2/5/16

Monday

**Bleaching**

Usually any patient who comes to your clinic concerned about his mouth discolouaration would want to know the cause, how can we correct it, treatment options, cost.

* **Causes of dental discolouration:**

Either during odontogenesis or after odontogenesis

If it was during odontogenesis (formation, calcification,..) any discrepancies will appear clinically after eruption. So, according to this disturbances during any stage of tooth formation, this either causes change in the quality or/and quantity of tooth structures and the teeth after eruption appear discolored

Example:

**Amelogenesis imperfecta:**

Through enamel Hypoplasia (form 5)

**Causes:**

1. Genetic causes
2. Non-fluoride enamel opacities; fully clear margins and differs from the white spots of fluorosis.
3. During tooth formation were it entered in it to be part of it’s components, e.g: tetracycline.

In amelogenesis imperfeta which is a hyocalcification form, these cases give the same shape of the enamel structure, but the enamel surface is easily separated from the underlying structure because it’s soft and chlorosis.

The severe cases of the chlorosis with a pitted surface needing a combined treatment which differs from combined bleaching (office-home bleaching). In the combined treatment there’s defect on the enamel surface so I need to do bleaching and due to the defect I’ll need to make veneers in addition to the bleaching. The other case is a severe tetracycline stain- which depends on 1.the stage of tooth formation when taking the antibiotic (if it’s taken after 8 years old/after teeth formation it won’t cause discoloration) , 2.the type of the antibiotic (some of them can lead to teeth discoloration while others does not )

**Non-fluoride enamel opacities** which appears as white spots or yellow ,reaching brown with very clear margin

or the discolouration occurs at the end of the tooth eruption in the oral cavity.

**Origin:** pulp cavity, due to trauma, necrotic tissue.

If a patient came with this case you’ll have to ask him if the discolouration occurred after trauma or endo treatment.

If he hasn’t done endo treatment yet then it’s due to trauma. But if this discolouration occurred after endo treatment then this is due to gutta percha in the pulp chamber or from oral cavity deposition on the enamel surface.

**2 types of dental discolouration:**

1. External; from the oral cavity on the enamel
2. Internal; during odontogenesis or after odontogenesis (from the pulp chamber; trauma , faild RCT …)

Extrinsic: poor oral hygiene, amalgam restoration, food, deposition of plaque and caries on the tooth surface. Removing the cause and it disappears.

Intrinsic: during tooth formation and calcification (quality and quantity defect or discolouration due to tetracycline that entered in the tooth formation or after eruption which is referred to intrinsic discolouration.

Usually tea and coffee response with the bleaching.

Incidence and prevalence of extrinsic discolouration is influenced **through local factors**, such as:

1. Increased rough enamel surface
2. Overlapping
3. Defect with the marginal …more discoloration
4. Smoking (has a relationship with the local factors themselves).
5. Location of working (patients working in bagging differ from the ones exposed to acids)

These cases affect the blood .

Correcting the discolouration of the patients teeth is achieved through Finishing and polishing in the external state or bleaching for vital or nonvital, intrinsic or extrinsic discolourations as an alternative to the crowns, because it’s more cheap.

To do non-vital bleaching the tooth has to be endo treated.

**Veneer**

Esthetic filling material , from composite or porcelain , covering the defect , direct or indirect, with or without enamel tooth reduction.

Extension: margin of the gingiva, subgingigivally or supragingivally.

Shorter than the incisal edge, on the incisal edge or overlapping it.

Overlapping is of better retention and esthetics, and reduces the incidence of fracture.

**Bleaching**

Whitening and lightening of the discoloured teeth by using oxidizing agents

1. Hydrogen peroxide
2. Carbamide peroxide (mostly used in home bleaching)

Bleaching is the most requested procedure in cons.

It’s more conservative than crowns.

96% of people use home bleaching and 98% of them are satisfied.

A research in 2010 showed that $15 million were spent on bleaching (high income).

When using hydrogen peroxide in the oral cavity using a fabricated tray. There’s a difference between buying trays sized as ( large , medium , small ) and custom trays specific for each patient , because we’re using a material with effect on the soft tissue, a tray is better to be costumed to the patient itself so it will be fit and comfortable for him because any leakage of these materials on the soft tissue will cause burning.

Using office bleaching using high concentration under supervision of the dentist or home bleaching of low concentration of carbamide peroxide.

When talking about carbamide peroxide ;this material breaks down and gives hydrogen peroxide

Hydrogen peroxide concentration = 1/3 the original concentration of carbamide peroxide

Hydrogen peroxide is provided in high concentrations 30-35% for office bleaching, carbomide peroxide is used mainly for home bleaching ,

And Because of the very high esthetic results of home bleaching some companies started to provide hydrogen peroxide in the market with low concentration 6%, 9%, 15%,

If you want to instruct your patient to buy this material from the market for home bleaching tell him you want carbamide peroxide because he could go and buy carbamide peroxide of 15% or hydrogen peroxide of 15%, while the carbamide peroxide of (15-20%) represents about 6% of hydrogen peroxide.

So the bleaching is external or internal.

The patient won’t understand you telling him you want to do bleaching with the term vital or non-vital.

The accepted technique for vital treatment is using hydrogen peroxide.

Home bleaching using 10-20% of carbamide peroxide.

There’s office-home vital bleaching (combined bleaching).

Non-vital bleaching (office or internal bleaching); a high concentration is used at the clinic internal-external, so I use internal –external non-vital tooth bleaching.

**Walking bleaching:** bleaching using sodium perborate mixed with sodium hydroxide. This gives us a thick mix.

**Why is it called walking??** After finishing bleaching in the clinic, continue by mixing sodium perborate and hydrogen peroxide which gives us thick mix applied in the pulp chamber, it’s then sealed. (walking; because the process occurs between visits).

The patient comes back and the doctor repeats office bleaching and if the approved results were good then acid etching is continued followed by composite filling.

A patient with an endo treated tooth, bleaching using hydrogen peroxide of high concentration in the pulp chamber is done. To gain results in a shorter period of time sodium perborate is mixed with hydrogen peroxide to give us a thick mixed base, put in the pulp chamber, sealed with glass ionomer, so that bleaching occurs between visits.

Disadvantages of internal bleaching; cervical resorption ( that’s why gutta percha has to be removed below the cervical line).

Vital tooth bleaching: a technique that occurs in the clinic, using high concentration of hydrogen peroxide and we usually shorten it with a concentration of 30-35% which is of side effects .or at home through using night guard trays or low concentration of carbamide peroxide.

**So, we have different procedures in the vital bleaching:**

1. In-office vital bleaching
2. Night-guard home bleaching
3. Combined (office-home)
4. Combined treatment; in severe cases such as fluorosis and tetracycline staining, where bleaching won’t give a full result. If we have pitted surfaces we’ll have to do veneers after removing staining.

In-office vital tooth bleaching hydrogen peroxide of a concentration of 30-35% and phosphoric acid used to increase the infiltration of tooth structures.

23:05They used to use heating instruments applied on the bleaching material………..now they use bleaching-unit with the control of the intensity of light,timer and it’s better not to use tooth anesthesia to control the effect of the bleaching in the clinic and to check the patient every 5 minutes and ask him if he feels any pain:

1. Is it leakage of the bleaching material?
2. Is it from the intensity of the light?
3. Defect in the ………that’s put on the soft tissue?

Safety glasses are used for both the dentist and the patient.

The mechanical cleaning action of hydrogen peroxide affects the tooth structure to a depth up to 5-7µm this has to do with the high mineral /inorganic content and the limited permeability of the enamel

Finishing and polishing to the enamel surface, acid etching, clean the surface then using the HP, helps the HP to reach more depth

**Factors that must be considered during office bleaching:**

1. Difference in bleaching elements
2. Intensity
3. Distance from the tooth structure

**Preparation before starting bleaching -preoperative treatment:**

1. Full clinical examination; caries, exposed dentin, defect in the tooth structure.
2. Discussion with the patient
3. Treatment options and percentage of success; never tell the patient that the result is 100% success even if you’re sure. Tell him that if there wasn’t improvement we’ll do combined bleaching or head to combined treatment at the end.
4. We’ll have to take an x-ray for the size of the pulp and for proximal caries.
5. 3 Photographs are taken which are very important because the patients will forget how their teeth looked like before the treatment.
6. It’s better to do the upper jaw alone first without the lower to get the patient to compare the shade that resulted with the old one, because if both jaws were done together he/she’ll tell you that there’s no improvement.

We do acid etching to the tooth surface then apply gingival cover which is very important to separate the gingiva from the bleaching material which is of high concentration.

It’s thickness is 1mm, extended from the tooth structure to the gingiva 1-3mm. check the adhesion using a probe for any defect because any leakage of the bleaching material will cause irritation and burning. Then use a rubber dam.

The dr showed a picture of a rubber dam and a retractor and said he prefers using retractors.

**Steps of vital office of bleaching:**

1. Protection for the patient and the dental team ; they must wear glasses not to have side effects of hydrogen peroxide.

If a rubber dam is used apply a gauze with water underneath it because the heating will heat the rubber dam leading to burning .

1. Covering the lower and upper lips with gauze with water

During bleaching of the upper and lower jaws apply a large gauze in the oral cavity in order to protect 100% of the tongue.

 **In the past** they were using Heating instruments or bleaching lamb , nowadays there’s bleaching units ( these make the bleaching more efficient )

1. ; hydrogen peroxide application in high concentration on the enamel surfaces through gauze.
2. Teeth exposed to the bleaching-light (bleaching unit) which wasn’t available in the past.

Removal of the gauze, wash the area, if there was good improvement and you want to add on it you can repeat the process 2-3 times.

And if the patient wants to improve this discolouration to improve the tooth esthetics we can do it later, 3days after doing the procedure.

**What do we use?**

Bleaching gel; we mix powder and liquid which gives a thick mixed paste, apply it on the enamel surfaces were we’ve already applied light cure resin on the gingiva.

Expose the material to the bleaching-line usually for 10min (depending on the material used) for the upper jaw first.

After 10 min you do refreshment for the bleaching-unit through applying hydrogen peroxide through its brush.

Expose it to light then remove the material.

Repeat it 1-2 times, do washing.

After 3days-1 week repeat it depending on the patients request.

A restoration will not match the shade of the tooth after bleaching.

Bleaching material doesn’t cause colour changing it causes removal of the extrinsic colour discolourosis.

This restoration has to be changed by at least 1 week.

Applying rubber dam, removing any gingival barrier material from Enamel surface ,acid etching, washing.

The doctor prefers doing cleaning and polishing to the staining and acid etching before applying the rubber dam.

**Contraindications:**

1. Children (large pulp)
2. Exposed root surface
3. Covering restoration (will need combined treatment)
4. Extensive restoration
5. Defective restoration

**Home bleaching:**

During the day or over-night

A research proved that 10% work after 10 hours of application and 52% work after 2 hours.

**Contents:**

1. Carbomide peroxide (10-15%)
2. Hydrogen peroxide represents 1/3 of the original concentration

So 10% of carbomide peroxide will contain 3.5% of hydrogen peroxide

20% of carbomide peroxide will conain 7% of hydrogen peroxide.

So, these materials in relation to the hydrogen peroxide used in the office with a very high concentration are much safer in handlingwith no side effects. (it’s sensitivity differs from one patient to another).

A scale from 1-5 if there is any pain:

1,2 :severity of pain

3: normal

4,5: leakage in the material, defect in the tray, extra material usage.

Carbomide peroxide contains thickening material which gives it the gel property and retention with the tooth structure causing delay in the oxygen release. Therefore, its effect to the tooth structure is more (increased effect in removing the stain structure).

**Advantages:**

1. Conservative treatment
2. From the first visit (the doctor takes an impression and discusses the treatment with the patient).
3. Safe material ( low percentage)
4. High success rate
5. Low cost