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DENTAL

## As seen in the July/August 2011 issue of General Dentistry University of Washington Study shows advantages of the VELscope.

### **Introduction:**

The purpose of this investigation was to determine the value of adding the VELscope's narrow band (light) imaging (NBI) to the standard oral soft tissue examination process used to detect mucosal change. A total of 620 dental patients who came to the clinic for regular dental evaluation or for treatment of acute dental problems were given a standard oral soft tissue examination by dental students under faculty supervision. The results of the white light examination were recorded after the tissues were examined with NBI, at which point the areas with a loss of fluorescence (LOF) were recorded. The nature of the tissue change was classified clinically as normal variation, inflammatory, traumatic, dysplastic, or other, and patients were categorized depending on their clinical findings: normal, need follow-up visit, or immediate biopsy. Risk factors related to oral dysplasia also were recorded. The addition of NBI added between one and two minutes to the examination process.

Of the 620 examinations, an area with an LOF suggestive of pathology was detected in 69 subjects (11.1%). After a second immediate evaluation, 28 of the 69 subjects were scheduled for follow-up or biopsy. None of the lesions discovered in these 28 subjects had been detected using standard (white light) examination. Adding NBI to the routine clinical examination resulted in detection of changes not seen with white light examination in 11.1% of patients; of these, a small but important number were found to have otherwise undetected persistent changes representing inflammatory lesions or potentially dangerous oral dysplasia. Adding NBI as an adjunctive diagnostic procedure improved the quality and outcome of the examination process.

### **Procedure**

Patients seeking dental care were asked to participate in the University of Washington study to determine if the VELscope's narrow band light imaging could help detect oral cancer and other abnormalities of mucosal tissue. The 620 patients who chose to participate were of wide variety. Their ages ranged 18-85, 55% were woman and 57% had a family history of cancer. University of Washington dental students, while being supervised by faculty, gave patients routine head and neck physical examinations, followed by oral soft tissue assessments and dental examinations under white light without any devices. They recorded their findings and then immediately examined patients again with the VELscope.

### **Results**

69 patients had areas of concern that did not show up under a white light evaluation, but were revealed only in the VELscope examination. After re-evaluating those 69 patients with the VELscope once more to check for errors, it was determined that 41 patients' areas of concern were due to normal variation in tissue characteristics, and they were not at risk. However, 28 patients' conditions were so dangerous they were scheduled for either immediate biopsies or follow-up appointments. Without the VELscope, those 28 patients would not have been made aware of the need for, nor would they have received, further medical attention.

The biopsies and follow-up appointments determined that 2 patients had lichen planus, 2 had inflammatory lesions, 3 had mild precancerous dysplasia and 2 had moderate precancerous dysplasia. Without the use of the VELscope these conditions would have gone unnoticed, and untreated, until they were visible to the naked eye. And by then it might have been too late.

### **Conclusion**

9 patients out of the initial test group of 620 needed further medical attention, and they got that medical attention because of the VELscope. The findings of this study support the use of the VELscope as a simple adjunctive diagnostic device that, when used as one component of a standard diagnostic protocol, will help clinicians to detect inflammatory and dysplastic tissues. The VELscope has the potential to reveal oral cancer and precancerous dysplasia earlier than traditional white light exams. And the earlier those maladies are caught, the greater the chance of patient survival.