:r handpiece and polishing with pumice on rotating bris-:ie brushes.

4. LABORATORY COATS :

Laboratory coats should be worn during polishing, trimming casts, handling and packaging potentially infectious waste, grinding, pouring impressions, unpacking items received in from dental office, packing of items to be delivered to the dental office, cleaning & disinfecting of contaminated items, surfaces such as sinks, pumice pans, case pans. ultrasonic cleaners, polymerization pots, cast trimmers. lathe, handpieces & work bench tops.

B) DISINFECTION OF WORKING AREA :

- Maintenance of a schedule for cleaning & disinfecting laboratory surfaces is mandatory. The cleaning and disinfecting materials and equipment required to do any cleaning & disinfecting procedure should be provided to the personnel who is going to do the work, by the employer.
- Laboratory personnel shall immediately clean and decontaminate all surface items that potentially have been contaminated during packing and/or unpacking procedures.
- All the equipments such as polymerization pots, model trimmers, vibrators, mixers, dispensers, handpieces, burs, polishing brushes, pans, basins and bench tops should be cleaned and disinfected with disinfecting solutions.
- Environment can be disinfected by fumigation once a week.
- Personal protective materials likes reusable gloves, lab coats, protective eye wear, head caps should be washed and disinfected regularly.
- If potentially harmful material is spilled away, the task of cleaning & disinfection should be done immediately.

C) DISINFECTION OF PROSTHODONTIC ITEMS / MATERIALS USED IN DENTAL OFFICE OR LABORATORY :

The Occupational Safety and Health Administrations (OSHA) standard for occupational exposure to blood-borne pathogens considers items contaminated with saliva in dental procedures that have not been decontaminated as potentially infectious. If such items are stored, transported, or shipped, they must be in closed container and that are either coloured red or identified with biohazard label. Dental office personnels should put this label on dental impressions, dental prosthesis/appliances that have been inserted in the mouth and are contaminated with saliva or blood; if this items are not disinfected & directly transported to laboratory, communication with the dental laboratory regarding the handling of items shipped

TABLE - I

Material	Disinfectant	Treatment	Comments
Alginate	Sodium Hypochlorite	Sprayed	Must remain wet with the disinfectant
Polyether	Chlorine dioxide Phenolic compound Iodophor compound		
Poly (vinyl Siloxsane) Polysulfide	Sodium hypchlorite Chlorine dioxide Phenolic compound	Immersed	Follow manufacturer's guidelines
Gypsum casts	Iodophor	Sprayed or Soaked for 10 minutes	Disinfection of impression is preferred should not be used on master casts
Resin dentures	Sodium hypochlorite	Immersed	Initially wash in an antimicrobial Detergent.
Noble alloys	Sodium hypochlorite	Immersed	Initially wash in an antimicrobial Detergent
Non-noble Alloy	Iodophor compound Phenol compound	Immersed	Initially wash in an antimicrobial detergent
Wax records	Iodophor Sodium hypochlorite	Immersed	

Adapted from April, 1991 D.C.N.A.)[5]

TABLE 2

Sterilization/Disinfection of Prosthodontic Materials, Instruments, and Polishing Agents.[1,2]

Prosthodontic Materials, Instruments,Polishing Agents	Sterilization / Disinfection Method
➢ Articulators/Facebows	Spray-Wipe-Spray
➢ Bowls/Water baths	
Stainless steel	Dry heat, chemical vapor, autoclave,
Rubber	Spray-wipe-spray
➢ Burs	
Carbon steel	Dry heat, chemical vapor, ethylene oxide
Steel	Dry heat, chemical vapor, ethylene oxide, Autoclave
Tungsten-carbide	Dry heat, ethylene oxide, autoclave, Chemical Vapor
➢ Facebow forks	Autoclave, chemical vapor, ethylene oxide
➢ Immpression Trays	
Aluminium	Autoclave,chemical vapor,ethylene oxide,dry heat
Chrome-plated	Autoclave, dry heat, chemical vapor, ethylene Oxide, chemical sterilization/disinfection
Custom acrylic resin	Discard, ethylene oxide
Plastic	discard,ethylene oxide,chemical sterilization/disinfection.
➢ Polishing points,wheels, disks and brushes	
Garnet and cuttlefish	Discard, ethylene oxide
Rubber	Discard, ethylene oxide, autoclave
Rag	Autoclave, ethylene oxide, chemical vapor
Brushes	Autoclave, ethylene oxide, chemical vapor
Shade guides	Chemical sterilization/disinfection, spray-wipe--spray, ethylene oxide.
➢ Spatula/Knives	Spray-Wipe-Spray
➢ Stones	
Diamond	Dry heat, chemical vapor, ethylene oxide,Autoclave.
➢ Abrasive(polishing)	Autoclave, chemical vapor, ethylene oxide, dry heat
➢ Wax rims/Wax bites	Spray -Wipe -Spray

Adapted from American Dental Association Council on Dental Materials, Instruments, and Equipments, Council on Dental Therapeutics, Council on Dental Research, Council on Dental Practice: Infection control recommendations for the dental office and the dental laboratory. J Am Dent Assoc 123(8): 1-8, 1992: and Merchant VA, Molinari JA Sterilization/disinfection. Dental Advisor 5(3):7,1988.

to and from the laboratory is very essential in terms of infection control.

DISINFECTION OF IMPRESSION :

The ADA first recommended disinfection of impressions in 1985. Accordingly, the impression should be thoroughly rinsed under tap water to remove any saliva or blood before immersion in disinfectant. The exposure time should be the period recommended by disinfectant manufacturer for tuberocidal disinfection. (2% gluteraldehydes require 30 min. exposure for tuberocidal activity). After disinfection the impression should be rinsed thoroughly to remove any residual disinfectant. Disinfectants should not be used repeatedly for disinfection of impressions unless they are approved for reuse i.e. gluteraldehydes.[2,3,4.]

DISINFECTION OF PROSTHESIS / APPLIANCES :

The ADA recommends that removable prosthesis be sterilized by exposure to ethylene oxide or disinfected by immersion in iodophors or chlorine compounds. Studies show little corrosive effect on chrome-cobalt alloy by iodophors or sodium hypochlorite. Pitting of heat cured

acrylic resin observed after 10 min. exposure to buffered gluteradehyde. 2% alkaline gluteraldehyde do not damage acrylic surface. Prosthesis should never be stored in disinfectant before insertion. After disinfection and rinsing, acrylic or alloy items should be kept in mouthwash until insertion.

DISINFECTION OF PROSTHODONTIC ITEMS :

The ADA recommends, that wax rims, waxbites and trial dentures should be disinfected by Rinse-Spray-Rinse-Spray method or Spray-Wipe-Spray method using an iodophor.

The stone casts can be disinfected by spraying until wet or by immersing in 1:10 dilution Sodium hypochlorite solution.

Casts to be disinfected should be fully set; i.e. stored for atleast 24 hours. Custom acrylic resin impression trays should be disinfected by spraying with a surface disinfectants or immersing in 1:10 sodium hypochlorite. They should be rinsed thoroughly to remove any residual disinfectant and allowed to dry fully before use. After use in the mouth, they should be discarded (Table I & II shows methods for disinfection of prosthodontic items and materials).

CONCLUSION

The dental practitioner should communicate with the dental laboratory regarding the infection control procedures used. Ideally, contaminated items should be disinfected before transport from the laboratory and vice versa, as recommended by the ADA.

Effective communication & understanding can avoid duplication of effort and possible adverse effect on the items. Disinfected items should be so labeled, otherwise the laboratory or dental office should assume that they are contaminated and disinfect them appropriately.

An infection control policy in the laboratory is an effort to reduce occupational exposure to blood borne pathogens and protect its personnel from being infected. In conclusion, we can emphasize that the time is ripe, to put infection control into practice instead of just discussing it in the theory; lest irreversible harm be caused to the very personnels who help us to be successful in our pursuit for patient care.

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Abstract

Reliability, validity, and utility of various occlusal measurement methods and techniques

The aim of this article was to assess instruments that claim to detect occlusal interferences and abnormal vertical dimension of occlusion. Information from 37 published articles was reviewed, focusing on instruments such as occlusal sonography, occlusal contact sensors, presure-sensitive film, jaw-tracking devices, jaw muscle stimulation, and electromyographic (EMG) devices. After an evaluation of the evidence for reliability, validity, and utility, it was concluded that none of the instruments reviewed could be said to be more than ancillary documentation devices. They have been inadequately tested for reliability and validity, and their use implies a risk of over-diagnosing. The clinical implication is that while the instruments reviewed may have value as documentary devices, their practical use has not been established.

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J Prosthet Dent 2000; 83 : 83-89.
References : 40. Reprints : Dr Glenn T. Clark, Section of Orofacial Pain and Oral Medicine, UCLA School of Dentistry, Box 951668, Room 43-009 CHS, 10833 Le Conte Aveneu, Los Angeles, California 90095-1668, e-mail: gleec@dent.ucla.edu-AW

Rehabilitation of a Case of Amelogenesis Imperfecta

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ABSTRACT

Amelogenesis imperfecta is an inherited disorder associated with defective ameloblasts. It is expected to have an incidence of 1 person in every 16000. In the course of rehabilitation of such patients, the role of a planned multidisciplinary approach cannot be overemphasized as majority of these cases present mutilated mouths. Their management involves combination of art and science of fixed and removable prosthodontics. In treating such patients, restoration of occlusion and esthetics of the patient are of prime importance. The aim of treatment is to preserve the existing structures and achieve esthetics and functional harmony.

This article presents a case report which describes the FULL MOUTH REHABILITATION of a patient with generalized amelogenesis imperfecta, outlines the problems encountered and illustrates the desired multidisciplinary approach with stress on the prosthodontic aspects.

INTRODUCTION

The management of a case of Amelogenesis Imperfecta involves combination of art and science of fixed and removable prosthodontics. In treating such patients, restoration of occlusion and esthetics of the patient are of prime importance. The aim of treatment is to preserve the existing structures and achieve esthetic and functional harmony. This article presents a case report which describes the FULL MOUTH REHABILITATION of a patient with generalized amelogenesis imperfecta.

HISTORY & EXAMINATION

Sarfraz Hazi,a 19 year old boy,came to Government Dental College and Hospital, Mumbai with the desire of an improved smile and enhanced esthetics.He gave a significant history that three out of his six brothers had similar dental defects. Gross physical and extra oral examination revealed no obvious pathology. Intra oral examination revealed hypoplasia of the enamel of all teeth rendering them dark brown and pitted with an irregular surface.(*Fig-1*)

The enamel on each tooth appeared grossly thinned out, worn down and resulted in moderate amount of spacing in between the teeth. Radiographic findings revealed defective formation of enamel with normal dentin and root development, confirming the clinical observation and leading us to a diagnosis of amelogenesis imperfecta.[1] The patient presented with an anterior open bite of 3-4 mm , with a reverse smile curve, edge to edge relationship on right side, cross arch relationship on left side with an open bite extending up to the first molar. The vertical relation appeared to be high due to premature contact between the premolars.

Keywords : *Amelogenesis imperfecta , multi-disciplinary approach , vertical dimension.*

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TREATMENT APPROACH

With the help of a comprehensive examination, evaluation of the diagnostic data, consultation with the patient and his parents, a treatment plan was finalised . The treatment plan included-

a) Emergency treatment
b) Intermediate treatment
c) Definite treatment

A. EMERGENCY TREATMENT -

This phase included extraction of badly carious and non restorable maxillary right first molar and left second molar.

B. INTERMEDIATE TREATMENT -

The highlight of this phase was the multidisciplinary approach followed .The combined skills of the prosthodontist, periodontist, and endodontist were utilized to rehabilitate this mutilated condition. Surgical orthodontics, the first line of treatment in this situation, was not considered as the patient refused to undergo surgery and orthodontic treatment. Hence following procedures were done sequentially.

a) Thorough oral prophylaxis.

Intentional endodontic treatment for maxillary posteriors, excluding third molars-

b) Gingivectomy was carried out in the posterior regions for the purpose of crown lengthening.

Following gingival healing, the preparation of the teeth was commenced. Anteriors were prepared first . Provisional restorations were fabricated for individual teeth in tooth coloured autopolymerizing acrylic resin by indirect technique ,adjusted together to achieve optimum esthetics. Since the patient presented with open bite and considerable horizontal overlap, anterior guidance was not achieved at this time..

Occlusal adjustments were done to eliminate premature contacts and interferences. Posterior teeth were

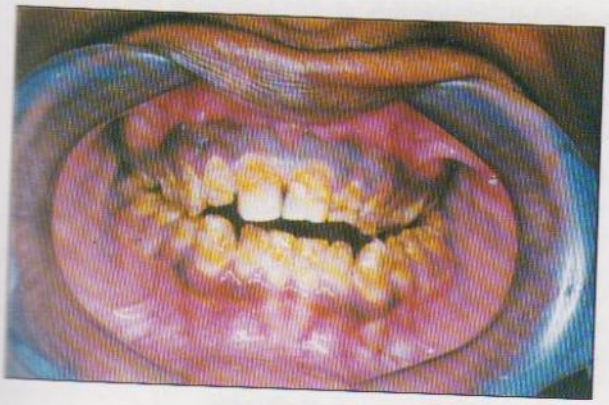

Fig. 1 : Pre-operative intra oral view.

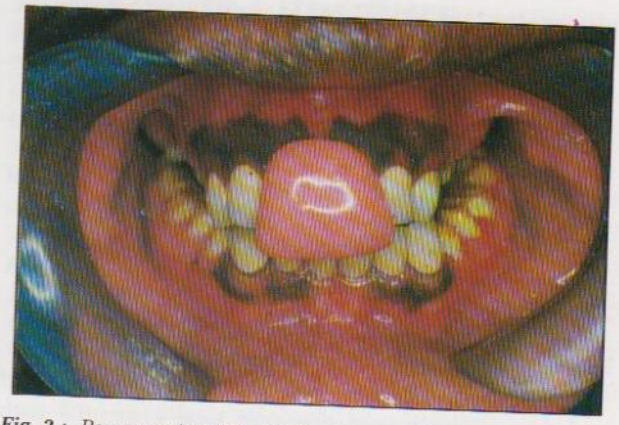

Fig. 2 : Permanent anterior restorations with Lucia jig in place.

Fig. 3 : Pre operative smile.

Fig. 4 : Post operative smile.

prepared keeping in mind the future vertical dimension of occlusion and the desired occlusal plane.[2] This was the most critical step. The articulator selected for the case was the semi- adjustable Hanau model H keeping in mind that the ideal articulator would be fully adjustable. Face bow record was taken and transferred to the articulator and the mandibular cast was mounted in centric relation at the desired vertical using a wax check bite. The occlusal plane was evaluated on the articulator, necessary changes were made in the mouth and the casts were subsequently remounted. A diagnostic wax-up [3] was done on the mounted models.

Group function was selected as the occlusal scheme for the case and was incorporated in the wax-up itself. The wax-up was duplicated using elastomeric impression, casts were fabricated and a vacuum formed polyvinyl template was made to prepare the posterior provisional restorations by indirect technique. The provisional restorations were tried in the mouth, adjusted to achieve harmonious occlusal relationship with acceptable esthetics. The drastic difference in the patient's smile could be appreciated at this stage

The patient was kept under observation with periodic recalls for approximately four weeks to evaluate the patient's comfort with regards to teeth, muscles, TMJ, and esthetic and phonetic acceptance.

C. DEFINITE TREATMENT

The various options of materials to be used were porcelain fused to metal, all porcelain, complete metal veneer crowns with acrylic facing or fiber reinforced composite with ceromers. Full coverage ceramometal

restorations on all the teeth would have been the material of choice but due to financial constraints it was decided to restrict ceramometal restorations to anterior teeth only and complete metal veneer crowns with acrylic facings only on premolars were planned for posterior teeth. The anterior preparations were modified to receive ceramometal restorations, gingival retraction was done and final impression was made in Aquasil medium and light body by double mix, single phase technique. Models were prepared by the DVA die system .With a face bow record , centric bite record, the models were mounted on the Hanau Model H. The metal and bisque trials were subsequently done.

The crowns were adjusted to achieve desired esthetics, anterior guidance[4] and were cemented with glass ionomer cement.

A Lucia jig was prepared to maintain the desired vertical dimension and to check the inter-occlusal clearance. Posterior preparations were modified to receive complete metal veneer crowns with acrylic facings only on premolars . Gingival retraction was done and final impression was made in Aquasil putty and light material using double mix double phase technique .

The working models were poured in DVA die system.

The upper and lower casts were mounted using a face bow record and a centric check bite taken with the Lucia jig in place. The articulator was programmed using a protrusive wax record to decide the horizontal and lateral condylar guidances.[5] Group function was incorporated in the wax-up itself.. The permanent restorations were fabricated , adjusted in the mouth & cemented using glass-ionomer cement.

CONCLUSION

The aim of full mouth rehabilitation is to transfer a seemingly compromised dental scheme into a structurally sound, functionally stable and esthetically pleasing reconstruction.(Fig-4) To achieve a comprehensive rehabilitation and satisfy all the requirements of the patient's masticatory apparatus, the principles of oral rehabilitation must be followed. Following these principles with a realistic approach is sure way to success.

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Abstract

Enamel Restorations on the Horizon ?

Researchers hope that one day current restorative materials can be replaced with the dental restorations that are identical or similar to natural tooth enamel.

At the University of Southern California's School of Dentistry Center for Craniofacial Molecular Biology (CCMB) they have identified spheres that regulate the formation and organization of tooth enamel by controlling the substances crystalline growth. These sphere - called nanosphere because they are only 18 to 20 nanometers in diameter - are formed by naturally occurring family or tooth specific proteins called amelogenins.

Amelogenins self assemble, to form the extra cellular matrix within which the inorganic enamel crystals start to form. At first the crystals grow only their end surfaces. With the nanosphere acting as spacers, they build a scaffold on which mature enamel can eventually form.

In 1994, researchers took the gene for an amelogenin from a mouse and produced an identical recombinant amelogenin, using a bacterial reproductive process. This recombinant amelogenin (which can be produced in quantity), can self-assemble to make nanosphere structure identical to those seen in humans and other animals.

Currently, crystals are being grown within synthetic matrices. Very long, straight structures which grow only on their end faces are produced, Enamel has not yet been made, but how nature does it is deciphered.

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