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Faculty of Dentistry
fourth Year
2016-2017



slides

handout

sheet

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We will talk about clinical aspect in terms of caries prevention, and we finished everything about fluoride, diet and preventive factors, so you got all information to be able to do prevention and the oral hygiene instruction and brushing you will take it next year.

What we noticed in clinic is unfortunately any important. If it isn't a requirement that doesn't have a point so you tend not to do it. But you must have some kind of feeling of the patient and what going to have for this patient when he leave your clinic and goes, so oral hygiene instruction and give your diet advice is very important. The patients should at least brush, how they try to get, type of toothpaste all these thing you have to tell it to your patient.

Unfortunately, your mentality is about requirements and to finish and graduate. Make sure you leave and graduate have this feeling that I have to take care of my patient and this is my patient. Whatever you do for this patient it will affect the quality of life. So you know how knowledge and you have the right attitude. Look at systemic requirement of pediatric to incorporate oral hygiene as a requirement in order to give it. We will talk today about clinical aspect of caries prevention which is caries diagnosis, we talked about examination and materials, how to diagnose caries, the problem is occlusal caries diagnosis, what methods are available for occlusal caries diagnosis, we will talk a little bit about micro dentistry because you might see it in literature and also Diagnodent and fluoride release from aesthetic material. So we go back to basic principle, the progress of dentistry. Dentistry started as to work all they did that you have pain in the tooth they took it out, very aggressive profession. Then with invention of drill and local anesthesia, it became profession were we extract the diseased tissue and replace with something else, so it became to restore, restoration as we did. Now we know so many about etiology of caries, about tooth structure, we know all these advances and materials, we know about fluoride and prevention. It becomes a profession were prevention is important. So now we have some advanced that we can actually prevent tooth structure loss. What we hope to see in literature that dentistry is medical rather than surgical so we have lesion we want to stop it rather than remove it and place a restoration because unfortunately the restoration tend to have problems, it might have accumulation of caries, it might flow out. So anything taking out is kind of medical management rather than surgical approach and medical management is trying to diagnose caries as early as possible, so that you can stop it and medically treated and this is we call it secondary prevention (I have disease and I detect it in early stage then I can arrest it).



This is what we try to talk about (early detection of caries). As we know caries diagnosis is a complicated procedure that needs the patient history, radiograph, and examination. So ideally the diagnostic methods of dental caries should allow to detect caries as early as possible to give some early remineralization of cavitations before progressing to necessary replace and put restoration. We want to concentrate on occlusal caries diagnosis because when you see a change in pattern of caries attack, you see more caries in occlusal surfaces as of caries in proximal surfaces and this is due to the effect mostly of fluoride, fluoride works well on proximal surfaces and we have problem on of facial and occlusal caries. So caries although decreased I still have this problem and some say and you see this when you start treating patients in pediatric clinic we look to the 6's and we examine about to make sure that we prevent caries, detect it as early as possible and use an appropriate methods. So the basic problem in occlusal caries in the fissure anatomy is difficult for us to visualize sometime you might actually have initial lesion in the fissure wall you might not be able to see it and often you might have a lesion if you look at it you might have extensive dentine being lost and demineralized without any kind of surface destruction, if you take an x-ray for this tooth you can see what the problem is, you can see the difference of color, you can see that there is a problem and all the dentine has been affected. So this is one of the effect of superficial fluoride allows enamel to demineralize and caries reach dentine and progress. So this is the concept of hidden caries , that's why we have really to check very well. So in terms of 6's , an upper 6 here it looks like sound , if you miss this spot in your diagnosis ----- cavitation and shadowing ----- . so the methods of diagnosis that are available for us : 1) visual 2) tactile (probe, explorer) 3) bitewing radiograph we have other methods that are available for us : electronic caries monitor (ECM) , laser fluorescence (Diagnodent) and we have an enhanced visual examination. To compare these methods of diagnosis we have sensitivity and specificity to know the accuracy of these methods

- Sensitivity : true positive (correctly identify the presence of caries)
- Specificity : true negative (correctly identify that the caries is not present)

So if you look at basic which is visual and tactile, visual if you have cavitation so there is caries, the probe usually we don't use it if you won't to break tooth surface and usually used to remove any plaque and it is to check ----- it is not push toward tooth surface.

- Bitewing is good for proximal caries (very clear, very obvious) , the problem in occlusal caries diagnosis is that even know clinically it could be cavitated on radiograph,



it might be obscured by the cusps because radiograph is 2 dimension image of 3 dimension object so there is always some superimposition and if it seen on radiograph it is late lesion not an early one.

Bitewing and visual are accurate in diagnosing cavitated occlusal caries but poor in detecting non cavitated lesion (early lesion) and there is some concern about bitewing radiograph in terms of ----- if you do it every visit, every month to check for caries and also it is not accurate in detecting early caries as well.

Electronic caries monitor (ECM) ,basically it looks like pin, you have a readout and it measures the changes in the resistance of the tooth and what you should get if it is sound tooth it will not conduct electricity so you will get very low value and if it carious or demineralized you will have a score. So it based on increase electrical conductivity in carious lesion so caries will conduct electricity.

They did a research comparing ECM to visual examination and radiographs in vitro on early noncavitated lesion on posterior teeth and they found that it performs quite well, it -- ----- came a lot of acceptance commercially instead of got other techniques today so we go for example in Diagnodent system, this is a laser based system , you have ----- and you have a readout and use it of different fluorescence of sound and carious enamel, so sound tooth structure will give you different score from a carious tooth structure.

Done by : Heba Nofal

ICDAS(The international caries detection and assessment system), it was basically done by a group of "cariologists" , with a lot of different systems ; they put them all together and come up with scoring systems, **Enhanced visual examination.**

-It's a meticulous(very detailed) examination.

-Visual scoring system → you give a number to what you see.

The idea behind Enhanced visual exam if u see a white spot lesion on a wet tooth surface it's more porous & deeper than one that is visible only after drying, (if you see the caries only after drying ,it's mostly superficial).

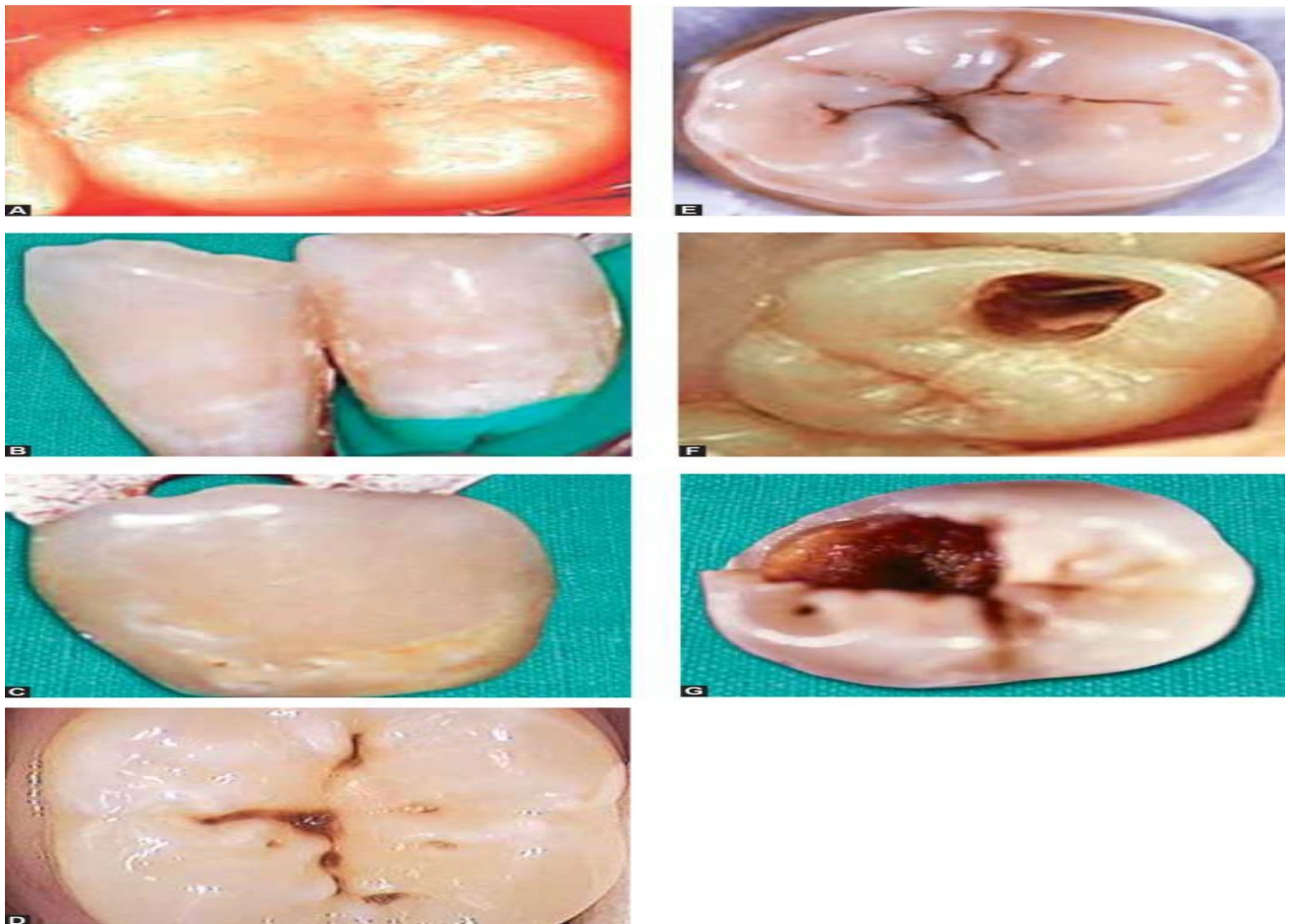
-it has to do with the refractory index(RI) of enamel (1.62) ,water(1.33) & air(1.0).



Table 1: ICDAS II codes and criteria

<i>Code</i>	<i>Description</i>
0	Sound tooth surface: No evidence of caries after 5 sec air drying
1	First visual change in enamel: Opacity or discoloration (white or brown) is visible at the entrance to the pit or fissure seen after prolonged air drying
2	Distinct visual change in enamel visible when wet, lesion must be visible when dry
3	Localized enamel breakdown (without clinical visual signs of dentinal involvement) seen when wet and after prolonged drying
4	Underlying dark shadow from dentine
5	Distinct cavity with visible dentine
6	Extensive (more than half the surface) distinct cavity with visible dentine





Scores of ICDAS (A) Code 0 (B) Code 1 (C) Code 2 (D) Code 3 (E) Code 4 (F) Code 5 (G) Code 6

You might see new methods being adopted, so what I say today may not be appropriate in the five years later. So when you look for what's available on the markets, you have to do your research about the product, you have to make sure that you have a research to back it up for this product, you have to look for the evidence to make sure that this system works and identifies caries properly.

The doctors advised us to look for " The Cochrane Database of Systematic Reviews" website to see the recent evidence about preventive topics.

<http://www.cochranelibrary.com/cochrane-database-of-systematic-reviews/>

Microdentistry (air abrasion):



Access to the caries without destroying the tooth structure (no burs used as u might remove sound tooth structure with them)

- It depends on the use of very fine aluminum oxide powder through air pressure & by that you just remove only the diseased tissue (less destructive).

Ozonetherapy:

Used to kill the bacteria (it's a powerful antimicrobial agent), you can make the lesion inactive without giving anesthesia.

-very useful in very young patients or patients with problems(fear of anesthesia or drilling)

Still need more evidence to be used routinely.

fluoride absorption-release:

-It is one of the advantages of some materials like:

1-GI:release fluoride for longtime, studies looking at GI in saliva of pre-school children (GI 1 year after restoration) they started with concentration of 0.04 ppm then after 3 weeks it increased to 0.8ppm & it maintained at 0.3 ppm even after 1 year.

-its rechargeable:by using fluoride toothpaste ((slow release device))

How does it release the fluoride??

1- Dissolution of the whole material that will release parts of the material (so it releases all the materials in its structure not just fluoride)

2-Diffusion: fluoride itself in combination with other ions .

2-RMGI:similar to GI

3-compomer:release of fluoride is minimum compared to GI & RMGI (just by diffusion, without dissolution) and its rechargeability in less than GI and RMGI.

Second part is done_ Mos'ab Altwarah.

Never look down on someone unless you're helping them up

