2010 was the year that the oral HPV/oral cancer connection made the headlines. It took a celebrity's oral cancer diagnosis to prompt several reporters to dig deeper and inform consumers that not all oral cancers are caused by tobacco and alcohol.

Physicians and dentists alike know that oral cancer can be disfiguring and deadly, particularly when presenting in its later stages. For generations, clinicians have been trained to look at alcohol and tobacco use as two of the main factors, other than family history, that put their patients in the high-risk category. And for generations, we've been evangelical about explaining these risk factors to our patients.

But now there's a new villain in the lineup; one that is running pace with smoking and drinking as a putative cause for oral cancer. This suspect is human papillomavirus, or HPV. In fact, of the 34,000 cases of oropharyngeal cancers diagnosed each year, HPV is now found in up to 50 percent of them.1

Whatever the cause, oral cancer at its earliest stages is difficult to discern from healthy tissue. By the time the lesion is visually apparent or symptomatic, it is likely to require surgical removal.

There are about 1,700 more people developing HPV-related oral cancers each year.1 The risk profile for oral HPV includes anyone older than age 12 who is sexually active or who has had more than three sexual partners.2 These statistics are now being cited in the mainstream media.

Like it or not, the fast-forward button has been pushed on the progress of oral medicine, which presents dentists with the two-edged sword of both great responsibility and opportunity. As the gatekeepers of oral health, don't dentists have a responsibility to their patients to look for cancers that originate and/or reside in the oral cavity at their earliest and most treatable stage?

There are several devices available to assist dental professionals in detecting possible cancerous lesions in the mouth.

Tissue fluorescence devices shine light of a specific wavelength onto the oral mucosa. The light interacts with dysplastic tissue differently than with normal tissue, and therefore fluoresces differently than normal tissue. Depending on the individual risk factors of the patient, the suspect lesion can be monitored over time for changes or symptoms, or a biopsy can be taken and tested for cancer.

Brush biopsy devices employ tiny wire brushes that scrape off the top layers of skin of suspect lesions, the cells of which are analyzed in a laboratory and described on a pathology report. It must be noted that these two methods are used to screen for oral cancer, which might be attributed to the oral HPV virus. They do not directly screen for HPV as a potential precursor to oral cancer. Currently, the most convenient noninvasive way to definitively detect oral HPV is through a salivary diagnostic test.

OralDNA Labs recently introduced the OraRisk HPV test, a noninvasive, easy-to-use screening tool for identifying...
the various types and levels of oral HPV infection, especially HPV-16 and HPV-18, which are the variants most commonly linked to oral cancer.3,4

Using salivary diagnostic testing, today’s dental professional is in a unique position to not only save lives, but to play an important public health role in minimizing the spread of a sexually transmitted disease – the rationale being that once a patient knows he or she is oral HPV-positive, he or she might take the initiative to be more responsible and practice safe sex.

This opportunity to save lives and control the spread of sexually transmitted diseases is achieved through skillful patient communication, accurate diagnosis and prompt referral. There are four main questions that need to be answered before incorporating salivary diagnostic testing for oral HPV into your oral cancer screening protocol.

How to Discuss HPV

For most dentists and hygienists, the most probing question they ask their patients is, “Do you floss?” Now, in order to be a “mouth physician” testing for persistent HPV infection, much more personal questions need to be asked to patients who fit the following profile:

- Sexually active
- Family history of oral cancer
- Signs and symptoms of oral cancer
- Traditional risk factors for oral cancer
- Suspicious oral lesions

The oral HPV discussion is one that can be rehearsed and that over time will become more comfortable for dentists, hygienists and patients who will begin to accept the dental clinician’s expanding role as a health care provider. The following is a sample script excerpt from the OralDNA patient education kit that can be used as a general guide on how to discuss oral HPV testing with your patients:

**Doctor:** “As part of our regular oral cancer screening, we now incorporate an oral HPV test that helps us in several ways. It enables us to determine if HPV is present in your mouth and, if so, which types of HPV are present. This helps us determine if you are at increased risk for developing oral cancer and allows us to implement a plan for earlier detection and prevention of oral cancer.”

How to Test For HPV

As the patient education script explains, it’s pretty easy:

The patient is instructed to swish a saline solution around the entire mouth, gargle deeply and expectorate into a specimen collection tube. This process takes 30 seconds.

The collection tube is then placed into its own plastic specimen transport bag and shipped from the dental office via prepaid FedEx envelope to OralDNA Labs in Brentwood, Tennessee for DNA analysis.

The OraRisk HPV lab report is then sent back to the ordering dentist via the secure Web site, so that he or she can share the information with the patient and develop a personalized treatment plan based on their test results.

How to Explain the Results of the HPV Test

OralDNA has created helpful patient education scripts for virtually every OraRisk HPV test result scenario:

**Negative result:**

**Doctor:** Good news, your OraRisk HPV results came back negative, so there’s nothing more to do at this time. On an ongoing basis, we would like to continue monitoring for new risks or changes in current risk factors. There are no current established guidelines for retesting, however; conventional wisdom or clinical judgment suggests one year is a reasonable time frame for repeat testing (similar to annual HPV testing of genital tract).”

**Positive result with no lesion:**

**Doctor:** Your OraRisk HPV results came back positive for HPV (HPV type 16, 18, etc.). You have no lesions or areas in your mouth of concern that we can see. However, to be safe, I recommend you have an examination of your complete throat area by an ENT. After that exam, we will discuss whether or not additional testing will be needed. By then, the virus may clear itself.
from your body on its own, as is usually the case, and our test will provide certainty. Research has not determined the exact time frame for re-testing, but we suggest six to 12 months."

Positive with a lesion:

Doctor: "Your OraRisk HPV results came back positive for HPV (HPV type 16, 18, etc.). Because you have a small lesion here (show patient the spot with an intraoral camera), I recommend you see a specialist who has experience in diagnosing these."

Patient: "What will s/he do?"

Doctor: "In many cases, they can tell just by looking if a biopsy is necessary. Biopsies these days are simple and painless. They will numb you in the area with an anesthetic, just like I do before a dental procedure. Then they may take a small brush and gently brush the area with it. This collects cells from the area that are sent to a lab for identification. Or, they may remove a very tiny part of the lesion and send it to a lab for identification."

Patient: "What if the biopsy is positive for cancer?"

Doctor: "Whenever we notice a lesion that does not get better on its own within 2 weeks, it’s best to have it checked out by a specialist who will be able to provide the necessary treatment. The good thing is that we noticed it early. Treatment at the earliest stages is the most advantageous time to do something about it."

What to Do Next

OralDNA Labs recommends that the treating clinician follow standardized follow-up protocols, and has created helpful workflow charts to map out the referral process for patients who test oral HPV-positive but present no visible lesions, and those who test oral HPV-positive and present visible suspicious lesions.

Conclusion

Armed with salivary diagnostic tests, dentists and hygienists are in a perfect position to diagnose oral HPV early, and not only have a positive impact on patient outcomes, but also on reducing the spread of oral HPV. As a New Year’s Resolution, perhaps you can resolve 2011 to be the year you’ll choose to update your oral cancer screening protocol.

References:


Author Bios

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Thomas W. Nabors, DDS, FACD, was a practicing dentist for more than 38 years. He treated periodontal patients using a variety of treatment philosophies: nonsurgical, surgical, laser therapy, as well as antimicrobial models. He has a rich background in the clinical application of current therapy philosophies and the application of clinical laboratory testing. He is a distinguished lecturer at the national and state levels on personalized periodontal disease treatment and the application of molecular testing methodologies within oral medicine. He has authored numerous articles on the subject. He co-founded OralDNA Labs in 2008 and serves as the company’s chief dental officer.
Much is known about the progression of human papillomavirus (HPV) in the genital tract. This includes the association of high-risk HPV with cervical cancer and its prevention by the newly available HPV vaccines. While long-term studies of the natural history of HPV within the oral cavity are not available, it is known that the acquisition of HPV occurs through open-mouthed kissing and oral sex.1,2 Oral HPV infection, and especially infection with HPV-16, has been acknowledged as a risk factor for developing oropharyngeal cancer, particularly oropharyngeal squamous cell carcinoma (OSCC) by the International Agency for Research Against Cancer. A recently published study in the Journal of Emerging Infectious Diseases suggests that there is a slow epidemic of HPV infection-induced oral cancers, notably OSCC.3

The incidence of these oral cancers, or number of new cases diagnosed, has increased significantly among persons between ages 20 and 39 in the U.S. Persons with prior HPV infections are 32 times more likely to develop oral cancers at the base of the tongue and tonsils than those who do not.2,4 This is about 10 times greater than the risk associated with chronic alcohol or tobacco use.2

Throughout the last decade, the age at diagnosis, incidence, location of oral and pharyngeal cancers, and risk factors have changed dramatically. From 1998 to 2003, differences in the type of oropharyngeal cancers, the location and regional variations have been determined from epidemiologic data obtained from national cancer registries and behavioral data. At least one published review of data demonstrates that the incidence, or newly diagnosed cases of oral cancer at the tonsillar area and base of the tongue are increasing.4 Several research studies, including at least one case control study, have suggested that these changes might be attributed to the acquisition/transmission of HPV1,2,3 While the science is evolving, dentists should carefully consider their role in the prevention of oral cancers. This includes reviewing their oral cancer screening protocols periodically to include assessment of HPV infection in the oral cavity.5 While there is limited data on oral practices, the highest-risk group is expected among young sexually active adults under the age of 25. Since many of these young people are otherwise healthy and do not regularly visit another primary care provider, dentists could play a significant role in the prevention of a growing subset of oral cancers.

Therefore, dentists should assess and expand their capacity to provide HPV screening, appropriate referral and counseling. They should be aware that open-mouthed kissing and oral sex carries some risk of HPV transmission. This is likely to be greater, especially when one partner is known to be infected with HPV, when either partner’s HPV status is not known, and/or when one partner is not monogamous. Since at least one study shows that persons with more than six oral sex partners are nine times more likely to develop oral cancer than those who did not, dentists should evaluate their capacity to assess the patient’s oral practices for risk of acquiring HPV infection.2,5

Oral care providers should also determine their ability to provide appropriate training, counseling or referral on oral sex practices, including the use of proper barrier protection and partner reduction to reduce risk of HPV-associated oral cancers.3

References: