

GENERAL STRUCTURE OF THE GASTROINTESTINAL TUBE

Mucous membrane (tunica mucosa):

Folds (**plicae**), smaller processes (**papillae**), **villi (villi intestinales)**. **Lamina epithelialis, lamina propria mucosae, lamina muscularis mucosae**. **Folliculi lymphatici solitarii** or **folliculi lymph. aggregati – Peyer's patches**.

Submucous tissue (tunica submucosa)

The nervous plexus is called **plexus submucosus Meissneri**.

Muscular tissue (tunica muscularis)

Striated or smooth musculature. Internal **circular** and external **longitudinal**. The nervous **plexus myentericus Auerbachi**.

Outer layer

Tunica adventitia or **tunica serosa (visceral peritoneum)**.

Glands of the GIT

Intramural (e.g. goblet cells) or extramural glands.

ORAL CAVITY (CAVUM ORIS)

Rima oris

Vestibulum oris

Cavum oris proprium

Vestibule of the mouth (vestibulum oris)

Labia oris - labium superius – sulcus nasolabialis, philtrum - tuberculum labii superioris

cheiloschisis (cleft lip)

gnathoschisis (cleft jaw)

palatoschisis (cleft palate)

- labium inferius - sulcus mentolabialis

pars intermedia

fornix vestibuli superior et inferior - frenulum

anguli oris

glandulae labiales

m. orbicularis oris.

Buccae - glandulae buccales, m. buccinator, papilla parotidea - ductus parotideus.

Raphe pterygomandibularis – mandibular anesthesia

Gingiva - gingiva proper (attached gingiva) - pars fixa gingivae

- pars libera gingivae

Alveolar mucosa – separated from the gingiva by the mucogingival border

The oral cavity proper (cavum oris proprium)

diaphragma oris - mylohyoid muscles, geniohyoid muscles, anterior belly of the digastric muscle

glandula submandibularis

glandula sublingualis

Salivary glands

Glandulae salivariae minores - labiales, buccales, molares, palatinae, linguales

Glandulae salivariae majores - sublingualis, submandibularis and parotis

Glandula submandibularis – ductus submandibularis – caruncula sublingualis

Glandula sublingualis– plica sublingualis, ductus sublingualis major, ductus sublinguales minores

Glandula parotis - fossa retromandibularis, fascia parotideomasseterica. Tractus angularis separates the gland from the trigonum submandibulare. Parotid plexus - CN VII – nervus facialis.

Ductus parotideus - papilla parotidea

Glandula parotis accessoria

Palate (palatum)

Hard palate (palatum durum) - palatine processes of the maxillae and horizontal plates of the palatine bones

Raphe palati

Papilla incisiva

Plicae palatinae transversae

Glandulae palatinae

Soft palate (palatum molle, velum palatinum)

Aponeurosis palatina

Uvula palatina

Arcus palatoglossus et arcus palatopharyngeus

Tonsilla palatina – fossa (sinus) tonsillaris, plica triangularis, fossa supratonsillaris– plica semilunaris, 12 – 15 cryptae tonsillares– tonsillitis – tonsillar pegs, paratonsillar vein - tonsillectomy.

Muscles of the soft palate:

Musculus tensor veli palatini – CN V.

M. levator veli palatini

M. uvulae

M. palatoglossus

M. palatopharyngeus

plexus pharyngeus (CN IX., X.).

Tongue (lingua)

Corpus linguae

Radix linguae - tonsilla lingualis

Dorsum linguae - sulcus terminalis (ductus thyroglossus), sulcus medianus

Papillae filiformes, fungiformes, foliatae, valatae, (calliculi gustatorii)

Apex linguae

Margines linguae

Facies inferior linguae - frenulum linguae, plicae fimbriatae, plica sublingualis - caruncula sublingualis

Plica glossoepiglottica mediana and two plicae glossoepiglotticae laterales - valleculae epiglotticae

DENTITION

Dentes permanentes

32 teeth: 2 incisors, 1 canine, 2 premolars and 3 molars in one quadrant of the complete permanent dentition.

Description of the tooth:

Crown (corona dentis)

Masticatory surface (**facies oclusalis**) - **tubercula dentalia**

Contact ss. (**facies approximales**) - **facies mesialis, facies distalis**

Vestibular s. (**facies vestibularis**) - **f. labialis, f. buccalis**

Oral s. (**facies oralis**) - **f. palatina, f. lingualis**

Neck (collum dentis) - **epithelial attachment (junctional epithelium)**

Root (radix dentis)

Pulp cavity (**cavitas dentis**) - **canalis radialis - foramen apicis dentis**

Structure of the tooth

Dentin (**dentinum**) 70% of inorganic substances.

Enamel (**enamelum**) 97% of inorganic substances.

Cement (**cementum**) formed by the fibrous bone.

Pulp (**pulpa dentis**) - areolar connective tissue, vessels and nerves.

Fixation of the tooth

Periodontium - collagen **Sharpey's fibers**

Parodontium - gum, periosteum, alveolus, periodontium, cement

Morphology of individual teeth

Dens incisivus - 1 root, crown - occlusal edge. The largest incisor is upper medial one. The root is long, conical and flat from sides.

Dens caninus are long teeth with one root, the crown projects in the acute spike with cutting edges at its sides. The root is long and flat from sides. The upper canine is bigger than lower.

Dens premolaris has 2 tubercles on its occlusal surface (one vestibular, the other lingual).

Upper premolars have both tubercles of the same size, the lower have the bigger vestibular tubercle. Premolars have one root except the upper first premolar that has two roots – palatal and buccal.

Dens molaris - the occlusal surface of upper molars has 4 tubercles separated by a deep groove. The size of molars decreases distally. The crown has 2 buccal and 2 palatal tubercles. The groove has the shape of the letter H. Upper 1st molar is the strongest and biggest tooth of the upper arch. The additional tubercle may be on its palatine side (**tuberculum anomale Carabelli**). Upper 2nd and 3rd molars have often only 2 tubercles. The occlusal surface of the lower molars has the quadrangular shape. The groove has the shape of the cross. The 1st molar has often 5 tubercles the 5th lies distally.

Third molars have variable crowns and may be impacted. Upper molars have 3 roots (2 vestibular and 1 palatal), lower have 2 roots (1 mesial and 1 distal)

Dentes decidui

Crowns of milk teeth are lower and wide. They are of white colour with a blue shade. Roots are narrower and sharper and diverging because they surround crowns of permanent teeth.

Dental formula

Dentition can be expressed as a **dental formula**. The jaws are vertically symmetrical. The teeth on the left side of the mouth will correspond to the teeth on the right. The teeth may be indicated by several ways – kind of tooth is denoted by a letter - lowercase letters (i1, i2, c, m1, m2 – milk teeth) or uppercase letters (I1, I2, C, P1, P2, M1, M2, M3 – permanent teeth); by numerals – Roman (I, II, III, IV, V – milk teeth) or Arabian (1, 2, 3, 4, 5, 6, 7, 8 – permanent teeth).

Quadrants is determined by numerals 1-4 clockwise from the maxillary right quadrant for permanent teeth and 5-8 clockwise for milk teeth:

$$\begin{array}{cc} \frac{1|2}{4|3} & \frac{5|6}{8|7} \end{array}$$

Today dentists use a formula according to which each tooth is allocated a two-digit number. The left designates the quadrant and the right designates the tooth order. 43 – mandibular right permanent canine, 62 – maxillary left deciduous lateral incisor.

Occlusion

Upper dental arch has a shape of the half of an oval, lower arch of a parabola. Therefore the teeth do not meet each other exactly. Normally the crowns of the upper teeth direct slightly forward and those of the lower teeth backward. Thus the cutting edges of the upper front teeth lie anterior to those of lower front teeth like a pair of scissors. In the premolars and molars the vestibular tubercles of upper teeth overhangs those of lower teeth. Each tooth is in contact with two opposing teeth, with the principal antagonist (over a large contact area) and with an adjacent secondary antagonist. Only the 1st lower incisor and the third upper molar have a single antagonist. In rare cases the cutting edges are opposite each other like a forceps. In **prognathism** – the upper jaw is displaced anteriorly; in **progenism** – the lower jaw is anterior to the upper one.

Eruption

The primordia of the deciduous teeth are already in a newborn child. The growing root pushes the crown to the gum, which atrophies and the tooth erupts.

- I 6th-8th month
- II 8th-12th month
- III 16th-20th month
- IV 12th-16th month
- V 20th-36th month

Exchange of the teeth

Crowns of the permanent teeth grow orally and elicit resorption of alveoli of milk teeth and their roots. Roots of milk teeth shorten and disappear, the rest of the crown releases from the gum.

- 1 7th-8th year
- 2 8th-9th year
- 3 11th-13th year
- 4 9th-11th year
- 5 11th-13th year
- 6 6th-7th year
- 7 12th-14th year
- 8 17th-40th year

