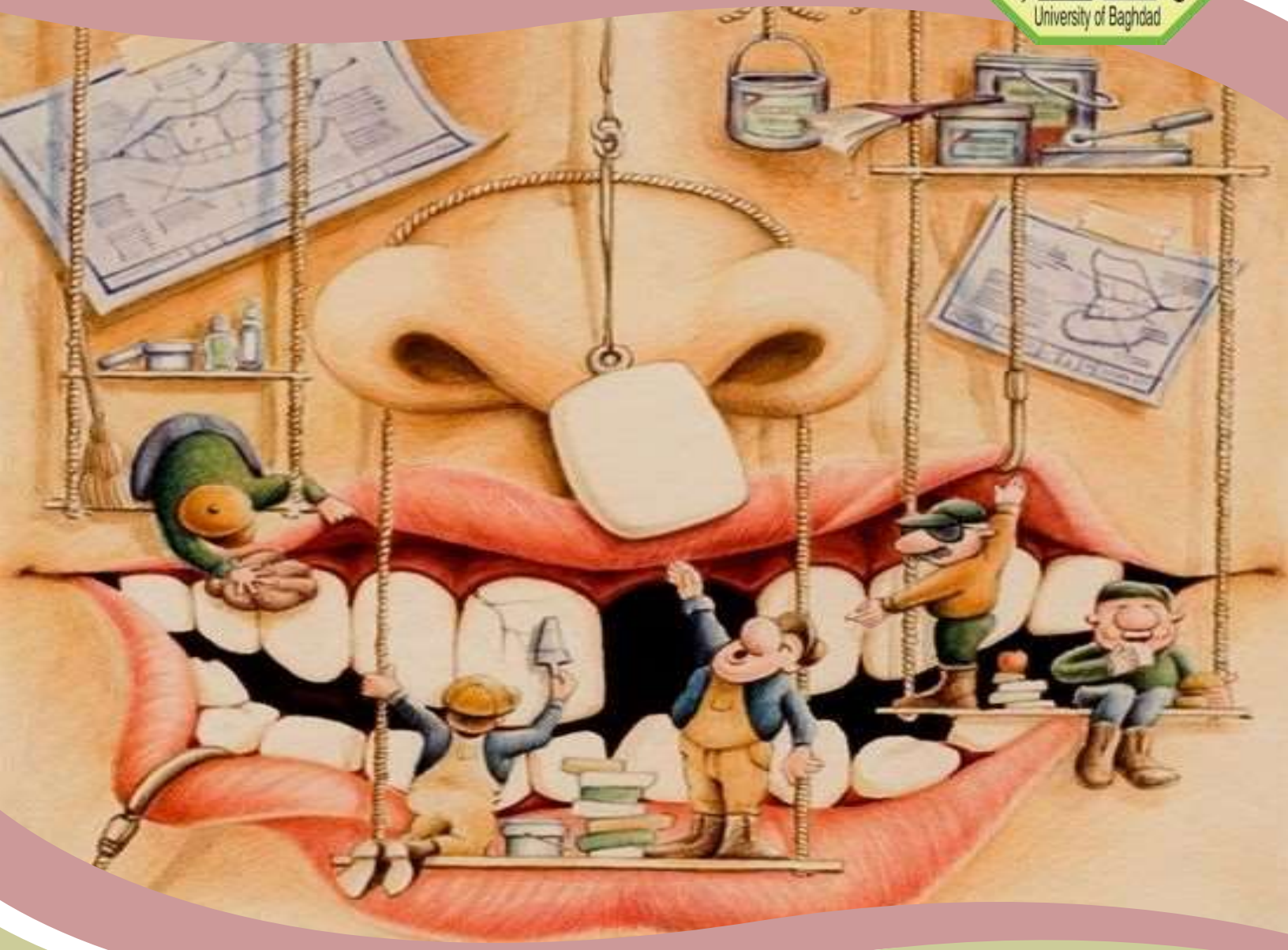
PEDIATRIC DENTISTRY

4th year



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RESTORATIVE DENTISTRY FOR CHILDREN

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RESTORATIVE DENTISTRY FOR CHILDREN

Today the dentist devotes more time to preventive procedures and less time to the routine restoration of caries-affected teeth. Nevertheless, restoration of caries lesions in primary and young permanent teeth continues to be among the important services that pediatric dentists and general practitioners provide for the children in their practices.

Guideline on Pediatric Restorative Dentistry

Restorative treatment is based on the results of an appropriate clinical examination and is ideally part of a comprehensive treatment plan. The treatment plan should consider the following:

1. *The developmental status of the dentition*
2. *A caries-risk assessment*
3. *Patient's oral hygiene*
4. *Anticipated parental compliance and likelihood of timely recall*
5. *Patient's ability to cooperate for treatment*

The restorative treatment plan must be prepared in conjunction with an individually tailored preventive program.

Restoration of primary teeth differs significantly from restoration of permanent teeth, due in part to the differences in tooth morphology.

MAINTENANCE OF A CLEAN FIELD

The maintenance of a clean operating field during cavity preparation and placement of the restorative material helps ensure efficient operation and

development of a serviceable restoration that will maintain the tooth and the integrity of the developing occlusion.

The rubber dam aids in the maintenance of a clean field. It is generally agreed that the use of the rubber dam offers the following advantages:

1. Saves time. *The dentist who has not routinely used the rubber dam needs only to follow the routine or a modification of it for a reasonable period to be convinced that operating time can be appreciably reduced. The time spent in placing the rubber dam is negligible, as long as the dentist works out a definite routine and uses a chairside assistant.*

2. Aids management. *It has been found through experience that apprehensive children can often be controlled more easily with a rubber dam in place. Because the rubber dam efficiently controls the patient's tongue and lips, the dentist has greater freedom to complete the operative procedures.*

3. Controls saliva. *Control of saliva is an extremely important consideration when one is completing an ideal cavity preparation for primary teeth. The margin of error is appreciably reduced when a cavity is prepared in a primary tooth that has a large pulp and extensive caries involvement. Small pulp exposures may be more easily detected when the tooth is well isolated. It is equally important to observe the true extent of the exposure and the degree and type of hemorrhage from the pulp tissue. Thus the rubber dam aids the dentist in evaluating teeth that are being considered for vital pulp therapy.*

4. Provides protection. *The use of the rubber dam prevents foreign objects from coming into contact with oral structures. When filling material, debris, or medicaments are dropped into the mouth, salivary flow is stimulated and interferes with the operative or restorative procedure. A rubber dam also prevents the small child in a reclining position from swallowing or aspirating foreign objects and materials.*

5. Helps the dentist educate parents. *Parents are always interested in the treatment that has been accomplished for their child. While the rubber dam is in place, the dentist can conveniently show parents the completed work after an operative procedure. The rubber dam creates the feeling that the dentist has complete control of the situation and that a thorough effort has been made to provide the highest type of service.*

ARMAMENTARIUM FOR RUBBER DAM PLACEMENT

The armamentarium consists of 5×5-inch sheets of medium latex, a rubber dam punch, clamp forceps, a selection of clamps, a flat-blade instrument, dental floss, and a rubber dam frame. If one visualizes an approximately 1¼ -inch square in the center of a sheet of rubber dam, each corner of the square indicates where the punch holes for the clamp-bearing tooth in each of the four quadrants of the mouth are to be made. As experience is gained in applying the dam, the dentist and assistant will soon learn the proper location for punching the holes.

If the holes are punched too far apart, the dam will not readily fit between the contact areas. In addition, the greater bulk of material between the

teeth will greatly increase the possibility that the rubber will become a barrier to proximal surface preparation. Conversely, if the holes are punched too close together, salivary leakage will contaminate the operating field. In general, the holes should be punched the same distance apart as the holes on the cutting table of the rubber dam punch. The large punch hole is used for the clamp-bearing tooth and for most permanent molars, the medium-sized punch hole generally is used for the premolars and primary molars, the second smallest hole is used for maxillary permanent incisors, and the smallest hole is adequate for the primary incisors and lower permanent incisors.

SELECTION OF A CLAMP

Proper selection of a clamp is of utmost importance. It is recommended that the clamp be tried on the tooth before the rubber dam is placed, to ascertain that the clamp can be securely seated and will not be easily dislodged by the probing tongue, lip, or cheek musculature. An 18-inch length of dental floss should be doubled and securely fastened to the bow of the clamp. The floss will facilitate retrieval in the unlikely event that the clamp slips and falls toward the pharynx.

Rubber dam application:

The dentist grasps the clamp forceps with the clamp engaged. The assistant, seated to the left of the patient (the dentist is right-handed in this example), grasps the upper corners of the dam with the right hand and

the lower left corner between the left thumb and index finger. The dam is moved toward the patient's face as the dentist carries the clamp to the tooth while holding the lower right portion of the dam. If necessary, light finger pressure may seat the clamp securely by moving it cervically on the tooth. After securing the clamp on the tooth, the dentist then places the frame over the rubber dam. Together, the assistant and dentist attach the corners of the dam to the frame. If additional teeth are to be isolated, the rubber is stretched over them, and the excess rubber between the punched holes is placed between the contact areas with the aid of dental floss. The most anterior tooth and others, if necessary, are ligated to aid in the retention of the dam and prevention of cervical leakage. The free ends of the floss are allowed to remain because they may aid in further retraction of the gingival tissue or the patient's lip during the operative procedure. At the end of the operative procedure, the length of floss will also aid in removing the ligature. If the first or second permanent molar is the only tooth in the quadrant that exhibits caries and if it requires only an occlusal preparation, it is often desirable to punch only one hole in the dam and isolate the single tooth. This procedure will require only seconds and will save many minutes.

Due to an increase in latex allergies, latex-free rubber dams are available and used in the same manner already described.

RECENT MODIFICATIONS

Quick Dam or Insta-Dam

- *These are new types of rubber dams that have preattached frame*
- *Ease of application*
- *Minimal time consumption in placement*
- *Use of X-ray is more simplified with this type of dam*
- *They can either have a rectangle or circle pattern.*

Optra Dam

- *This is a type of quick dam for anterior segment where it can be fixed directly without use of any retainer clamps or for a posterior segment by the aid of clamp for retention.*
- *Its method of application is quiet simple by punching the holes corresponding to the size of the expected teeth. The rubber dam is stretched over the rubber dam clamps or the teeth. The exposed area between the teeth is then sealed with a caulking agent like Oraseal. This ensures that there is no leakage.*

Isolite System

The Isolite system has also been recommended for achieving an isolated field. This dental isolation device is designed to function as a vacuum suction and to provide intraoral illumination. The system helps retract the tongue and has an integrated six-foot-long vacuum/power silicone hose that connects easily to most standard high volume ports.