

**NAME: MAAZ ULLAH**

**ID# 14907**

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## Q1:

### Submandibular Glands:

- About the size of a walnut, the submandibular glands are located below the jaw. The saliva produced in these glands is secreted into the mouth from under the tongue.
- Like the parotid glands, the submandibular glands have two parts called the superficial lobe and the deep lobe.
- Nearby structures include:
  - **The marginal mandibular nerve**, which helps our smile.
  - **The platysma muscle**, which helps you move our lower lip.
  - **The lingual nerve**, which allows sensation in our tongue.
  - **The hypoglossal nerve**, which allows movement in the part of your tongue that helps with speech and swallowing.
- During treatment, we protect all of these important structures to avoid causing damage.

### Sublingual Glands:

- The sublingual glands are the smallest of the major salivary glands.
- These almond-shaped structures are located under the floor of the mouth and below either side of the tongue.
- Tumors starting in these glands are particularly rare.

## Q2:

### HUMAN EAR:

- Human ear is the organ of hearing and equilibrium that detects and analyzes sound by transduction (or the conversion of sound waves into electrochemical impulses) and maintains the sense of balance (equilibrium).
- The human ear, like that of other mammals, contains sense organs that serve two quite different functions, that of hearing and that of postural equilibrium and coordination of head and eye movements.
- Anatomically, the ear has three distinguishable parts, the outer, middle, and inner ear.
- The outer ear consists of the visible portion called the auricle, or pinna, which projects from the side of the head, and the short external auditory canal, the inner end of which is closed by the tympanic membrane, commonly called the eardrum.
- The function of the outer ear is to collect sound waves and guide them to the tympanic membrane.
- The middle ear is a narrow air-filled cavity in the temporal bone. It is spanned by a chain of three tiny bones, the malleus (hammer), incus (anvil), and stapes (stirrup), collectively called the auditory ossicles.
- This ossicular chain conducts sound from the tympanic membrane to the inner ear, which has been known since the time of Galen (2nd century CE) as the labyrinth.
- It is a complicated system of fluid-filled passages and cavities located deep within the rock-hard petrous portion of the temporal bone.
- The inner ear consists of two functional units, the vestibular apparatus, consisting of the vestibule and semicircular canals, which contains the

sensory organs of postural equilibrium, and the snail-shell-like cochlea, which contains the sensory organ of hearing.

- These sensory organs are highly specialized endings of the eighth cranial nerve, also called the vestibulocochlear nerve.

### **Q3:**

## **VERTEBRAE OF HUMAN SKELETON.**

### ➤ **The vertebral column:**

- The spine or vertebral column protects the spinal cord.
- Supports the head and body.
- It has 26 bones, 24 vertebrae, the sacrum, and the coccyx.

### ➤ **The Sacrum and Coccyx:**

- The fifth lumbar vertebra articulates with the sacrum.
- The sacrum articulates with the coccyx.

### ➤ **Intervertebral Discs:**

- Intervertebral disks are pads of fibrous cartilage. Separate the vertebral bodies.

### ➤ **THE CERVICAL VERTEBRAE:**

- Small body (support only head).
- C1 (atlas) has no spinous process.
- All others have short spinous processes.
- Tip of each spinous process is notched (bifid).

### ➤ **Atlas (C1):**

- Articulates with occipital condyles of skull.

### ➤ **Axis (C2):**

- Supports the atlas.

- Has heavy spinous process.
- To attach muscles of head and neck.
- Axis and atlas bodies fuse during development to form the dens.
- **Vertebra prominens (C7):**
  - Transitions to thoracic vertebrae.
  - Has a long spinous process with a broad tubercle.
  - Has large transverse processes.
- **The sacrum:**
  - **Females** Protects reproductive, urinary, and digestive organs.
  - **Attaches** The axial skeleton to pelvic girdle of appendicular skeleton.
  - Broad muscles that move the thigh.
- **The adult sacrum** consists of five fused sacral vertebrae.
  - Fuses between puberty and ages 25–30.
  - Leaving transverse lines.
- **The coccyx:**
  - Attaches ligaments and a constricting muscle of the anus.
- **Mature coccyx:**
  - Consists of three to five fused coccygeal vertebrae. Is now the

## Q4:

### IMPORTANCE OF RADIOLOGY IN MEDICAL FIELD:

- Radiology is now the key diagnostic tool for many diseases and has an important role in monitoring treatment and predicting outcome.
- It has a number of imaging modalities in its armamentarium which have differing physical principles of varying complexity.

- Radiologists are medical doctors that specialize in diagnosing and treating injuries and diseases using medical imaging (radiology) procedures (exams/tests) such as X-rays, computed tomography (CT), magnetic resonance imaging (MRI), nuclear medicine, positron emission tomography (PET) and ultrasound.
- Radiology plays a huge role in disease management by giving physicians more options, tools, and techniques for detection and treatment.
- Diagnostic imaging allows for detailed information about structural or disease-related changes.
- With the ability to diagnose during the early stages, patients may be saved.

## **Q5:**

### **STONE FORMATION IN THE MANDIBULAR GLAND:**

- Stone formation occurs most commonly in the submandibular gland for several reasons. The concentration of calcium in saliva produced by the submandibular gland is twice that of the saliva produced by the parotid gland. The submandibular gland saliva is also relatively alkaline and mucous.
- Salivary stones form when chemicals in the saliva accumulate in the duct or gland. They mostly contain calcium. The exact cause is not known.
- **Causes:** The stones cause no symptoms as they form, but if they reach a size that blocks the duct, saliva backs up into the gland, causing pain and swelling.

- Salivary stones, also called **sialolithiasis**, are hardened mineral deposits that form in the salivary glands. The condition is more likely to affect people age 30 to 60 and men are more likely to get salivary stones than women.