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Q NO: 1

Human Ear:

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)-

STRUCTURE OF EAR

Ear has major three
divisions.

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- Outer ear consisting of pinna, auditory canal and ear drum.
- ⇒ Middle ear consists of ear ossicles (malleus, incus, stapes), oval window, round window and inner opening of the Eustachian tube.
- ⇒ Inner ear consists of semicircular canal, utricle, saccule and cochlea.
- ⇒ External ear collects the sound waves.

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⇒ The hearing can be done according to the responses given by the brain.

Organ of Corti-definition

The organ of Corti lies with the cochlea of the inner ear. In the organ of Corti, sound vibrations which pass along the cochlear duct are converted into nerve impulses.

These impulses are transmitted along the cochlear nerve, or auditory nerve,

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to the brain, where they are interpreted as sound.

Middle ear - definition:

parts of middle ear are as follows:

Auditory ossicles: Transmit

and amplify vibrations from tympanic membrane to oval window.

Eustachian tube:

Equalizes air pressure on both sides of the tympanic membrane.

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Internal ear - definition:

parts of internal ear are as follows:

Cochlea:

contains a series of fluids, channels and membranes that transmit vibrations to the spiral organ, the organ of hearing, hair cell in the spiral organ produce receptor potentials, which elicit nerve impulses in the cochlear branch of the vestibulocochlear (VIII) nerve.

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Semicircular ducts: contain
cristae, sit of hair cell
for dynamic equilibrium.

Utricule and saccule: contains
macula, site of hair cells
for dynamic equilibrium.

External ear - definition:

It comprises of

pinna: Effective in collecting
sound waves.

External auditory meatus: prevent
foreign bodies entering the
ear.

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Tympanic membrane sound waves produces pressure.

Q NO: 2:

Sub-mandibular glands:

The sub-mandibular glands are ~~located~~ bilateral

salivary glands located in

the face. Their mixed

serous and mucous secretions

are important for the the

lubrication of food during

mastication to enable effective

swallowing and aid digestion.

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The paired submandibular glands (historically known as submaxillary glands) are major salivary glands located beneath the floor of the mouth. They each weigh about 15 grams and contribute some 60-70% of unstimulated saliva secretion; on stimulation their contribution decreases in proportion as the parotid secretion rises to 50%.

Blood supply

The gland receives its blood supply from the

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facial and lingual arteries. The gland is supplied by sublingual and submental arteries and drained by common facial and lingual veins.

Sublingual glands:

The sublingual glands are almond-shaped and lie on the floor of the oral cavity. They are situated underneath the tongue, bordered laterally by the mandible and medially by genioglossus.

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muscle of the tongue.

The glands form a shallow groove on the medial surface of the mandible known as the sublingual fossa.

The paired sublingual glands are major salivary glands in the mouth. They are the smallest, most diffuse, and the only unencapsulated major salivary glands. They provide only 3-5% of the total salivary volume.

There are also two other

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Types of salivary glands;

they are submandibular and parotid glands.

Blood supply:

The gland receives its blood supply from the sublingual and submental arteries. Lymph from the sublingual salivary gland drains into the submandibular lymph nodes.

Q-NO: 3

stone formation is
more common in
the sub 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

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submandibular gland saliva
is also relatively alkaline
and mucous

Sialolithiasis:

sialolithiasis
is the presence of calculi in the
salivary glands or ducts. stones
will form in the salivary
gland or ducts following
the stagnation of saliva;
they are typically composed
of calcium phosphate and
hydroxyapatite, as the saliva
is rich in calcium.

They have an incidence of
approximately 27-59 cases per

(14)

million population per year.
whilst most cases are
asymptomatic, some can
present with facial swelling
and/or facial pain.

sialolithiasis most commonly
occurs in the submandibular
gland, due to the anatomy
of this duct being long and
its flow of saliva against
gravity.

The type of salivary secretions
from the submandibular gland
are also more mucoid in
nature as opposed to the
more serous secretions

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from the parotid gland.

Q NO: 4:

vertebra's of the
human skeleton:

The vertebral column, also
called the spine, spinal
column or backbone.

composed of a series of
bones called vertebrae
(singular is vertebra)

About 71 cm (28 in): adult male.

About 61 cm (24 in): adult female.

Total number of vertebrae
during early development
is 33.

As a child grows, several
vertebrae in the sacral
and coccygeal regions
fuse.

Adults have 26 vertebrae.

"sacrum and coccyx bones
become fused."

Region of the vertebral column

- 7 cervical vertebrae (C1-C7)
- 12 thoracic vertebrae (T1-T12)
- 5 lumbar vertebrae (L1-L5)
- 1 sacrum (5 fused)

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1 coccyx (4 fused)

The sacrum and coccyx do not have number.

The cervical, thoracic and lumbar vertebrae are movable.

sacrum and coccyx are immovable.

Between adjacent vertebrae

from the second cervical vertebra to the sacrum are intervertebral disc (inter = b/w).

General structure of vertebrae

1 = cervical vertebrae (C1-C7)

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⇒ Formed framework of the neck region

⇒ support skull

⇒ small in size

⇒ presence foramen in each transverse process

2= Thoracic vertebrae (T₁-T₁₂)

⇒ Formed posterior part of thoracic cage

⇒ Articulates with associated ribs

3= Lumbar vertebrae (L₁-L₅)

⇒ Formed skeletal support for posterior abdominal wall

⇒ characterized by large in size

4= Sacrum vertebrae

- ⇒ Fusion of 5 sacral bones.
- ⇒ Immovable.
- ⇒ Articulates with L5 at lumbosacral joint.
- ⇒ Articulates laterally with pelvic bone at sacroiliac joint.
- ⇒ Formed posterior wall of lower abdominal and pelvic cavity.

5= Coccyx

- ⇒ Fusion of 4 coccyx bones.
- ⇒ Immovable.
- ⇒ Formed part of pelvic cavity.

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Function of the vertebral column

- 1 = supports the head.
- 2 = Help maintain balance in the upright position.
- 3 = Enclose and protect the spinal cord.
- 4 = permits movement (move forward, backward, sideways, and rotate)
- 5 = Absorbs shocks during walking.
- 6 = serve as a point of attachment for the ribs, pelvic girdle and muscles of the back and upper limbs.

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Q NO: 5

Radiology: Radiology represents a branch of medicine that deals with radiant energy in the diagnosis and treatment of diseases by using imaging technologies, This field can be divided into two broad areas.

⇒ Diagnostic radiology

⇒ Intervention radiology.

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.

⇒ with so many diseases playing, the world, it's important to have a good

disease management plan.

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 diseases related changes.

⇒ with the ability to diagnose during the early stages, patients may be saved without radiology, this may not be possible.

⇒ when it all comes down to it,

Radiology saves lives.

⇒ It's vital to medical case because it's one of the most powerful diagnostic and treatment tools available

⇒ Radiology is not only vital to medical case, but it's also one of the fastest growing careers.

Due to all above reasons that's why radiology is more important in medical field.