

ENGLISH LANGUAGE

-lectures-

STOMATOLOGY

Year V

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week 6

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Classification of teeth and their numbers in the jaws.

They are classified according to their function and development.

According to their development- Deciduous and permanent

According to their function -- Incisors, Canines, premolars and molars.

Vocabulary

- deciduous teeth – mliječni zubi
- permanent teeth – stalni zubi
- incisors – sjekutići
- canines – očnjaci
- premolars – premolari
- molars - molari

Table 2: Number of teeth and roots in the jaws in both dentitions

Number of roots& teeth		I	R	C	R	Pr	R	M	R
Deciduous	Upper Jaw	4	1	2	1	0	0	4	3
	Lower Jaw	4	1	2	1	0	0	4	2
Permanent	Upper Jaw	4	1	2	1	4	1,2	6	3
	Lower Jaw	4	1	2	1	4	1	6	2

I = incisor, R=Root, C= canine, Pr=Premolar, M=Molar

Function of the tooth

Incisors: Biting of the food initially

Canines: Tearing of tough pieces of food.

Premolars and Molars: Grinding the food in to small pieces before swallowing

Vocabulary

- bite (verb) – use the teeth to cut into something; - gristi
- tear (verb) – pull (something) apart or to pieces with force; - kidati
- grind (verb) - reduce (something) to small particles or powder by crushing it;
- samljeti

Arterial Supply to the Teeth and oral cavity

The arteries and nerve branches to the teeth are mere terminals of the central systems. This manual will only confine to dental anatomy and the parts immediately associated structures, therefore reference be made only to those branches that supply the teeth and the supporting structures.

Internal Maxillary Artery

The arterial supply to the jaw bones and the teeth comes from the *maxillary artery*, which is a branch of the *external carotid artery*. The *branches* of the maxillary

Vocabulary

- mere (adjective) – only; - samo
- confine (verb) – limit; - ograničiti se
- therefore – thus; -stoga

Internal Maxillary Artery

The arterial supply to the jaw bones and the teeth comes from the *maxillary artery*, which is a branch of the *external carotid artery*. The *branches* of the maxillary

artery which feed the teeth directly are the *inferior alveolar artery* and the *superior alveolar arteries*.

Inferior Alveolar Artery

The *inferior alveolar artery* branches from the maxillary artery medial to the ramus of the mandible .It gives off the *mylohyoid branch*, it supplies:

- the premolar and molar teeth
- the chin
- the anterior teeth
- the mandible and teeth.
- the pulp and of the periodontal membrane at the root apex.

Vocabulary

- ramus – branch of a bone, in particular those of the ischium and pubes or of the jawbone; - ramus
- chin – brada
- mandible – mandibula
- pulp – pulpa
- root apex – vrh korijena

Superior Alveolar Arteries

The *posterior superior alveolar artery* branches from the maxillary artery superior to the maxillary tuberosity to enter the alveolar canals along with the posterior superior alveolar nerves and supplies:

- the maxillary teeth,
- Alveolar bone and membrane of the sinus.

- The gingiva, alveolar mucosa, and cheek.

A middle superior alveolar branch is usually given off by the infraorbital continuation of the maxillary artery. It joins the *posterior* and *anterior alveolar vessels*. Its main distribution is to the maxillary premolar teeth.

Anterior superior alveolar branches arise from the infraorbital artery. It supplies

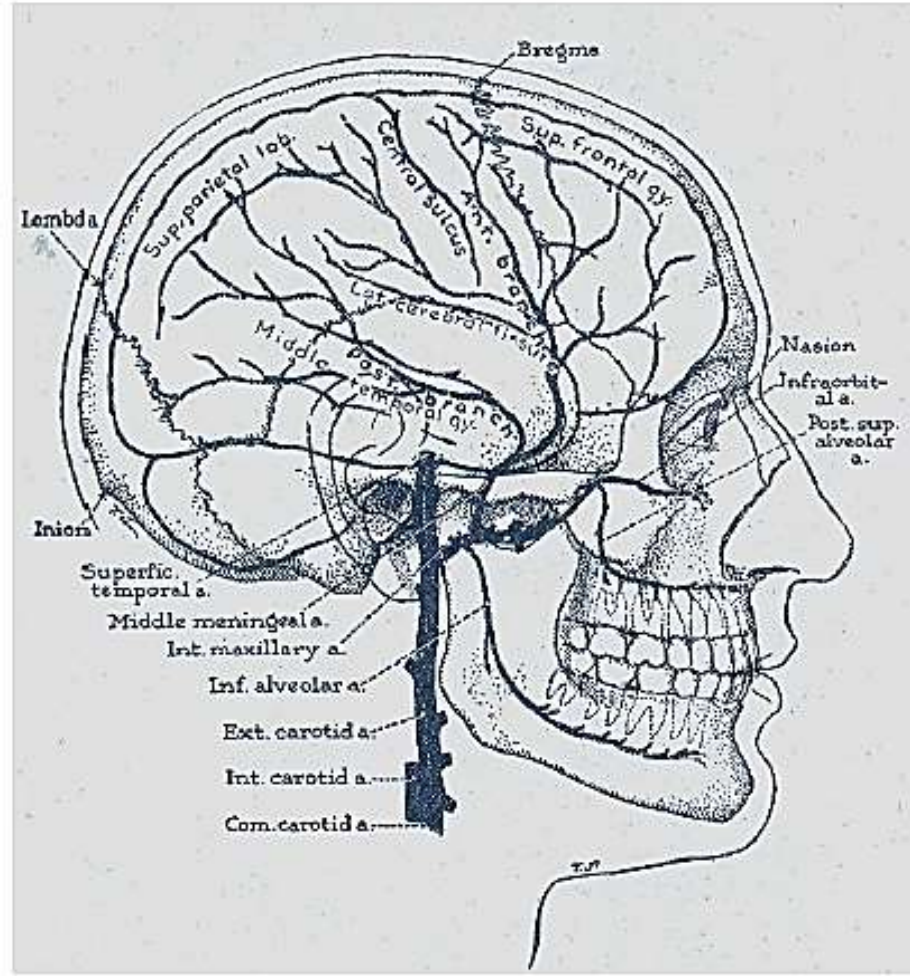
- the maxillary anterior teeth and their supporting tissues

Branches to the teeth, periodontal ligament, and bone are derived from the superior alveolar

Vocabulary

- cheek (noun) – obraz
- branch (noun) – grana, ogranak
- vessels (noun) – krvni sudovi
- supporting tissues – potporna tkiva
- derive from – come from; proizilaziti iz

Figure 3: Branches of maxillary artery



Nerve Supply

The sensory nerve supply to the jaws and teeth is derived from the *maxillary* and *mandibular* branches of the *fifth cranial*, or *trigeminal*, nerve, whose ganglion, the *trigeminal*, is located at the apex of the petrous portion of the temporal bone. The trigeminal has three main branches.

- Ophthalmic
- Maxillary
- Mandibular

Ophthalmic branch will not be discussed as it has no direct relation with the oral cavity.

Maxillary Nerve

The *maxillary* nerve crosses forward through the wall of the cavernous sinus and leaves the skull through the foramen rotundum. The branches of clinical significance include:

- a ***greater palatine branch*** that enters the hard palate through the greater palatine foramen and

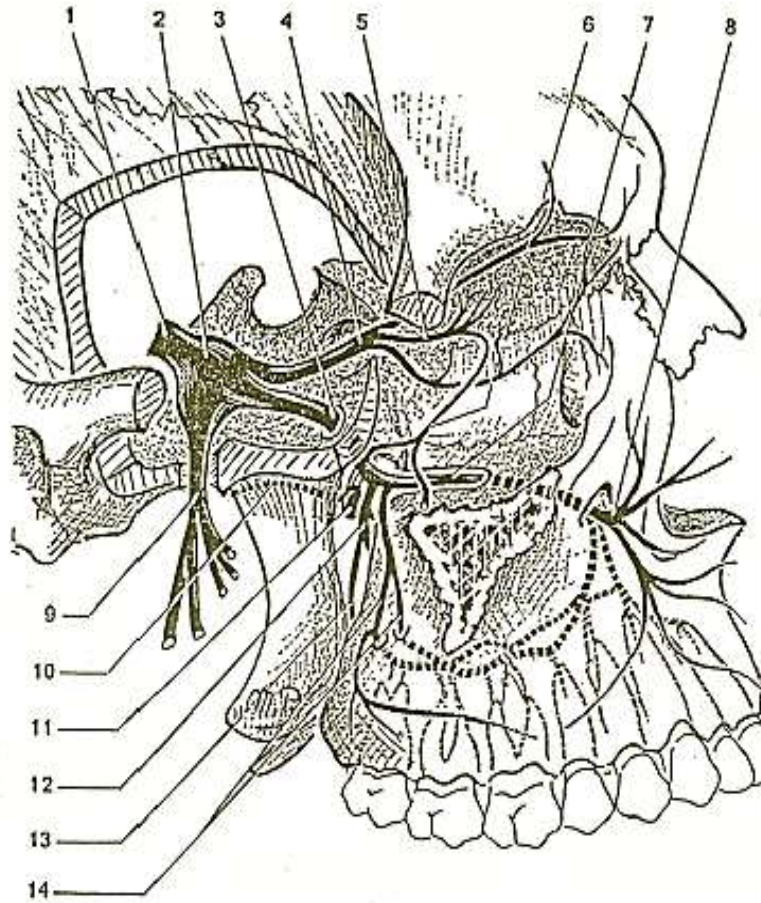
Vocabulary

- skull (noun) – lobanja
- significance (noun) – importance; - značaj

is distributed to the hard palate and palatal gingivae as far forward as the canine tooth;

- a **lesser palatine branch** from the ganglion that enters the soft palate through the lesser palatine foramina; and
- a **nasopalatine branch** of the posterior or superior lateral nasal branch of the ganglion that runs downward and forward on the nasal septum. Entering the palate through the incisive canal, it is distributed to the incisive papilla and to the palate anterior to the anterior palatine nerve.
- a **posterior superior alveolar** branch from its pterygopalatine portion and is distributed to the molar teeth and the supporting tissues.

Figure 4: Branches of maxillary nerve



Key

1. Trigeminal nerve
2. Ganglion of gasser
3. Foramen rotundu

4. Ophthalmic nerve
5. Lacrimal nerve
6. Anastmosis of the ophthalmic and maxillary nerve
7. Infraorbital nerve
8. Branches of Infraorbital nerve
9. Maxillares inferior nerve
10. Vividiano nerve
11. Ganglion Sphenopalatine nerve
12. Sphenopalatine nerve
13. Palatine nerve
14. Posterior superior alveolaris nerve

Mandibular Nerve

The *mandibular nerve* leaves the skull through the foramen ovale and almost immediately breaks up into its several branches. The chief branches;

- **the *inferior alveolar nerve***, it gives off branches to the molar and premolar teeth and their supporting bone and soft tissues. It

supplies alveolar bone, periodontal membrane, and gingivae.

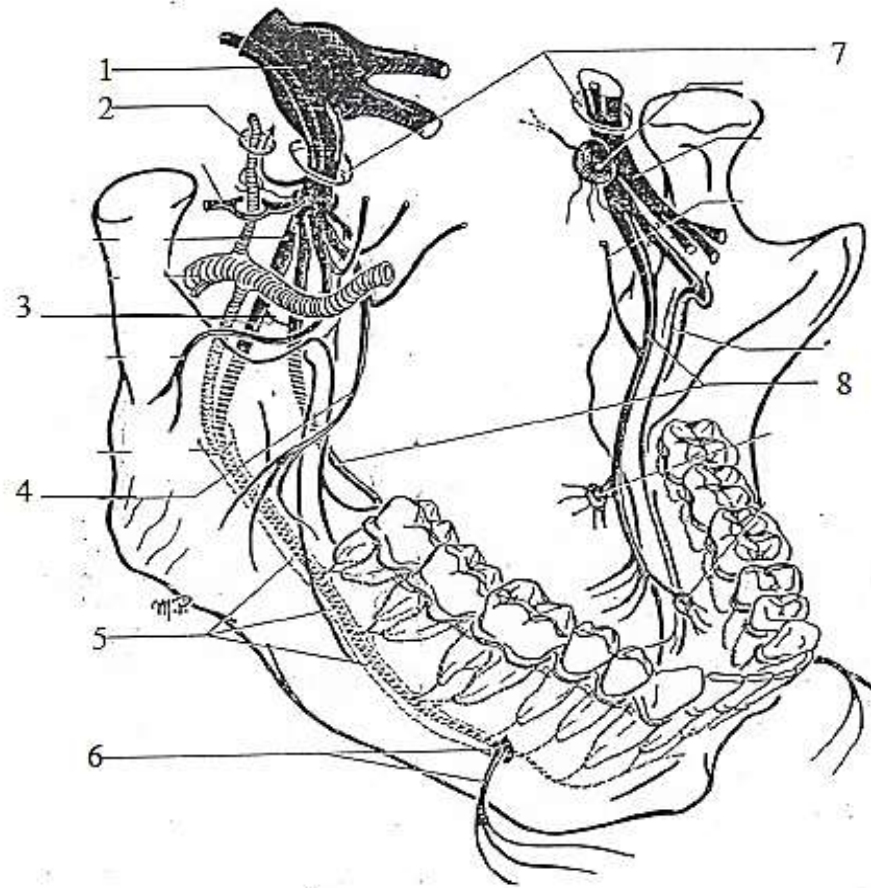
➤ **a larger mental branch**

- supply the anterior teeth and bone
- supply the skin of the lower lip and chin

➤ **Buccal**

➤ **Lingual**

Figure 5: Anatomy of the trigeminal nerve (mandibular branch)



Key

1. Ganglion of gasser
2. Foramen rotundum

3. Anastomose of inferior dental nerve and lingual nerve
4. buccal nerve
5. Dental canal
6. Foramen mentale
7. Foramen ovale
8. Lingual nerve

Muscles

The masticatory muscles concerned with mandibular movements include

- the lateral pterygoid,
- digastric,
- masseter,
- medial pterygoid,
- temporalis muscles.
- Also, the mylohyoid and geniolyoid muscles are involved in masticatory functions.

Lateral Pterygoid Muscle

The lateral pterygoid muscle has functions of:

- closing
- opening
- protrusion movements
- the lateral pterygoid is anatomically suited for protraction, depression, and contra lateral abduction.
- It may also be active during other movements for joint stabilization.

Vocabulary

- protrusion (noun) – something that protrudes; a protuberance; - isturenje
- protraction (noun) – the action of extending a part of the body; - produženje
- abduction (noun) - the movement of a limb or other part away from the midline of the body, or from another part

Masseter Muscle

The masseter muscle has a function of :

- clenching
- sometimes active in facial expression
- active during forceful jaw closing
- may assist in protrusion of the mandible

Medial Pterygoid Muscle

The medial pterygoid muscle arises from the medial surface of the lateral pterygoid plate and from the palatine bone. The principal functions of the medial pterygoid muscle are:

- Elevation and lateral positioning of the mandible.
- It is active during protrusion

Vocabulary

- elevation (noun) - the action or fact of raising or being raised to a higher or more important level, state, or position; - podizanje

Temporalis Muscle

The temporalis muscle is fan-shaped and originates in the temporal fossa.. The temporal muscle is:

- The principal positioner of the mandible during elevation.
- The posterior part is active in retruding the mandible and act as an antagonist of the masseter in retruding the jaw.
- The anterior part is active in clenching, may act as a synergist with the masseter in clenching.,

Vocabulary

- retruding (noun) – moving backward
- clenching (noun) - a contraction or tightening of part of the body; -
stiskanje, stezanje

Chronology of tooth development

A knowledge of the development of the teeth and their emergence into the oral cavity is applicable to clinical practice. Historically the term *eruption* has been used to denote emergence of the tooth through the gingiva although it denotes more completely continuous tooth movement from the dental bud to occlusal contact. Calcification or mineralization (most often visualized radio graphically) of the organic matrix of a tooth, root formation, and tooth eruption are important indicators of dental age. Dental age can reflect an assessment of physiologic age comparable to age based on skeletal development, weight, or height.

Vocabulary

- eruption (noun) – an act or instance of erupting; nicanje
- emergence (noun) - the process of coming into existence or prominence; pojavljivanje
- assessment (noun) – evaluation; - ocjena, procjena

Table 3: Chronology of Human Dentition

Dentition	Tooth	First Evidence of Calcification (Weeks in Utero)	Crown completed (Months)	Eruption (months)	Root Completed (Years)
Primary (Upper)	i1	14(13-16)	1½	10 (8-12)	1½
	i2	16(14 ² / ₃ -16½)	2½	11 (9-13)	2
	C	17(15-18)	9	19 (16-22)	3¼
	m1	15½(14½-17)	6	16 (13-19)	2½
	m2	19 (16-23½)	11	29 (25-33)	3
Primary (lower)	i1	14(13-16)	2½	8 (6-10)	1½
	i2	16(14 ² / ₃ .)	3	13 (10-16)	1½
	C	17 (16-)	9	20 (17-23)	3¼
	m1	15½ (14½-17)	5½	16 (14-18)	2¼
	m2	18 (17-19½)	10	27 (23-31)	3

Permanent (upper)	11	3-4 mo.	4-5 yr.	7-8 yr.	10
	12	10-12 mo.	4-5 yr.	8-9 yr.	11
	C	4-5 mo.	6-7 yr.	11-12 yr.	13-15
	P1	1½-1¾yr	5-6 yr.	10-11 yr.	12-13
	P2	2-2¼ yr.	6-7 yr.	10-12 yr.	12-14
	M1	at birth	2½-3 yr.	6-7 yr.	9-10
	M2	2½-3 yr.	7-8 yr.	12-13 yr.	14-16
	M3	7-9 yr.	12-16 yr.	17-21 yr.	18-25
Permanent (lower)	11	3-4 mo.	4-5 yr.	6-7 yr.	9
	12	3-4 mo.	4-5 yr.	7-8 yr.	10
	C	4-5 mo.	6-7 yr.	9-10 yr.	12-14
	P1	1½-2 yr.	5-6 yr.	10-12 yr.	12-13
	P2	2¼-2½yr.	6-7 yr.	11-12 yr.	13-14
	M1	at birth.	2½-3 yr.	6-7 yr.	9-10
	M2	2½-3 yr.	7-8 yr.	11-13 yr.	14-15
	M3	8-10 yr.	12-16 yr.	17-21 yr.	18-25

**THANK YOU FOR YOUR
ATTENTION**