

***Title of Lecture: anterior teeth root anatomy and access cavity***

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***Sheet no: 3***

***Refer to slide no. :***

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-Revesion
Root canal treatment: is the treatment of the pulp

If there is inflammation in the pulp we call it “pulpitis”
There are two types of inflammation:
1- reversible pulpitis
2- irreversible pulpitis “when we reach this stage of inflammation the only solution is to remove the pulp”

There are three major steps for root canal treatment:
1- access cavity
2- cleaning and shaping
3- obturation

The pulp system consists of chamber and canals.
Access cavity is done to reach the pulp chamber so we can have successful treatment and keep the function of the tooth.
There is no point of doing root canal treatment if we can’t keep the tooth’s function.

- The main aim for access preparation “the shape of the preparation and the location of the access” is to have “straight line access”
straight line access is the easiest and shortest way to enter the pulp
in the floor of the pulp chamber there is the orifices “the beginning of the root canal”.

In order to enter the orifices and reach the pulp canal we should enter the pulp chamber either from the sides “mesially and distally” of the tooth or from the top of the tooth,, but we should enter from the top in order to enter the orifices in a “straight line access” (I can’t get a straight line access if I do the access cavity on the sides of the tooth “the access will be curved not straight”).

I should also be able to see all the orifices in the floor of the pulp chamber ,, because some teeth has 3-4 orifices ,, and when we do root canal treatment we should remove all the pulp tissue from all the canals because the pulp is either inflamed or necrotic.

After we do root canal treatment the tooth should remain restorable “we can fill the tooth and the tooth returns functional” that’s why we don’t remove the crown completely when we do root canal treatment.
So when we do access cavity we should balance between getting a good cavity to see all the orifices and reserve a restorable amount of the tooth structure ,, if the tooth is not restorable we extract the tooth.

- How to find the orifices?
The floor of the chamber is grey and the walls are yellow.
The floor of the pulp chamber should never be touched because there we find the orifices and we have landmarks to locate the orifices on the floor of the pulp.

The orifices of the canals are found on the junction between the walls and the floor,, and the orifices are found on the angles of that junction.

The probe we use is DG-16 “and sometimes DG-17” it’s very pointed so that when we put it on the floor it can locate the orifices easily “if it becomes dull get a new one”.

- General steps of access cavity:
We should remove the caries and restorations: we always remove the caries because it has bacteria in it and in order to check the restorability of the tooth
but if there is permanent restoration and it is not in the way of the access cavity and it has no leakage we should keep it.

The external outline of access cavity should be on the lingual “palatal” side of the anterior teeth.
And it should be occlusal for posterior teeth “because these are the surfaces that would give us straight line access”.

Then using the bur we penetrate the pulp chamber’s roof “at this point we feel the drop on effect”.
The drop in effect is felt better in the posterior teeth.

Then we do de-roofing “remove the roof of the chamber”.

Then we should be able to identify “all” the orifices.

- Every tooth has distinctive shape of thee access cavity and this shape is determined by the cross section of the tooth “at the pulp chamber level”.

The size of the cavity depends on the size of the tooth

-Upper central incisor has only one canal “while the lower may have two canals”
because the upper incisor is wider mesiodistally than buccolingually we should do the cavity in that pattern too.
The shape of the cavity should be a triangle “with rounded angles not sharp”.

We begin the cavity using a high speed bur “fissure or rounded” then we begin drilling between the cingulum and incisal edge perpendicular to the long access of the tooth “1-2mm” “we should reach the dentine (the dentine is a bit yellowish while enamel is whiter)”.
Then we change the angle of the same bur to parallel to the long access of the tooth ,, we drill until we reach the pulp chamber “drop in” then we start de-roofing using a low speed round bur “we lean it on the walls and start pulling outside”.

\*\*\*In slide 24 the file inside the pulp canal is curved because of the dentine in the crown of the root “in other cases it could be due to lingual shoulder or due to improper de-roofing” so we should remove it in order to get a straight line access “slide 25”.
If the file entered the canal curved it may break inside the canal that’s why we are focusing on getting a straight line access.

The only two teeth in the mouth that are wider mesiodistally than buccolingually are upper central and lateral incisors.

 If the access cavity is more toward the cingulum or more toward the incisal edge “not in the middle” this will weaken the tooth.

In lower incisors “and canine” the second canal “if present” will be lingual. “so we begin the access cavity in these teeth a little bit toward the cingulum.
The oval shape of the cavity of the lower incisors should be wider buccolingually.

If we have two canals in the tooth we can’t see the two in the x-ray because they will be superimpose each other “it will appear if we take the x-ray from the proximal sides of the tooth ,, but we can’t do this in the patients mouth”.

If there is a single root with two canals then they will be close to each other,, but if there are two roots then they will be far away from each other.

We can also predict if there is one or two canals in a single root id there is a depression in the root “if there is no depression in the root of the tooth it’s more likely that we have only one canal in this tooth”.

The most difficult tooth to do an access cavity for is lower lateral incisor.