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Surabaya, 27 – 29 Nopember 2014

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Kata Pengantar

Perkembangan IPTEK bidang kesehatan gigi dalam beberapa dasawarsa terakhir ini sangat cepat akibat tuntutan masyarakat yang berkembang. Selain itu, masyarakat selalu menuntut untuk mendapatkan pelayanan kesehatan gigi yang sempurna. Seorang dokter gigi saat ini tidak bisa menghindar dari persaingan yang semakin ketat, oleh karena itu harus terus menerus meningkatkan profesionalismenya, salah satunya dengan terus menerus menambah informasi ilmiah terbaru. Informasi ini selalu diperlukan demi tercapainya profesionalisme dokter gigi yang handal yang siap bersaing di pasar bebas. Pada era globalisasi saat ini, akan membuat persaingan dunia usaha yang sangat ketat dengan kompetisi yang terbuka. Hal tersebut akan membuat pelanggan (pasien) dengan mudah membanding-bandingkan kualitas pelayanan antara dokter gigi satu dengan yang lain. Oleh karena itu, secara tidak langsung akan memaksa dokter gigi untuk mengembangkan model dan strategi pelayanan yang tepat dan bermutu.

Untuk mengantisipasi hal tersebut, Ikatan Konservasi Gigi Indonesia terus berusaha untuk meningkatkan kualitas dokter gigi Indonesia khusus dalam bidang konservasi gigi dengan cara mengadakan seminar ilmiah secara berkala. Temu Ilmiah Nasional IKORGI (TINI III) ini diharapkan dapat digunakan sebagai sarana untuk alih teknologi ilmu kedokteran gigi mutakhir dalam upaya meningkatkan profesionalisme dokter gigi di era persaingan global. TINI III ini diharapkan dapat menambah pengetahuan dokter gigi sehingga dapat melahirkan dokter gigi dan dokter gigi spesialis konservasi gigi yang sukses dan mampu melayani masyarakat secara optimal serta diharapkan dapat digunakan untuk alih pengetahuan dan teknologi baik di bidang ilmu manajemen kesehatan maupun ilmu kedokteran gigi mutakhir.

Selamat mengikuti seminar, sampai jumpa di Temu Ilmiah Nasional Ikatan Konservasi Gigi Indonesia III yang akan datang.

Surabaya, 27-29 Nopember 2014

Ari Subiyanto,drg.,SpKG(K).,MKes
Ketua Panitia TINI III

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Internal bleaching treatment in geriatric patient: review and case report

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Abstract

Background. Internal bleaching is a common treatment for non-vital discolored teeth due to dental trauma. Internal bleaching ingredient is a strong oxidizing agent because it has power to penetrate the organic material on the dentinal tubules so it can push the dye out. This case report aim is to show that the internal bleaching treatment as an alternative for non-vital discolored teeth caused by trauma and repair is done with composite resin restorations. **Case.** A female patient, 65 years old who had previous endodontic treatment performed by both clinical and radiographic, and treated internal bleaching using opalescence endo containing 35% hydrogen peroxide. **Case management.** Cleaning pulp chamber of the previous dental fillings , removal gutta point 2-3 mm below the orifice using a round bur with an angle of 45^{o} to the direction of the labial, zinc phosphate cement applications on gutta point, etching with 37% phosphoric acid, applications opalescence endo containing hydrogen peroxide 35 % , giving temporary restoration with cavit on the cavity. Then patient being controlled after 1 week and repeated 3 times until the patient reaches the desired color. At evaluation after three applications of bleaching materials, the tooth‘s color has changed according to the color of adjacent teeth. Composite resin restorations performed one week later to wait the stable color and restore the tooth‘s shape. **Conclusion.** The conclusion of this report is non-vital discolored tooth not only can be treated with veneers or crowns treatment, but also internal bleaching treatment.

Key Words : Non-vital discolored teeth**,** internal bleaching

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INTRODUCTION

Anterior tooth discoloration is a cosmetic problem that is significant enough to encourage patients and dentists seeking improvement efforts. Although it has been available restoration methods to overcome them, such as crown and veneer treatments, this discoloration can be corrected totally or partially with teeth whitening or bleaching treatment. Bleaching is a process that will make teeth look whiter. The process of teeth whitening was first described in 1864 and has developed to the present. There are several options of teeth whitening treatments which are adapted to the type of color change that happened[1]. Discoloration of the teeth can be caused by several factors, such as external and internal factors[2,3]. Discoloration from external factors can be classified either derived from non-metallic materials and metallic materials. External metallic discoloration is: a non-enzymatic browns coloring (natural degradation process of glicocylatate protein), the formation of metal sulfide pigments, and exposure to metallic salts. External non-metallic discoloration is a chromogen which is released by the food into the oral cavity during the process of digestion of food components, beverages (especially tea and coffee), mouthwash, medications, or cigarettes[2,3].

Internal factors discoloration caused by dental restorative materials (amalgam), caries, trauma, infections, drugs (tetracycline and fluoride use in large doses over several years), disturbance during pregnancy (e.q: nutritional deficiencies, pregnancy complications, anemia and bleeding disorders), genetic factors and

hereditary disease that affects the development and maturation of the enamel and dentin, systemic disease during the period of tooth formation.[2,3]

Bleaching materials

a. Hydrogen Peroxide

Hydrogen peroxide is a powerful oxidizer available in varying degrees of concentration, though commonly used is a stabilized solution with levels of 30 to 35 percent. This high content of solution should be used with caution because it is unstable, rapidly losing oxygen, and can explode if not kept refrigerated or kept in the dark. Hydrogen peroxide is a caustic material and can cause tissues burning on contact with it. b. Sodium perborate

This material can be obtained in powder form or in various combinations of commercial mixtures. At the initial form, this material contains approximately 95% perborate, which can result in 9.9% oxygen. Sodium perborate is stable when in a dry state, but if there is an acid, warm water, or water, will turn into sodium metaborate, hydrogen peroxide, and nasen form oxygen. Mixtures of sodium perborate monohydrate that available are trihydrate and tetrahydrate. The differences are in oxygen content, which determine the effectiveness of the material. Mixture of sodium perborate that used to is alkaline and pH depend on the amount of H_2O_2 released and the remaining Na-metaborate. Sodium perborate is easier to control and safer than high concentrated solution of hydrogen peroxide. Therefore, this material is the material of choice for internal bleaching.

c. Carbamide Peroxide

Carbamide peroxide, also known as urea hydrogen peroxide, can be obtained in a variety of concentrations between 3 and 15%. Well known commercial preparations contain approximately 10% carbamide peroxide with an average pH of 5 to 6.5. Usually also contains glycerin or propylene glycol, sodium stanate, phosphoric acid or citric acid, and aroma. In some preparations, added Carbopol, a water-soluble resin, to prolong the release of active peroxide and increase the storage period. Carbamide peroxide 10% will break down into urea, ammonia, carbon dioxide, and about 3.5% hydrogen peroxide.

Carbamide peroxide system that used in external bleaching is associated with a variety level of damage to the tooth and surrounding soft tissue. This material may affect the retention of composite resin and marginal seal. Therefore, these materials should be used with extreme caution, usually under the strict supervision of a dentist.[1,3]

Case

A female patient aged 65 years old came to the Dental Hospital School of Dentistry, University of Hang Tuah with discoloration at left upper front teeth. The anamnesis obtained the information that patients experiencing trauma 20 years ago, but just checked and conducted promptly to the dentist about 2 years ago when the tooth has already experiencing a change in color. After 2 years patients were never control again to the dentist because there was no symptom but the tooth color getting darker. Clinical examination showed that discolored teeth 21.22 (darker than 5M), percussion is negative, normal gingiva around the tooth. To help enforce the diagnosis, periapical radiographic photo has done on teeth 21 and 22.

Fig.1. Showing discoloration teeth 21,22

The result of periapical radiographic photo showed that post root canal treatment was good, with marked by root canal filled hermetically with gutta-percha points.

Fig 2. Radiograph periapical teeth 21,22

CASE MANAGEMENT

Based on anamnesis, clinical and radiographic examination can be known the clinical symptom of the tooth is discoloration because of trauma and post root canal treatment. Based on diagnose then the dentist prepared a treatment plan that is conducted internal bleaching and permanent restoration using composite resin filling.

First visit:

Diagnose
Initial tooth color adjustment 5M1 (Vita 3D master)
Cleaning pulp chamber from the previous dental fillings
Removal gutta point 2-3 mm below the orifice using calibration drill
Zinc phosphate cement applications on gutta point
Etching with 37% phosphoric acid.
Applications of bleaching materials —Opalescence Endo (35% H2O2)
Giving temporary restoration with cavit on the cavity.

Fig.3 Removal gutta point 2-3 mm below the orifice

Fig.4 Applications etching
Fig.5 Applications —Opalescence Endo‖

Control I :

Subjective examination: Anamnesis: no symptom
Objective examination:
EO : no abnormalities
IO : Cavit is still good. gingiva normal, percussion is negative, tooth color 4M1 (Vita 3D master)

Cleaning pulp chamber of the previous dental fillings and bleaching materials
Etching with 37% phosphoric acid
Applications of bleaching materials —Opalescence Endo (35% H2O2)
Giving temporary restoration with cavit on the cavity.

Fig.6 Shade was recorded again (4M1 vita 3D master)

Control II :

Subjective examination:
Anamnesis: no symptom
Objective examination:
EO : no abnormalities
IO : cavit is still good. gingiva normal, percussion is negative, tooth color 3M1 (Vita 3D master)

Cleaning pulp chamber of the previous dental fillings and bleaching materials
Etching with 37% phosphoric acid
Applications of bleaching materials —Opalescence Endo (35% H2O2)
Temporary restoration with cavit on the cavity.

Fig.7 Shade was recorded again (3M1 vita 3D master)

Control III :
Subjective examination:
Anamnesis: no symptom
Objective examination:
EO : no abnormalities
IO : Cavit is still good. gingiva around normal, percussion is negative, tooth color
2M1 (Vita 3D master)
Cleaning pulp chamber of the previous dental fillings and bleaching materials
Permanent restoration using composite resin filling

Fig.8 After 3 visits, the shade (2M1 vita 3D master) as desired was obtained

DISCUSSION

Bleaching is a process that will make teeth look whiter. There are several options of teeth whitening treatments that are adjusted to the type of teeth discoloration.[4] Discoloration of the teeth can be caused by several factors, that are external and internal factors.[2,3]

Intrinsic discoloration caused by unification chromogenic material in the enamel and dentin, during odontogenesis or post tooth eruption. Intrinsic discoloration post eruption usually occurs as a result of trauma that leading to hemorrhage which causing the tooth pulp becomes necrotic. Hemolytic releases hemoglobin, which get degraded to release iron. Iron combines with hydrogen sulfide become iron sulfide that spreads into the dentinal tubules and produces bluish / black color. Failure to take all the remnants of the pulp during endodontic therapy also can cause discoloration. Pulp fragments that remains in the crown, usually in the pulp horn, can cause discoloration gradually. Pulp horn must be opened and exposed during cavity entrance opening procedure to ensure that the entire pulp tissue has been lifted and avoid root canal cement retention at a later stage. Dirty or brown color on the teeth are the characteristics of the pulp degradation without hemorrhage which cause protein degradation or pulp necrotic.[3] In addition intrinsic discoloration can also be caused by endodontic treatment, i.e obturation materials and intracanal medicaments. Unclean obturation material from the pulp chamber when completing root canal treatment can cause blackish color of the teeth. Meanwhile, discoloration fom intracanal medicaments can be caused by iodoform or phenols medication which commonly inserted in the root canal, in direct contact with the dentin. Sometimes in a long term, thus allowing drug penetration and oxidize. These materials tend to color dentine gradually darker than before.[5]

In this case the material chosen is Hydrogen Peroxide. Hydrogen peroxide is a powerful oxidizer available in varying degrees of concentration though commonly used is a stabilized solution with levels of 30 to 35 percent. This high concentration solution should be used carefully because it is unstable, rapidly losing oxygen can lead to explode if not kept refrigerated or kept in the dark. In addition this material is caustic and can burn the material when in contact with tissue.

The mechanism of tooth whitening is the oxidation reaction of the peroxide. The process of bleaching will occur when the material is

done converting peroxide pH, temperature and light to get free oxygen.[6] Hydrogen peroxide has a low molecular weight and is able to penetrate into the enamel and dentin. Fundamental process of teeth whitening is the oxidation and reduction reactions. Hydrogen peroxide release oxygen which can terminate protein bond that joined with stain in single bond.[7] Hydrogen peroxide (H_2O_2) as an oxidizing agent having free radicals that do not have a pair of electrons to be separated and then received by email so that the oxidation reaction occurs. Free radicals of peroxide are perhydroxil (HO_2) and oxygenize (O^+). Perhydroxil is a powerful and free radicals play a role in the process of teeth whitening, while the oxygenize as a weak free radicals.[8] In its natural form, hydrogen peroxide is a weak acid and produce a weaker oxygen as free radicals. At under neutral pH conditions, the process of decomposition of hydrogen peroxide will not form active oxygen as expected, thus changing the pH becomes more alkaline will produce active oxygen free radicals more powerful beneficial effects of teeth whitening.[6,9] Because the pH solution affects its effect, so buffer solution of pH change from 9.5 to -10.8 in order to generate more free radicals HO_2.[8] These free radicals will react with unsaturated bonds and cause electron conjugation and the change in the energy absorption of organic molecules in the structure of the tooth (email, dentin). Teeth molecules changed its chemical structure with the addition of oxygen and will form organic molecules email smaller with color that is brighter so as to produce effect bleaching and teeth become more luminous.[10,11,12]

CONCLUSION

The conclusion of this report is non-vital discolored tooth not only can be treated with veneers or crowns treatment, but also internal bleaching treatment.

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THE INDONESIAN CONSERVATIVE DENTISTRY ASSOCIATION

TINI III
Temu Ilmiah Nasional IKORGI III

Certificate

This is to certify that

Fani Pangabdian,drg.,SpKG

as

Poster Speaker

in

THE 10th NATIONAL CONGRESS & THE 3th INTERNATIONAL SCIENTIFIC MEETING (TINI III) OF THE INDONESIAN CONSERVATIVE DENTISTRY ASSOCIATION

Theme :

Revolutionizing Endorestoration in Global Community

Surabaya, 27th - 29th November, 2014

M. Rulianto, drg., SpKG(K)., MS

Chairman of The Indonesian Conservative Dentistry Association

MAIN LECTURE

No	Judul	Durasi (jam)
1	Secrets to Endodontic Success - getting the basics right Dr. Leroy McCully	1
2	On debridement of root canals Dr. Abhisek Parolia	1
3	Management of C-Shape root canal Dr. Fan Bing	2
4	Succesfull composite restoration Professor Morioki Fujitani, DDS, PhD, FICD	1
5	composite resin, polymer Bis-GMA, dental adhesives, dentin bonding, degree of conversion, hardness and toxicity Dr. Isabel Cristina Celerino de Moraes Porto. MS. DDS. PhD	1
6	Over-Coming Problems in Endodontics Edmond K. Chow,D.D.S	1
7	Review Up-Date Treatment in Perio-Endodontik Prof.Dr.Moh. Rubianto,drg.,SpPerio(K).,MS	1
8	Use of Marine Waste Horseshoe Crab Shell (Tachypleus Gigas) in Biomaterial Engineering for Treatment in Conservative Dentistry Prof.Trimurni Abidin,drg.,SpKG(K).,MKes	1
9	Light in External Bleaching: Myth and Reality Bambang Nursasongko,drg.,SpKG(K)	1
10	Optimizing single visit disinfection Bernard O. Iskandar,drg.,SpKG	1
11	Resin Composite restoration using parallel self treaded dowel Pribadi Santoso,drg.,SpKG	1
12	Endodontic Implant Revitalization Classical theory in Conservative Dentistry Taufik Hidayat,drg.,SpKG	1
13	Extract of propolis as and alternatif of pulpcapping material Dr.Ira Widjiastuti,drg.,SpKG(K).,MKes	1
14	The "Double D" in endodontic Marino Sutedjo ,drg.,SpKG	2
15	New alternatif biomaterial for conservatif treatment Dr.Elly Munadziroh,drg.,MS	1
16	The clinical management of intergrated orthodontic-endodontic theraphy Dr.Ida Bagus Narmada,drg.,SpOrt(K).,MS	1
17	DAMP responses to damage and cell death in dental teraphy Dr.Retno Indrawati,drg.,MSi	1
18	What endodontist should know about orthodontic treatment Dr.Haryono Utomo,drg.,SpOrt	1
19	Tissue engineering and regenerative dentistry in conservative dentistry: current concepts: Ketut Suardita,drg.,SpKG.,PhD	
20	Acces cavity preparation-an anatomical and clinical perspective DR.Dian Agustin Wahjuningrum,drg.,SpKG	1
21	Simple and easy to manage rootcanal failured to succesfull endodontic] Dr.Tamara Yuanita,drg.,SpKG(K).,MS	1

SHORT LECTURE

TOPIC	DURATION (minutes)	Total (minutes)
Short Lecture	15	1140

TABLE CLINIC

No	Judul	Durasi (jam)
1	"Revolutionary technique to active successfull endodontic treatment" Dr. Leroy McCully	3
2	"Light in External Bleaching: Myth and Reality" Bambang Nursasongko, drg., SpKG(K)	3
3	"Succesfull composite restoration" Prof. Morioki Fujitani, DDS, PhD, FICD	3
4	"Update one visit endodontic treatment with simple instrument" Nirawati Pribadi,drg., SpKG(K)., MKes; Nanik Zubaidah,drg.,SpKG(K).,MKes	3
5	"Fast and simple esthetic direct veneer" Cecilia GJ Lunardhi,drg., SpKG(K).,MS	3
6	The "Double D" in endodontic Marino Sutedjo,drg., SpKG	3

SKP for Scientific Meeting and National Congress:
(SK No. SKP I/035rev/PBPDGI/VIII/2014:

Scientific Meeting Participant	: 8,5 SKP
Main Lecture	: 3 SKP
Short Lecture	: 3 SKP
Scientific Meeting Moderator	: 3 SKP
Table Clinic Trainer	: 5 SKP
Table Clinic Participant	: 3,5 SKP
Congress Participant	: 4 SKP
Committe Member	: 3 SKP

Chairman of Organizing Committee

Ari Subiyanto, drg., SpKG(K)., M.Kes

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