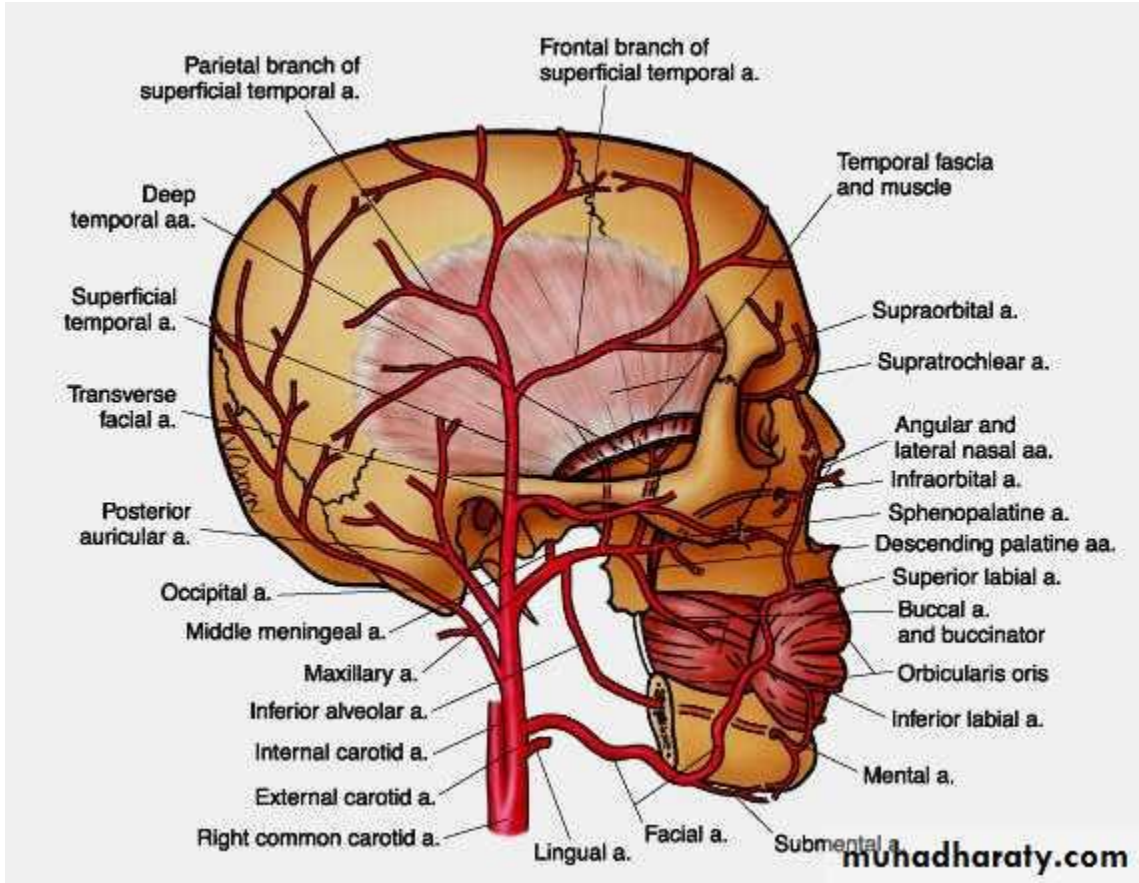
1. **Posterior auricular artery(ECA)**
 2. **Occipital artery(ECA)**
- ❖ **Scalp is the site of free anastomosis between the branches of internal & external carotid arteries**



ARTERIES IN FRONT OF AURICLE

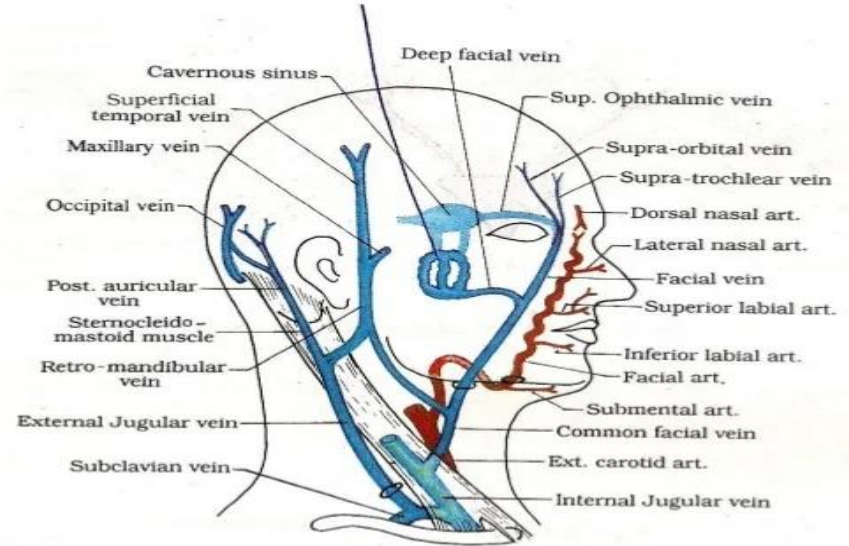
1. **Supra-trochlear artery (Ophthalmic-ICA)**
2. **Supra-orbital artery (Ophthalmic-ICA)**
3. **Superficial temporal artery (ECA)**

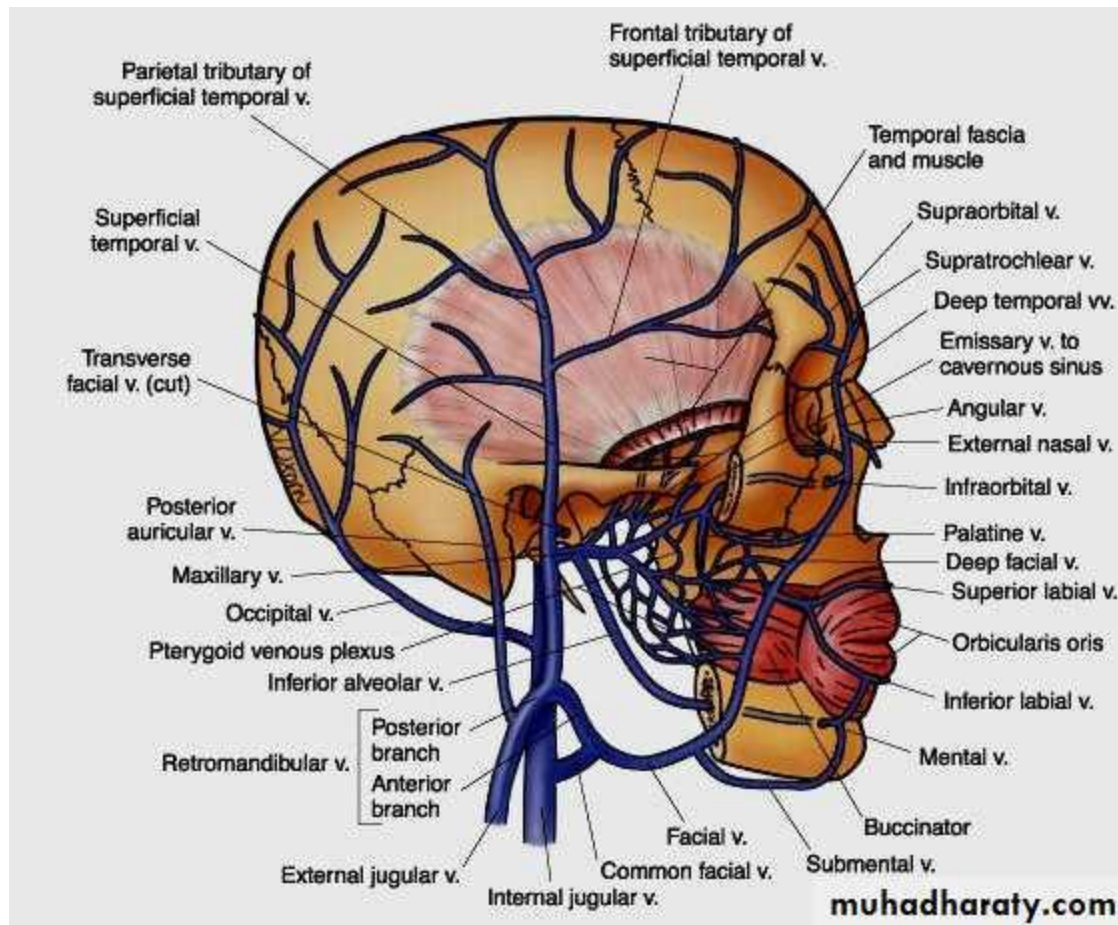


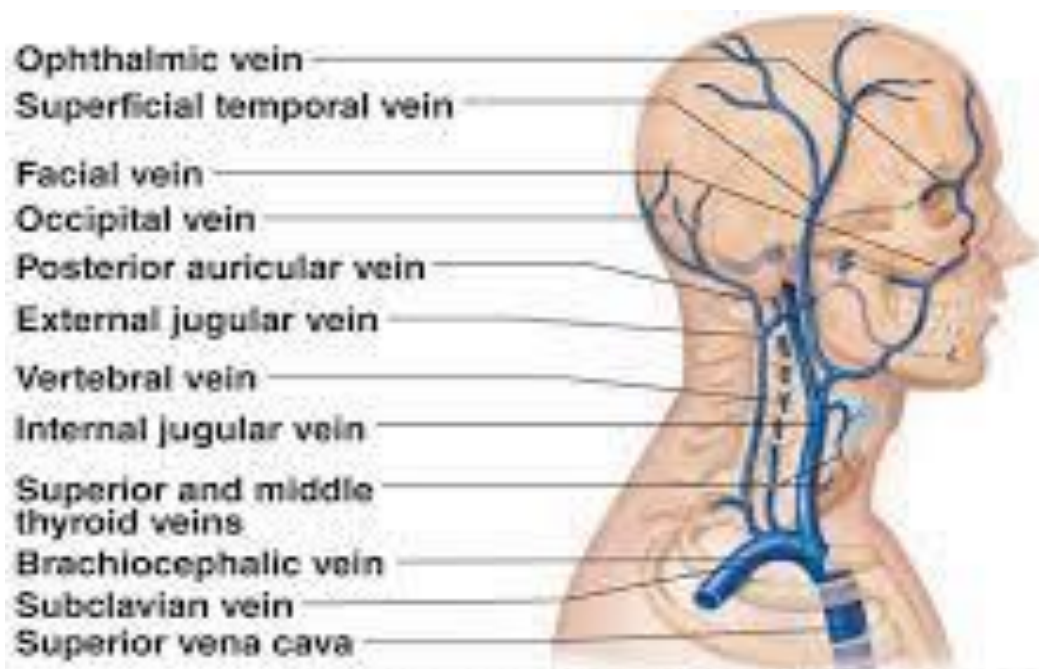


VENOUS DRAINAGE

1. **Supra-trochlear vein**
2. **Supra-orbital vein**
3. **Superficial temporal vein**
4. **Posterior auricular vein**
5. **Occipital vein**





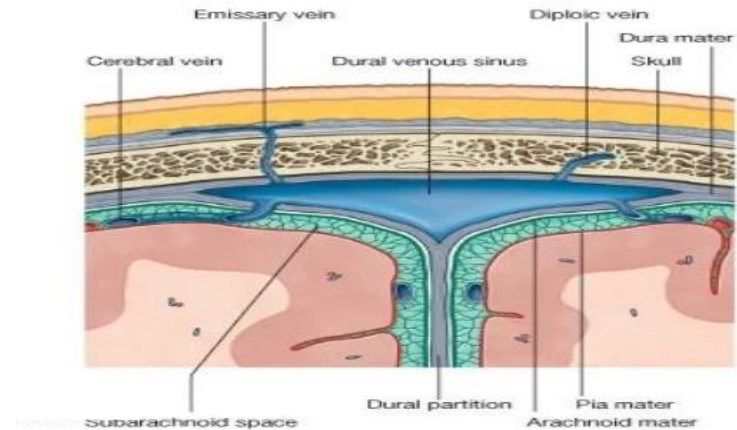
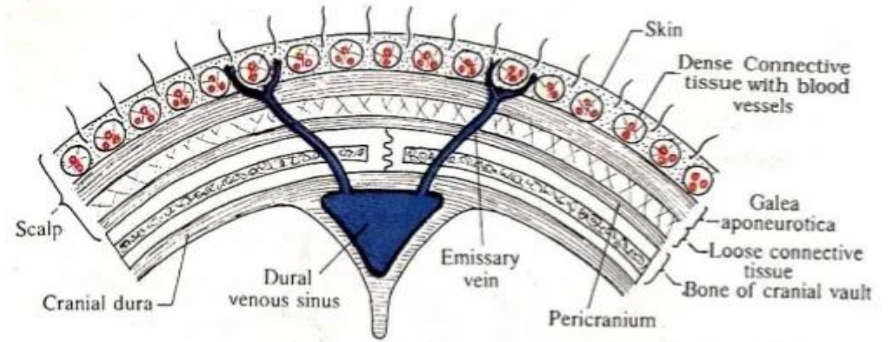


(b) Veins of the head and neck, right superficial aspect

EMISSARY VEINS

2 sets of emissary veins

1. **Parietal emissary vein thro' parietal foramen communicates the scalp veins with SSS**
2. **Mastoid emissary vein thro' mastoid foramen communicates the scalp veins with sigmoid sinus**

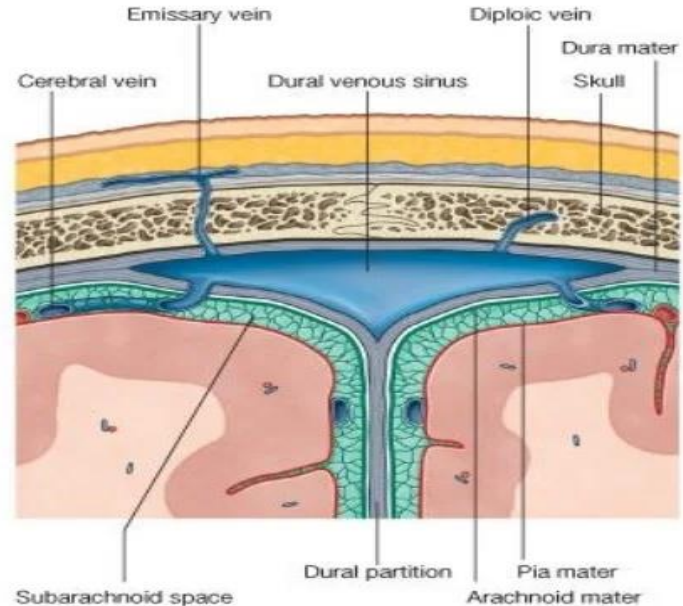


DIPLOIC VEINS

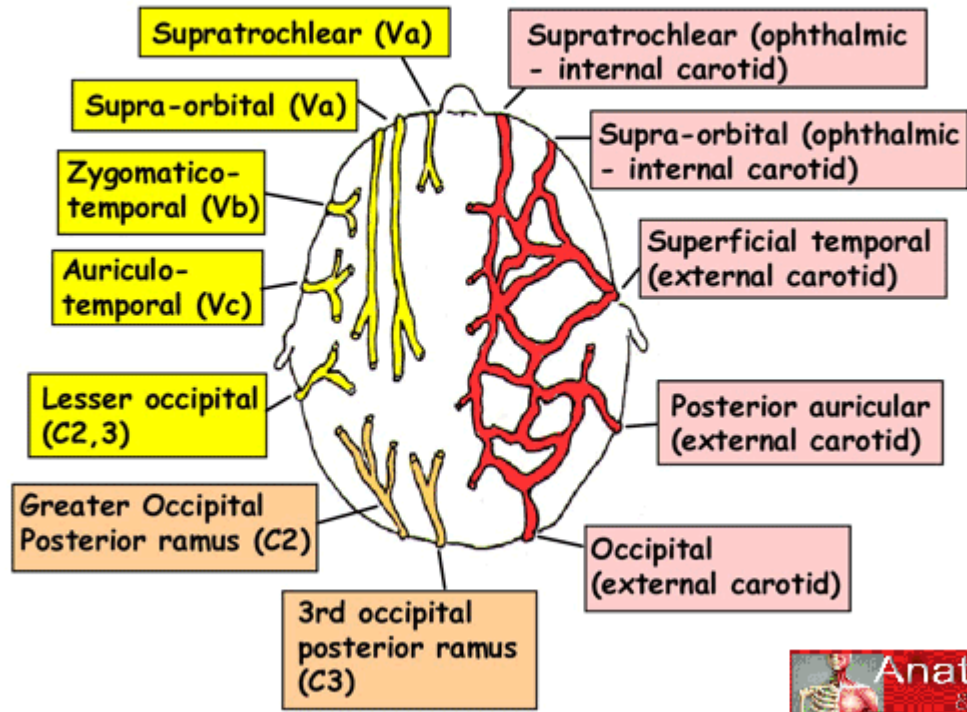
2 sets of diploic veins

1. Frontal diploic vein thro' supra-orbital notch and drains into supra-orbital vein

2. Occipital diploic vein drain into occipital vein by piercing outer table or drains into transverse sinus by piercing inner table



SCALP: ARTERIAL & NERVE SUPPLY

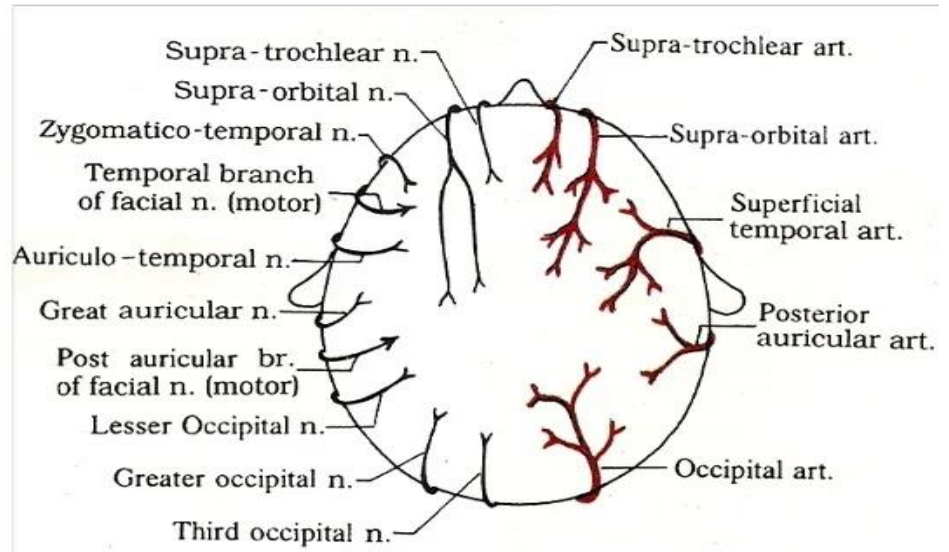


NERVE SUPPLY

10 nerves on each side of scalp

- ➔ 5 in front of auricle
- ➔ 5 behind the auricle

- ☑ 4 is sensory
- ☑ 1 is motor



Nerve supply of scalp

5 in front of auricle

4 sensory

(From trigeminal N)

1-supra-trochlear N

2-supra-orbital N

3-zygomatico-temporal N

4-auriculo-temporal N

1 motor

Temporal br.
Of facial

1 motor

Post. Auricular
br. Of facial

5 behind auricle

4 sensory

(From cervical Ns)

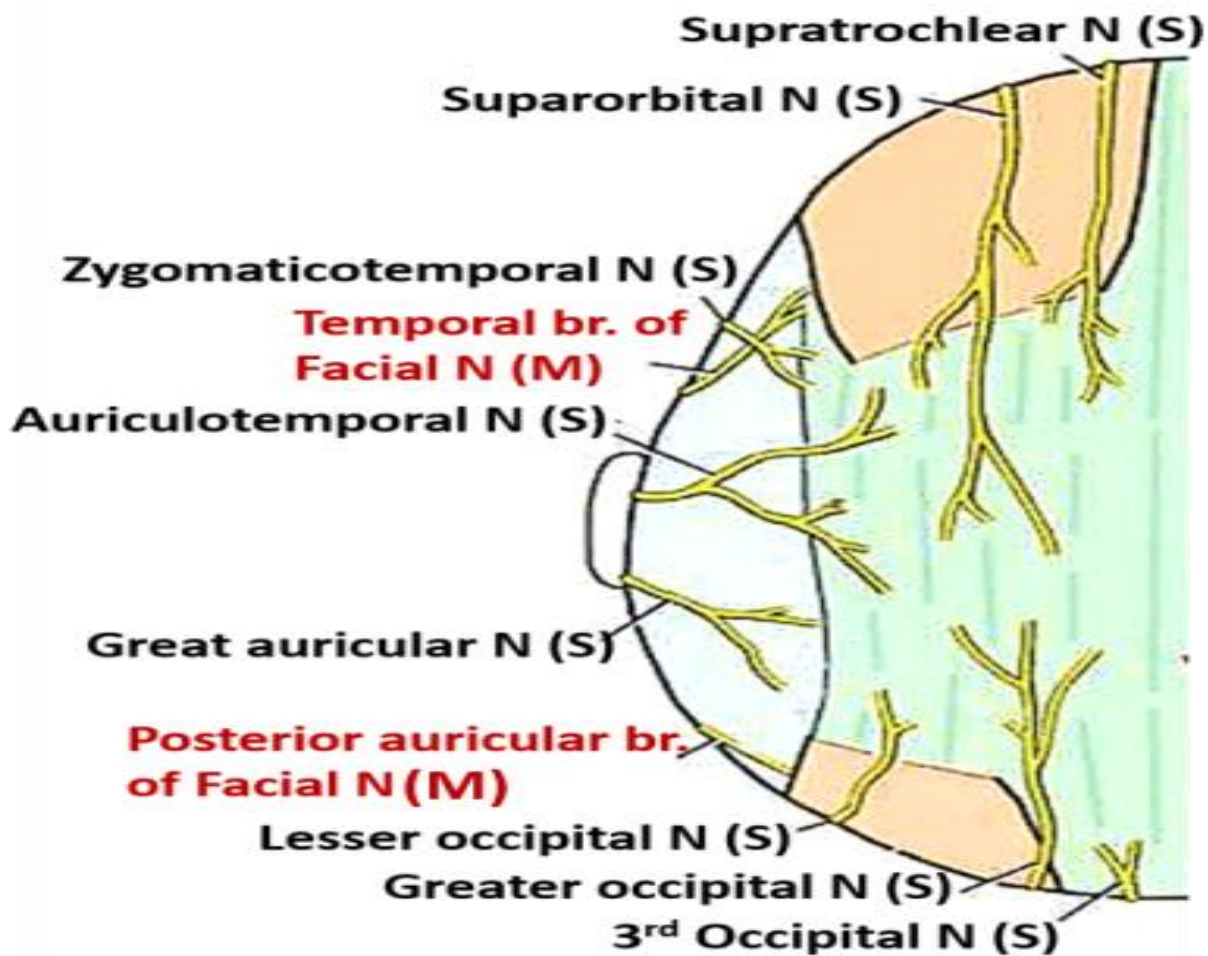
1- great auricular N

2- lesser occipital N

3- greater occipital N

4- 3rd occipital nerve

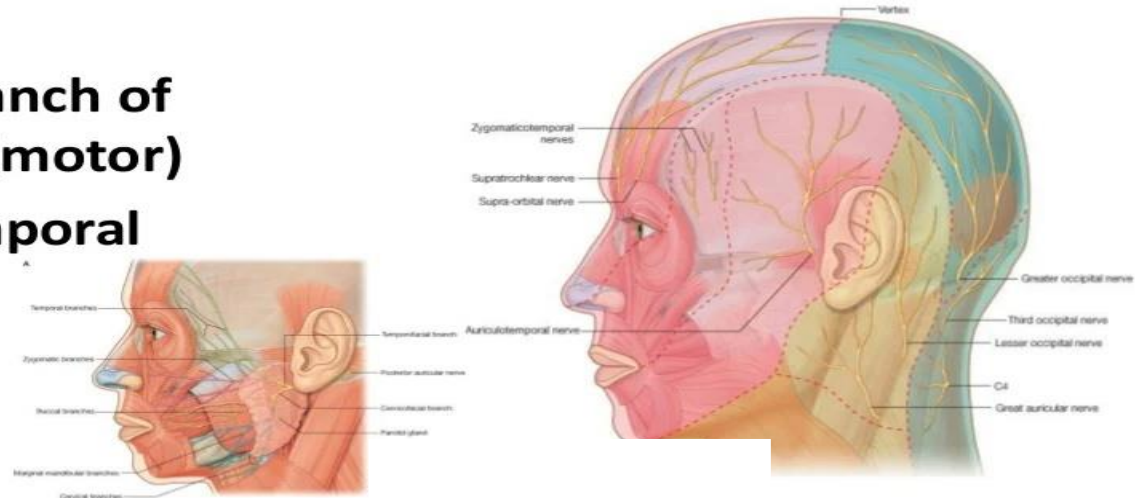
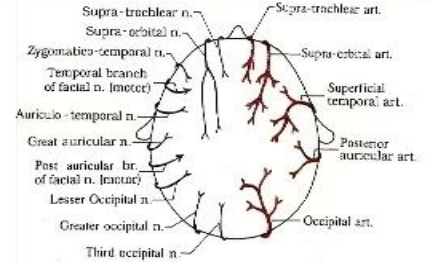
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NERVE SUPPLY cont...

Nerves in front of auricle:

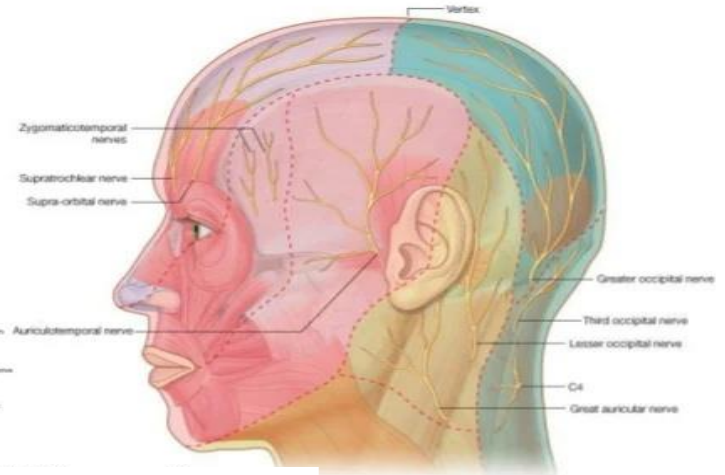
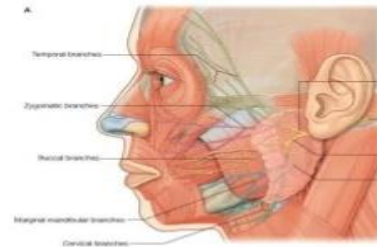
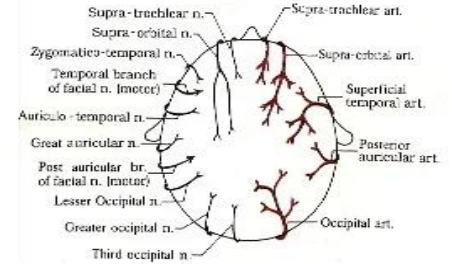
1. Supra-trochlear nerve
2. Supra-orbital nerve
3. Zygomatico-temporal nerve
4. Temporal branch of facial nerve (motor)
5. Auriculo-temporal nerve



NERVE SUPPLY cont...

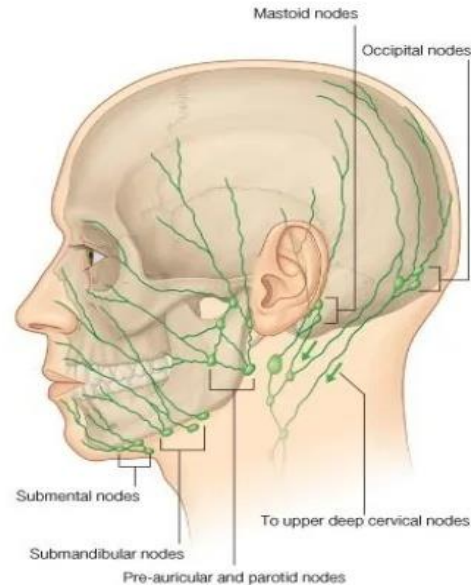
Nerves behind the auricle:

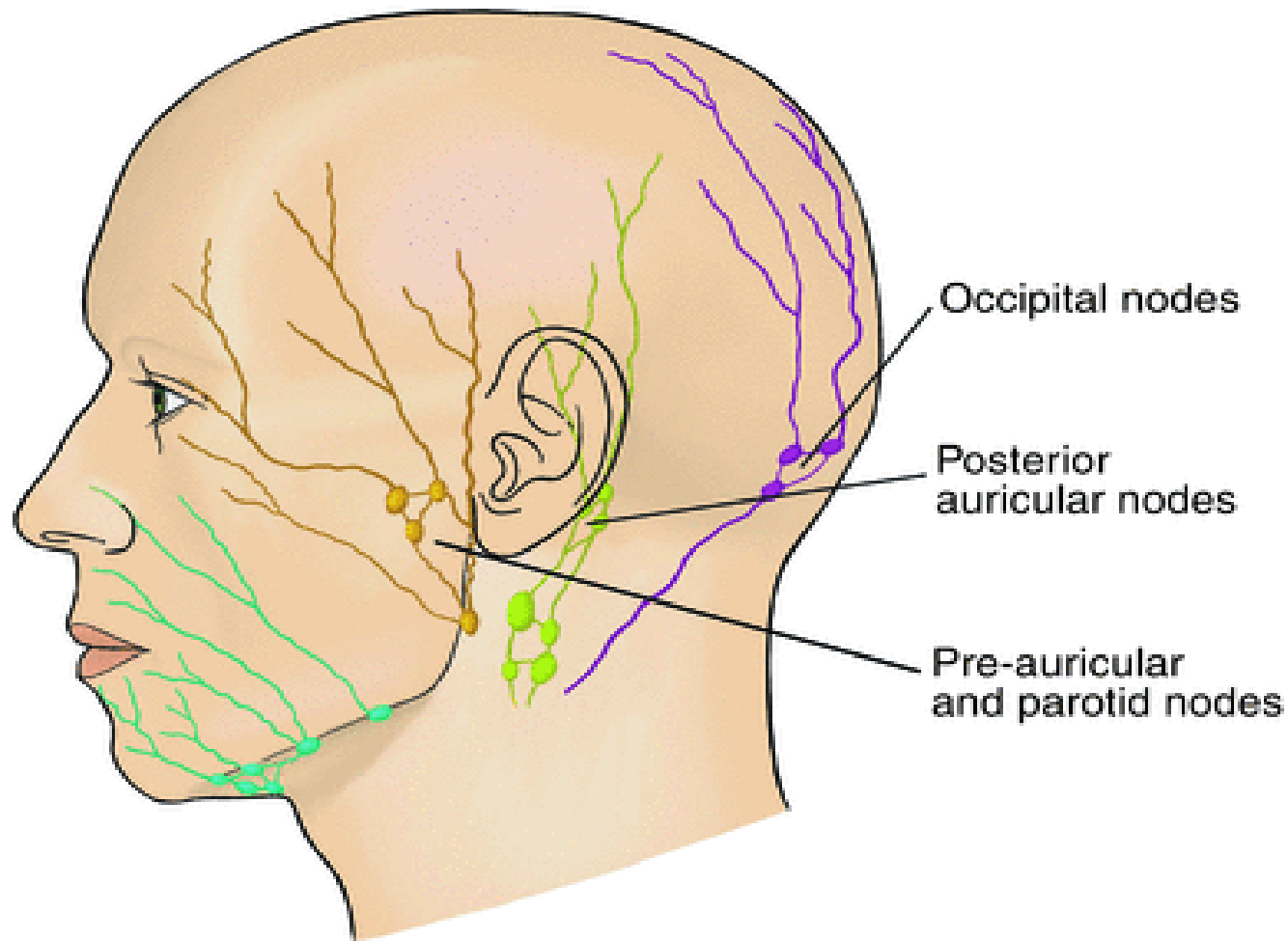
1. Posterior branch of great auricular nerve
2. Posterior auricular branch of facial nerve (motor)
3. Lesser occipital nerve
4. Greater occipital nerve
5. Third occipital nerve



LYMPHATIC DRAINAGE OF SCALP

- ◆ **Anterior part of scalp - preauricular lymph nodes (superficial parotid nodes)**
- ◆ **Posterior part of scalp – post auricular lymph nodes or mastoid group of nodes and occipital nodes**







**Thank
You**