

DIAGNOcam

Interview with Dr. Kühnisch

OA PD Dr. Jan Kühnisch

Ludwig-Maximilians-Universität München

Clinic for Dentistry and Periodontology

- 1. Dr. Kühnisch, for several months now, you have been involved with a new product for the diagnosis of caries that was recently launched in the market as the DIAGNOcam. What is your impression?**

Kühnisch: Personally, I think the procedure itself is a small revolution. Without any ionizing radiation – particularly in the interdental space, which is difficult to assess clinically – it succeeds to diagnose caries. Especially considering a high correlation with the X-ray procedure, as the first analyses of our clinical data seem to indicate.

- 2. What distinguishes the DIAGNOcam from other diagnostic procedures that were introduced in the market in recent years and months?**

Kühnisch: Many of these innovations did not work as promised by the manufacturers or did not meet the expectations placed in them. Also, in most cases, these procedures were only able to examine fissures and pits. With the DIAGNOcam, things are different. Apparently, it succeeds to depict both occlusal as well as proximal lesions. Moreover, by using light of the near infrared range, carious lesions or tooth surfaces may be examined any number of times. This allows for an improved caries monitoring. Furthermore, the question as to what time caries needs to be removed is being rethought to the effect that preventive measures are given more weight.

- 3. Does that mean that the formula "In case of caries, drill" is no longer valid?**

Kühnisch: Science has a different view of the world today. We are talking about early diagnosis – Early Detection. With a DIAGNOcam, we are able to recognize proximal lesions early – without any ionizing radiation. In case of a diagnosed lesion that is limited to the enamel, we are able to either infiltrate or seal it, thus arresting the carious process. As far as I'm concerned, the interesting question about the actual point in time that a surgical intervention with the drill should be done is open. It may be at a 10, 20 or 30 percent share of dentin. For this determination, we need data. In order to avoid misunderstandings: any caries media and profunda should still be excavated. However, the other question associated with that issue is the degree to which the carious process needs to be removed in relation to the pulp. In the sense of avoiding unnecessary endodontic treatments.

- 4. When will this new paradigm regarding caries become routine in dental practices?**

Kühnisch: To draw a comparison: it took about ten years for the wide acceptance of adhesive technology. I don't think that there will be any faster progress regarding the issues that are being discussed now. But new diagnostic approaches help us to establish this new thinking in a quicker and safer fashion.

- 5. You are conducting an in-vivo study in which the collection of data is scheduled to be completed in early 2013. There is already a progress report. What does the data about the 95 non-cavitated proximal lesions tell you?**

Kühnisch: In these cases, we see the typical underestimation of the extent of dental caries in a solely clinical examination. Another result is the very good agreement of the radiological diagnosis with the near infrared findings. Furthermore, there is a high agreement of dentin caries diagnoses with the actual progression of the caries into the dentin at proximal surfaces. Therefore, it is our view that the DIAGNOcam may be applied for the diagnosis of proximal caries in order to recognize carious processes at an early stage and to capture lesions in the dentin as well. Thus, a significantly more focused indication for X-ray imaging of the bite wings seems to be possible, which should lead to a reduction of the number of X-rays and the exposure to radiation. But further research should be conducted in this matter.

- 6. The image of the DIAGNOcam and the X-ray look similar...**

Kühnisch: ...at first site. For example, X-ray images offer you a oro-vestibular view, whereas the DIAGNOcam provides an occlusal view. The long-wave light of the DIAGNOcam penetrates soft and hard tissue very well. Another important, clinical point is the possibility to observe distortions on the periphery. This is based on the compact unit composed of wide-angle optics, the camera sensor and electronics so that good images in the molar area may also be achieved. This is important to know in order to move the areas most interesting for diagnosis into the center of the image.

- 7. What else does an operator have to consider?**

Kühnisch: That's it. The operation is very simple. As are the interpretation and documentation of the images. The priority of the DIAGNOcam within the framework of caries diagnostics is high. And it is a procedure that will even play a role in conjunction with early detection.

- 8. Is there any other research concerning the DIAGNOcam that you are conducting at the University of Munich?**

Kühnisch: Besides the estimation of the diagnostic precision, one should also take into account what other benefits the procedure may have further afield. We will tackle this in the near future.