L. *palate*=roof of mouth

- It is a partition between the nasal and oral cavities.

**Parts- 2**

- Hard palate.
- Soft palate.
Hard Palate
Introduction

- Forms anterior \(\frac{4}{5}\)th of the palate.

Formation:

Anterior \(\frac{2}{3}\)rd – by palatine processes of maxillae.

Posterior \(\frac{1}{3}\)rd – by horizontal plates of palatine bones.

- It becomes continuous with maxillary alveolar arches and gums anterolaterally.

- Its posterior border provides attachment to soft palate.
Introduction contd...

- Its superior surface forms the floor of nasal cavities.
- Its inferior surface forms the roof of oral cavity.
Inferior Surface

- Presents the following **features:**
  - Incisive fossa.
  - Greater palatine foramen.
  - Lesser palatine foramina.
  - Posterior nasal spine.
  - Palatine crest.
  - Masticatory mucosa.
Incisive Fossa

- A small pit anteriorly in the midline.
- It has openings of incisive canals in the form of incisive foramina.
- Each incisive canal transmits Nasopalatine nerve and Greater palatine vessels.
Greater Palatine Foramen

- It lies in the posterolateral corner of hard palate, medial to last molar tooth.
- It transmits Greater palatine nerve and vessels.
Lesser Palatine Foramina

- 1-3 in number.
- Location: just behind the Greater Palatine foramen.
- They are in the pyramidal process of the palatine bone.
- They transmit lesser palatine nerve and vessels.
**Posterior Nasal Spine**

- A conical projection in the median plane on posterior border of hard palate.

**Palatine Crest**

- A curved ridge near the posterior border of hard palate.
Masticatory Mucosa

• It is the mucous membrane lining the hard palate.

• It is firmly adherent with the periosteum by multiple Sharpey’s fibers.

• It presents **transverse masticatory ridges** on either side of midline.

• A narrow ridge extending anteroposteriorly in the midline from a papilla overlying the incisive fossa is known as **palatine raphe**.
Arterial Supply

- Greater palatine arteries.

Venous drainage

- Pterygoid venous plexus.
- Pharyngeal venous plexus.
Nerve Supply

- Greater palatine nerves.
- Nasopalatine nerves.
Lymphatic Drainage

- Upper deep cervical lymph nodes.
- Retropharyngeal lymph nodes.
Soft Palate
Introduction

- A mobile muscular flap hanging down from the posterior border of hard palate into the pharyngeal cavity.

- It separates the nasopharynx from oropharynx, when abuts on the Passavant’s ridge.
External Features

• 2 surfaces
• 2 borders

Surfaces-
• Anterior (Oral)
• Posterior

Borders-
• Superior
• Inferior

Anterior (Oral) Surface-
• Concave.
• Has a median raphe.

Posterior (Oral) Surface-
• Convex.
Borders

Superior Border-
- Attached to posterior border of hard palate.

Inferior Border-
- Free.
- Forms the anterior boundary of pharyngeal isthmus.
- A small, conical, tongue-like projection hanging down from its middle is called **uvula**.
On each side from the base of uvula, 2 curved folds of mucous membrane extend laterally and downwards:

- Anterior fold (Palatoglossal fold).
- Posterior fold (Palatopharyngeal fold).

**Anterior fold (Palatoglossal fold):**
- Merges inferiorly with the side of the tongue (at the junction of anterior 2/3 and posterior 1/3).
- It contains **palatoglossus** muscle.
- It forms the lateral boundary of oropharyngeal isthmus and anterior boundary of tonsillar fossa.

**Posterior fold (Palatopharyngeal fold):**
- Merges inferiorly with the lateral wall of pharynx.
- It contains **palatopharyngeus** muscle.
- It forms the posterior boundary of tonsillar fossa.
Muscles

- 5 pairs of muscles:
  - Tensor palati (Tensor Veli Palatini).
  - Levator palati (Levator Veli Palatini).
  - Palatoglossus.
  - Palatopharyngeus.
  - Musculus uvulae.

- All muscles are extrinsic except Musculus uvulae, which are intrinsic.
Tensor Palati

- It is a thin triangular muscle.

**Origin**
- **Lateral** aspect of cartilaginous part of auditory tube.
- Adjoining part of greater wing of sphenoid including its spine.

**Insertion**
- Muscle descends, converges to form a tendon.
- The tendon hooks round the pterygoid hamulus and then expands to form the palatine aponeurosis.

- **Palatine aponeurosis** attaches to:
  - Posterior border of hard palate.
  - Inferior surface of hard palate behind the palatine crest.

**Actions**
- Tightens the soft palate.
- Helps in opening the auditory tube.
Levator Palati

• A **cylindrical** muscle lying deep to Tensor palati.

**Origin**-
• **Medial** aspect of cartilaginous part of auditory tube.
• Adjoining part of petrous part of temporal bone (inferior surface of its apex anterior to carotid canal).

**Insertion**-
• Muscle runs downwards and medially and spreads out to be inserted on the upper surface of palatine aponeurosis.

**Actions**-
• Elevates the soft palate to close the pharyngeal isthmus.
• Helps in opening the auditory tube.
Auditory tube
Scaphoid fossa
Lateral pterygoid plate
Maxilla
1-Tensor palatine m.
2-Levator palatine m.
Palatopharyngeus m.
Thyroid cartilage
Palatine aponeurosis
Pterygoid hamulus
Mandible (Cut)
Palatoglossus m.
Dr. Sherif Fahmy
Musculus Uvulae

- A longitudinal muscle strip.

- One on either side of median plane within the palatine aponeurosis.

**Origin**
- Posterior nasal spine.
- Palatine aponeurosis.

**Insertion**
- Mucous membrane of uvula.

**Actions**
- Pulls the uvula forwards to its own side.
Functions of Soft Palate

- During **swallowing**, closes the **pharyngeal isthmus** to separate the oropharynx from nasopharynx, thereby prevents the entry of food into the nasopharynx and nasal cavities, and closes the **oropharyngeal isthmus** to prevent the regurgitation of food contents into the oral cavity.

**Closure of Pharyngeal isthmus**
[Soft palate is raised up (**Levator Palati**) and makes contact with the posterior pharyngeal wall (contraction of **Palatopharyngeus**)]

**Closure of Oropharyngeal isthmus**
[Soft palate is pulled down, approximated the tongue and pressed against it]
Closure of oropharyngeal isthmus:

- Medial and downward movement of palatoglossal arches
- Medial and downward movement of palatopharyngeal arches
- Upward movement of tongue
- Downward and forward movement of soft palate
Functions of Soft Palate contd...

- During **chewing**, **closes** the **oropharyngeal isthmus** to isolate the oral cavity from oropharynx so that breathing is not affected.

- Helps to modify the quality of voice by varying the degree of closure of pharyngeal isthmus.

- During **sneezing**, prevents the damage of nasal mucosa, by appropriately dividing and directing the blast of air through both nasal and oral cavities.

- During **coughing**, prevents the entry of sputum into the nasal cavities by directing it into oral cavity.
Arterial Supply

❖ Maxillary artery-
   • Lesser palatine branches.

❖ Facial artery-
   • Ascending palatine branch.

❖ Ascending pharyngeal artery
   • Palatine branches.

MA- Maxillary Artery, LPA- Lesser Palatine Arteries, FA- Facial Artery, APalA- Ascending Palatine Artery, APA- Ascending Pharyngeal Artery
CCA- Common Carotid Artery, ECA- External Carotid Artery, DPA-Descending Palatine Artery, GPA- Greater Palatine Artery
Venous Drainage

Into:

- Pharyngeal venous plexus.
- Pterygoid venous plexus.
Lymphatic Drainage

- Retropharyngeal lymph nodes.
- Upper deep cervical lymph nodes.
Nerve Supply

Motor supply-

• All muscles are supplied by cranial root of Accesssory nerve via pharyngeal plexus except Tensor palati.

• Tensor palati is supplied by nerve to Medial Pterygoid.

Sensory supply-

General Sensory-

• By Lesser palatine nerves.
• Glossopharyngeal nerve.
Applied Aspects

Gag Reflex-
- It is a protective reflex, in response to stimulation of mucous membrane of oropharynx.
- Characterized by reflex contraction of pharyngeal and palatal muscles.

Afferent limb-
- Glossopharyngeal nerve.

Efferent limb-
- Vagus nerve.
THANK YOU