Instrumental research methods"

Methodology Information content

1.Percussion.

2.Sound percussion.

3.Hardware method

determination of tooth mobility.

The most common percussion method

used for the diagnosis of acute and chronic

periodontitis. Painful percussion

horizontal direction is a sign

lesions of the marginal periodontium. If

percussion is painful in the vertical direction,

then we can assume the presence of inflammation in

apical region.

According to quality characteristics

percussion sound judges the condition of the pulp and

periodontal In case of pulp necrosis and absence

filling material can be heard more

low percussion sound. Under normal conditions

periodontal sound is high.

To determine the degree of mobility

teeth, expressed in mm, special

devices: Kurlyandsky and Kopeikin, Martynen,

Elbrecht, Werner, Dreyfus, Mühlemann,

Antanasova. There are physiological and

pathological mobility of teeth. First

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4. Electrical excitability

nerves of the tooth and pericementum

determined by apparatus OD-1, OD2.

Passive electrode with

fixed with a damp gasket

hand or forearm with

using a rubber bandage.

Active electrode wrap

a thin layer of cotton wool and moisten

water. Then placed on

the middle of the cutting edge of the tooth or

apex of buccomedial

mounds. The teeth being examined should

be dry. Rheostat knob

increase the current until you get

threshold irritation, which

manifests itself in patients with feelings

slight tingling sensation.

5.X-ray.

Carried out in

specialized laboratory

medical personnel who

has permission to work with

X-ray equipment.

6. Tomography.

7.Pantomography.

characteristic of teeth with unaffected periodontium,

invisible to the naked eye, because it is equal

0.01-0.025mm. Pathological mobility

determined by both instrumental and

palpation examination. Studying

pathological mobility of teeth has a large

significance for assessing periodontal condition.

A healthy tooth responds to a current from 2 to

6uA. In older people there may be a decrease

excitability. Often with periodontal disease

there is increased excitability - reaction

per current less than 2 µA.

If the tooth reacts to currents from 7

up to 60 µA,

then pathological is possible

process in

areas of the coronal pulp, with

threshold

excitability 60-100 µA –

pathology

coronal pulp.

Reaction to currents greater than 100 µA

indicates the death of the coronal pulp. In such

In this case, the pericementum responds to irritation. At

pathological abrasion of hard dental tissues

a normal value is observed (58% of cases),

decreased (41% of cases) or increased (1%)

electrical excitability.

Radiography in orthopedic

dentistry carries out objective control

over changes in periodontal condition under

the influence of one or more treatment methods. Doctor

receives information about periodontal trophism,

bone atrophy of teeth sockets, root shape, width

and quality of filling.

Using tomography you can obtain

x-ray image of a specific layer

bones at the required depth. This method is especially

valuable for studying various pathologies of the temporomandibular joint.

A special tomographic method.

The object being photographed rotates around its axis, and

X-ray film makes linear or

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8.Panography.

9.Teleradiography.

10.Anthropometry and craniometry.

circular movements. Pantomography recommended

for the purpose of diagnosing diseases of the temporomandibular joint and for overview images

teeth and jaws.

The magnifying method allows

get with minor and short-term

irradiation, extensive dental x-ray

and jaws. With this method you can get

a complete picture of all teeth in panoramic form

image with a larger difference and a magnification of two

times, with a decrease in irradiation by 25 times.

Craniometric studies can be

produce on x-rays,

called teleroentgenograms, since they

are obtained at a greater distance from the subject being photographed

object. This method, which has a known

practical value for studying change

ratio of soft and bone tissues of the face,

used primarily in orthopedics.

This method is used in dentistry

to determine the height of the bite after full

tooth loss or unfixed bite.

A compass has been proposed for this purpose. Other authors

They suggest dividing the height of the face into three parts:

top, middle and bottom.

Hypoplasia is the underdevelopment of hard tooth tissues, usually enamel, less often dentin. Distinguish

systemic and local hypoplasia. Systemic hypoplasia is much more common

and is characterized by multiple dental lesions. Local is characterized by the presence

changes in the tissues of one tooth. Clinical

manifestations are diverse:

chalky spots on the vestibular surface of the tooth, dotted

cup-shaped depressions, transverse grooves encircling the tooth.

In the presence of depressions and grooves, especially when these depressions are pigmented

patients complain of discoloration of teeth. Teeth of Fournier, Hutchinson and Pflueger

are considered a type of systemic hypoplasia. Hypoplasia of cutting edges

promotes increased abrasion of hard dental tissues and leads to aesthetic

patient dissatisfaction.

 Hypoplasia is differentiated from caries. With hypoplastic lesions

symmetrical, on the teeth of the same name, located not only at the neck, as with

caries, and in other areas of the crown. The final diagnosis is made based on

tests with methylene blue: with caries the white spot is colored, with hypoplasia it is not.

 In addition, with caries these are single lesions, and with hypoplasia there are multiple lesions both on individual teeth and on a number of teeth that are formed in

the same period of time.

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 Treatment depends on clinical manifestations. For light form - polishing

pigment spots, in the presence of depressions and grooves - filling with composite

materials.

 If there is significant deformation of the tooth crowns, prosthetics are indicated.

The choice of design depends on the clinical indications.

 Fluorosis occurs due to excess fluoride entering the body,

mainly with drinking water. The maximum permissible concentration of fluoride in water is 1.5

mg/l.

 Classification of fluorosis (V.K. Patrikeev)

The dashed form is the lightest, chalky lines on the vestibular

surfaces of the incisors.

Spotted form - the presence of significant sizes of chalky spots on

vestibular surface. The spots may be light yellow or brown.

Chalky-mottled - against the background of the chalky color of the enamel are located

areas of pigmentation of various shapes: in the form of dots and brown spots, which,

merging, changing the color of the crown.

Erosive and Destructive forms in addition to pronounced color changes

crowns are characterized by loss of enamel.

 Fluorosis is differentiated from caries and hypoplasia. With caries spot

single, often in the cervical area or on the contact surface, with fluorosis

the spots are multiple, extensive, sometimes yellow or brown. Decisive

staining spots with methylene blue is important: for caries spots

stained, but not with fluorosis and hypoplasia.

 It should be noted that fluorosis is an endemic disease, in

difference from hypoplasia.

 Treatment: depends on the severity of the changes. When lined and

chalky-mottled form - therapeutic treatment aimed at normalizing

enamel color and restoration with composite materials. For severe

changes accompanied by loss of enamel and disruption of the crown shape

orthopedic treatment is recommended, the choice of design depends on the clinical

situations in the oral cavity.

 Erosion is a progressive cup-shaped loss of first the enamel and then

dentin on the vestibular surface of the tooth. The defect is oval or irregular

form. Most often the incisors of the upper jaw are affected, sometimes the canines and premolars of the upper and

lower jaws. Erosion does not occur on the incisors of the lower jaw and molars of the upper and

lower jaws. There is no erosion of one tooth, at least two, symmetrically

located teeth.

 The etiology is not clear.

 Complaints of sharp, quickly passing pain from temperature and

mechanical stimuli, i.e. hyperesthesia of hard tissues occurs. For

The initial form is characterized by the preservation of the enamel color: it is smooth and shiny. At

expressed form - the color changes to light yellow, brown.

 Differential diagnosis is carried out with caries and wedge-shaped

defect. Caries is characterized by roughness and foci of demineralization around the defect

enamels. The wedge-shaped defect has a characteristic shape of the lesion and the absence

hyperesthesia of hard tissues.

 Treatment depends on the severity of changes in hard tissues. At

the initial form of treatment consists of eliminating hyperesthesia and preventing

further development of the process. For severe forms (dentine erosion), treatment

consists of filling using composite materials. If

it is impossible to eliminate the defect using filling material, carry out

orthopedic treatment.

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 A wedge-shaped defect is characterized by a loss of tissue near the neck at

vestibular surface of the tooth. The shape of the defect is V-shaped. The defect is formed by two

planes, one of which (cervical) is almost horizontal, and the second has

significant slope. The surfaces are smooth, shiny, dense.

 The process develops slowly and is accompanied by deposition

replacement dentin, therefore, with a wedge-shaped defect, increased

There is no sensitivity even with significant damage to deep tissue layers

dentin, up to the pulp cavity.

 The etiology of the disease is not clear. Complaints are made about the change

tooth shapes, aesthetic disorders.

 Differentiate a wedge-shaped defect from erosion of hard tissues by shape

lesions (in the form of a wedge - in the first case and in the form of an oval in the second), by localization (in

cervical region - with a wedge-shaped defect, with erosion - on the vestibular

surface). Hyperesthesia during erosion can be a diagnostic sign.

 Treatment depends on severity. In the initial stages -

remineralizing therapy. If the depth is 2 mm or more, filling is required. When bad

To fix the filling and the risk of fracture of the tooth crown, orthopedic treatment is indicated.

 Abrasion of teeth.

 Physiological abrasion - moderate wear of hard tissues

teeth. The severity depends on the type of closure, the hardness of the enamel and dentin, the size

chewing pressure, etc.

 Pathological abrasion - significant and inappropriate for age

loss of enamel and dentin. They are distinguished by shape (A.L. Grozovsky, 1946) - horizontal,

vertical, mixed; by length (V. Yu. Kurlyandsky, 1962) - localized

and generalized; according to the depth of the lesion (K. A. Kalomkarov, 1984) 1st degree - 1/3

crowns, 2nd degree - 2/3 crowns, 3rd degree - complete abrasion of the tooth crown.

 Treatment: for a localized form of pathological abrasion -

elimination of the causative factor and replenishment of defects in hard dental tissues

composite materials or crowns. In case of systemic damage, often

caused by a violation of occlusion, orthopedic treatment is necessary.

 Acid (chemical) necrosis - increased “wear” of solids

dental tissues when acids and other chemicals enter the oral cavity.

 Clinically, the pathology is characterized by changes in the color of the enamel and

its gradual decline. Changes begin from the vestibular surface of the lower

incisors, and then other teeth. As the enamel decreases, changes occur in the dentin,

which turns brown. With prolonged use, the cutting edges wear out.

the edges of the teeth and the chewing surface, as a result of which the bite height is reduced.

 Treatment: Symptomatic - first of all, eliminate the causative factor.

If significant changes occur, orthopedic treatment is indicated.

 Dental trauma.

 Bruise - characterized by pain when biting and percussion. Change

color of the crown (becomes pink), which indicates hemorrhage into the pulp. If

hemorrhage is not clinically detected, it is necessary to wait several days (for

eliminating the periodontal reaction) and checking the pulp reaction by

checking its electrical excitability. If the reaction is normal, there is no intervention

required if the tooth reacts to a current of 100 μA or more - open the tooth cavity, remove

pulp, treat the canal with hydrogen peroxide. If excitability is reduced and

is 20-60 µA, re-checked after 5-7 days.

 Tooth dislocation is displacement caused by trauma. Complaints about change

tooth position, pain, especially in the first time after injury. Mobility

tooth depends on the nature of the dislocation and the condition of the bone tissue (in case of impacted dislocation

the tooth is not mobile).

eleven

 Treatment: Under anesthesia, the tooth is placed in the correct position,

splinted. If the neurovascular bundle is damaged, depulpation is performed. At

complete dislocation of the tooth, it is possible to replant the tooth in no more than 1-2 days

after injury. To do this, the tooth is trepanned, filled, placed in the hole and

splinted.

 Tooth fracture is possible at the level of the crown and root.

 Crown fracture - can be without opening the tooth cavity, with exposure

pulp and fracture of the entire crown.

 Treatment: When a tooth crown is broken without opening the tooth cavity

restore the anatomical shape by filling. When a part breaks off

crowns, accompanied by opening of the tooth cavity, are performed under anesthesia

removal of the pulp, filling the canals. The anatomical shape is restored

filling with composite materials or prosthetics. At full

If the crown of a tooth is broken, the pulp is removed and the canal is filled. Anatomical shape

It is advisable to restore orthopedically using pin structures.

 Root fracture occurs in many variations from direction

(transverse, longitudinal, oblique) and the level of the fracture depends on the nature of the interventions and

possibility of saving the tooth.

 The nature of the fracture and the choice of treatment method are determined based on

X-ray data. If there is a fracture at the apex of the root,

filling the canal and resection of the root fracture. In case of a root fracture near the crown (no more than

¼ of the root length) it is possible, after depulpation, prosthetics with a cast pin

stump insert, followed by the manufacture of a crown. With a transverse fracture in

in the middle part, fixation can be achieved by pinning the fragments

tooth root. This work is difficult and painstaking, and largely depends on thoroughness

channel processing. The result is assessed by the reliability of fixation, the absence

exacerbations, formation of a fistula tract.

 Doctor's appointment culture.

Much attention should be paid to the issues of asepsis and antiseptics, in

particularly sterility of instruments, disinfection of water glasses and cups

mixing impression masses. Glasses must be changed in the presence of the patient.

Hand washing, gloves and masks are mandatory. During

During the reception, you cannot have extraneous conversations or be distracted. When receiving a patient

It is necessary to observe medical ethics and deontology. The patient in the clinic must

feel comfortable. Methods of influencing the patient can be different:

clarification, persuasion, reassurance.

 Psychotherapeutic preparation of patients for orthopedic

manipulation.

The success of treatment depends largely on the patient’s willingness to cooperate with

doctor. To do this, it is necessary to create an atmosphere of trust and positive emotions.

 The basis of psychotherapeutic influence on the patient is

attention to his personality, his requests, needs, suffering. The doctor must be able to

listen to the patient and gently guide his story to highlight the main issues.

You need to talk to the patient in a confident tone, but delicately. For emerging

questions must be answered fully. This usually helps establish

contact, and the patient gains confidence in the success of treatment.

 Long waits for an appointment increase anxiety even before

he met with the doctor. Creating positive emotions at the dentist's appointment

achieved through preventive, including psychotherapeutic

activities, which include all the words and actions of the doctor providing

positive psychological impact on the patient.

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 One of the important tasks during an outpatient appointment is relief

psycho-emotional stress, anxiety and fear. In mandatory medication

correction is needed in patients with significantly severe anxiety, suspiciousness,

tendency to affective reactions, patients with neurotic disorders.

 Preparation of hard dental tissues.

Dental preparation is a surgical intervention on hard tissues,

carried out with an abrasive rotating tool. To avoid overheating of the tooth

it is necessary to grind the hard tissues of the teeth intermittently, fractionally, do not hold for long

tool at one point, the rotation speed must be high, the pressure

tool per tooth - low. The hand holding the tip must be securely

fixed on the jaw. The tool must be sharp (new), good

centered, sterile.

 The use of turbine units can significantly reduce

time of preparation of tooth tissues (since it has a high rotation speed of 300,000

rpm), significantly reduce pain (which is the result of

eliminate pressure on the tooth), eliminate vibration and reduce thermal irritation

pulp, which is achieved using forced, air-water

cooling during preparation.

 Anesthesia during tooth preparation.

Tooth preparation should only be carried out under anesthesia.

The main method of pain relief in orthopedic dentistry is local

injection anesthesia. When preparing the teeth of the upper jaw, good

anesthesia is achieved by infiltration anesthesia. On the lower jaw

preparation of incisors and canines, infiltration anesthesia is also possible for molars

and premolars - conductor.

To relieve the feeling of fear of the upcoming manipulation and tension

the patient is given premedication. For this, tranquilizers are usually used,

which are taken 30-40 minutes before the start of preparation. Tranquilizers

contraindicated for persons who, after taking it, go to work, drive a car or

etc.

 Organization of the workplace, the position of the patient in the chair when working with

with or without an assistant.

Doctor's workplace: drill, dental chair, doctor's table,

doctor's chair. The table should have medicines, a tray with tools, abrasives

materials.

The patient in the chair should sit freely, without tension, at the same time

convenient for the doctor. The dental chair is equipped with an adjustment mechanism

patient position and height. You can recline the chair back and give the patient

supine position, which creates the best conditions for the doctor to manipulate in the cavity

mouth

If the patient lies in a chair, this provides a good view of the oral cavity,

which allows you to work freely and without stress. This position of the patient creates

the ability to work with a dental assistant, who is located to the left of

sick.

 Theory of stress-strain state of crown tissues

tooth

effects on the walls of the tooth during chewing are different in size and direction

chewing pressure forces. These forces, if present on the occlusal surface

inlays or fillings cause compressive stress and

stretching. If the tooth axis is tilted, then the forces coming at the angle cause increased

deformation of the wall on the inclined side. To avoid this and reduce deformation

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walls, you should change the direction of the walls and bottom of the cavity or create additional

a cavity that allows you to redistribute part of the pressure to other walls.

Patterns of redistribution of chewing pressure forces between

system microprosthesis - cavity walls, allowed us to formulate the following

patterns of cavity formation: the bottom of the cavity should be perpendicular

vertically acting pressure forces, but not vertically to the axis of the tooth.