Special methods of local anaesthesia. Ganglion blockade, intraligamental anaesthesia. The anaesthesia of inflamed tissues

Types of local anaesthesia

Terminal anaesthesia a. mucosal anaesthesia b. submucous infiltration c. subperiosteal infiltration d. intraligamental anaesthesia

Block (conductive) anaesthesia

Ganglion blockade



- Anaesthesia of the long buccal nerve
- It innerves the buccal mucosa from the midline of the second premolar backwards to the midline of the third molar.
- It can be anaesthetised in the area of the retromolar triangle

Only needed if a mucosal incision is performed, too!!

 Anaesthesia of the long buccal nerve



<u>Anaesthesia of the mental nerve</u>
Used separately very rarely (instead of block anaesthesia)

The solution is injected between the two lower premolars from the direction of the first molar. If necessary the foramen can be touched and 0.5-1 ml solution can be injected directly into it.

<u>Anaesthesia of the</u>
<u>mental nerve</u>



 Common anaesthesia of the lower alveolar nerve, the lingual nerve and the long buccal nerve

The needle is not fully pulled out after block anaesthesia. Leaving the tip of the needle in the mucosa (2mm) we inject the rest of the solution into the retromolar triangle.

Anaesthesia of the infraorbital nerve

May be extra- or intraoral (block).

- This method can be used in patients with trigeminal neuralgia (as well)
- Finding the infraorbital foramen:
 - horizontal plane \rightarrow 1 cm below the infraorbital margin
 - vertical plane \rightarrow line of the pupil-second upper premolar

 Anaesthesia of the infraorbital nerve



Matas anaesthesia

The trunk of the maxillary nerve is anaesthetised by reaching into the pterygopalatine canal (block)

- A long needle bent in 45 degrees is inserted through the greater palatine foramen into the canal. There we proceed approximately 3 cm.
- Indication: partial removal of the maxilla, operations in the maxillary sinus.....

Localising the greater palatine foramen: Gyergyai's method, or in the imaginary line connecting the distopalatinal cusps of the upper second molars, at 1 cm from the margin of the gingiva.

Matas anaesthesia



 Block anaesthesia of the maxillary nerve (Braun's method)

Point of insertion is under the zygomatic arch, at the anterior edge of the masseter. At 30 degrees with the frontal plane the needle is inserted 3-4 cm to the maxillary tuber. Proceeding around it the pterygopalatine fossa is reached after 2 cm.

 Block anaesthesia of the maxillary nerve (Braun's method)



 Block anaesthesia of the maxillary nerve (Payr's method)

Point of insertion is at the same height above the zygomatic arch and proceed from up to downwards and backwards about 5.5 cm to the trunk of the nerve.

 Block anaesthesia of the maxillary nerve (Payr's method)



 Block anaesthesia of the mandibular nerve (Szokolóczy's method)

Having asked the patient to place the lower incisors in front of the upper ones the point of insertion is under the zygomatic arch in front of the condyle. The direction of the syringe and needle should point towards the mastoid process on the other side. Depth of insertion is 3 cm.

 <u>Block anaesthesia of</u> the mandibular nerve (Szokolóczy's method)



 <u>Block anaesthesia of the mandibular nerve</u> (Braun's method)

The point of insertion is defined by the lower edge of the zygomatic arch and the incisura semilunaris. At 5 cm of depth the needle reaches the lateral lamina of the pterygoid process. At this point the needle is pulled back a little and the oval foramen is found.

Ganglion blockade

 <u>Anaesthetising the</u> <u>Gasserian ganglion</u> (Härtel's method)



Anaesthesia of all three branches of the trigeminal nerve. Only recommended in trigeminal neuralgia!!!

Point of insertion is in the face at the height of the upper second molar. A needle of 10 cm in length is used with a mark at 7.5 cm. Proceeding upwards and medially the pterygoid process is reached after 6 cm. Then the needle is pushed further 1.5 cm into the cranium and thus the Gasserian ganglion is reached.

Dangerous procedure – requires experience!!!!!

Anaesthesia of the Gasserian ganglion (Härtel's method)





Intraligamental anaesthesia

- The anaesthetic solution is injected into the periodontal space
- > 0.4 ml per tooth
- Injection with a very thin needle with high pressure

insertion at the 4 papillae



Advantages of intraligamental anaesthesia

- Possibility of selective anaesthesia
- Lack of anaesthesia of neighbouring soft tissues
- Diagnostics of pain
- Smaller quantity
- Shorter effect



Disadvantages of intraligamental anaesthesia

- Bacteriaemia
- Possibility of max. 30 min. treatment
- Injury to periodontal ligaments
- Periodontitis



Ultraject[®]

Ultraject ist die Intraligamentalspritze mit automatischer Injektionskraftbegrenzung.

Mit diesem zusätzlichen Sicherheitsfaktor wird bei der Applikation von Injektionslösungen ein Kraftaufwand von ca. 100 Newton nicht überschritten.

Mit Ultraject ist das Platzen von Zylinderampullen durch zu hohe Injektionskraft praktisch ausgeschlossen.

Das Gewebe wird geschont. Dabei bleibt jedoch die Kraftanwendung unterhalb des vorgegebenen Maximalwertes über den Auslösehebel individuell steuerbar.

Anaesthesia of inflamed tissues

- Do not punch inflamed tissues!
- Block or subperiosteal(?) anaesthesia is recommended in such cases.
- Local periinfiltrative anaesthesia is used.
- A product with better diffusion characteristics is recommended (Ultracain DS®).
- A larger amount of anaesthetic is injected because of quicker clearance in inflamed tissues.
- The solution should be alkaline as inflamed tissues are rather acidic
- It has been proven in experiments that infection is not spread by infiltration.

Thank you for your attention!

