#### **Exam-Oriented Anatomy**



Fig. 1.20B: Less important structures passing through foramen magnum

- b. One anterior spinal artery (branch of vertebral artery).
- c. Two posterior spinal arteries (branch of vertebral artery).
- d. Spinal roots of accessory nerves (XIth cranial nerve).
- C. Less important
  - a. Apical ligament of dens
  - b. Vertical band of cruciate ligament
  - c. Membrana tectoria
  - d. Ligamentum denticulatum.

# SN-22 Maxilla

It is a paired bone of the face forming upper jaw.

- 1. Classification: It is a pneumatic bone.
- 2. **Development:** It is developed in membrane.
- 3. Side determination
  - A. It has frontal process pointing medially and upwards.
  - B. Alveolar process is thick, arched and projects downwards (Fig. 1.21).
- 4. Features: It has body which is a hollow pyramid and has following surfaces.
  - A. Anterior surface: It presents
    - a. *Incisive fossa:* A fossa above the incisor teeth. It gives attachment to following muscles.
      - I. Depressor septi from the fossa.
      - II. Orbicularis oris below the fossa.
      - III. Nasalis lateral to fossa.
    - b. Canine fossa: It is lateral to incisive fossa. It gives origin to levator anguli oris

24

2. By compressing at the site of injury, bleeding is arrested since underneath the scalp is cranium which is hard structure.

## QLA-6 Why the wounds of face bleed profusely?

Scalp has *profuse* blood supply. It is supplied by *5 paired* arteries. These arteries pass through the dense connective tissue. Ruptured arteries of any part of the body are constricted by the contraction of smooth muscles present in walls of the vessel.

The vessels in the scalp pass through the dense connective tissue. The arteries of the scalp cannot overcome the resistance of the tough dens deep fascia. Hence, they are kept open and they bleed profusely.

### **QLA-7** What are the modifications of palpebral fascia?

The palpebral fascia of the two eyelids forms the orbital septum.

- 1. In upper eyelid becomes thick and forms tarsal plates or tarsi. Tarsi are thin plates of condensed fibrous tissue located near the lid margins. They give stiffness to the lids. The upper tarsus receives two tendinous slips from the levator palpebrae superioris.
  - A. One from voluntary part, and
  - B. Another from involuntary part.
- 2. At the angles, it forms palpebral ligaments.

# QLA-8 What is stye (hordeolum)?

- 1. **Definition:** It is a suppurative inflammation of one of the glands of Zeis. It is large sebaceous gland.
- 2. Clinical features
  - A. The gland is swollen, hard and painful.
  - B. Lid is oedematous.
  - C. Pus points near the base of one of the roots (follicle) of an eyelash.

## **QLA-9** What is chalazion?

**Definition:** It is inflammation of a tarsal gland, causing a localized swelling pointing inward.

#### SN-24 Modiolus

- 1. **Modiolus (nave, pillar):** It is a compact, mobile fibromuscular structure. It is present at about 1.25 cm lateral to the angle of the mouth opposite the upper 2nd premolar tooth.
- 2. The five muscles interlacing to form the modiolus are:
  - A. Buccinator,
  - B. Zygomaticus major,

31

36

#### **Exam-Oriented Anatomy**

b. Behind the auricle **GaleO - Go To** 

Posterior division of <u>G</u>reat <u>a</u>uricular nerve (ventral rami of C2–C3) <u>Le</u>sser <u>O</u>ccipital nerve. Ventral rami of (C2) <u>G</u>reater <u>O</u>ccipital nerve—dorsal ramus of C2 spinal nerve. <u>Third O</u>ccipital nerve—dorsal ramus of C3 spinal nerve.



Fig. 2.5: Nerve supply of scalp

- B. Motor (Fig. 2.5B)
  - a. In front of the auricle: Temporal branch of facial nerve supplies frontal belly of occipitofrontalis.
  - b. Behind the auricle: Posterior auricular branch of facial nerve supplies occipital belly of occipitofrontalis.

## 4. Applied anatomy

### **First layer**

- Skin is thick and hairy. It is the common site of sebaceous cyst.
- The infection of the scalp behind the ear may cause transverse venous sinus infection. It can be dangerous or fatal.

### Second layer

- The bleeding in second layer is profuse. This is because of two reasons:
  - The scalp has rich blood supply (five arteries on each side),
  - The torn vessels are prevented from constriction because the walls of the blood vessels are adherent to the dense connective tissue. This prevents constriction of vessels.
  - The bleeding can be immediately arrested by compressing against hard bone, i.e. cranium.
  - As all the blood vessels of the scalp run from periphery to centre, bleeding from the scalp can easily be arrested by applying a tourniquet around the head.

## **Exam-Oriented Anatomy**

Particulars	Upper motor neuron lesion	Lower motor neuron lesion
	<ul> <li>Inability of angle of mouth to move upwards.</li> <li>Loss of nasolabial fold</li> <li>Accumulation of food in the vestibule of the mouth</li> <li>Dribbling of saliva</li> <li>Inability to inflate the cheek laterally.</li> <li>Able to close the eye</li> <li>Able to wrinkle the forehead</li> </ul>	<ul> <li>Inability of angle of mouth to move upwards.</li> <li>Loss of nasolabial fold.</li> <li>Accumulation of food in the vestibule of the mouth.</li> <li>Dribbling of saliva</li> <li>Inability to inflate the cheek laterally.</li> <li>Inability to close the eye.</li> <li>Inability to wrinkle the forehead</li> </ul>

Table 2.2: Differences between upper motor neuron and lower motor neuron lesions (Contd.)

SN-25	Sensor	v nerve	supply	of the	face
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Table 2.3: Sensory nerve supply of the face (Fig. 2.7)

Source	Cutaneous nerve	Area of distribution
• Ophthalmic division of trigeminal nerve	<ul> <li>Supratrochlear nerve</li> <li>Supraorbital nerve</li> <li>Lacrimal nerve</li> <li>Infratrochlear nerve</li> <li>External nasal nerve</li> </ul>	<ul> <li>Scalp up to vertex</li> <li>Forehead</li> <li>Upper eyelid</li> <li>Conjunctiva</li> <li>Root, dorsum and tip of nose.</li> </ul>
• Maxillary division of trigeminal nerve	<ul><li>Infraorbital nerve</li><li>Zygomaticofacial nerve</li><li>Zygomaticotemporal nerve</li></ul>	<ul> <li>Upper lip</li> <li>Side and ala of nose</li> <li>Lower eyelid,</li> <li>Upper part of cheek</li> <li>Anterior part of temple.</li> </ul>
<ul> <li>Mandibular division of trigeminal nerve</li> </ul>	<ul> <li>Auriculotemporal nerve</li> <li>Buccal nerve</li> <li>Mental nerve</li> </ul>	<ul> <li>Lower lip, chin, lower part of cheek,</li> <li>Lower jaw except over the angle, and</li> <li>Lower margin, upper 2/3rd of lateral surface of auricle and side of head.</li> </ul>
Cervical plexus	<ul> <li>Anterior division of great auricular nerve (C2, C3).</li> <li>Upper division of transverse (anterior) cutaneous nerve of neck (C2, C3).</li> </ul>	<ul> <li>Skin over the angle of the jaw and over the parotid gland.</li> <li>Lower margin of the lower jaw.</li> </ul>