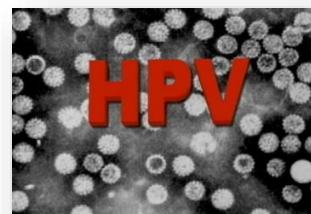


Early Oral Cancer Detection in the Dental Surgery

As with cancer in other areas of the body, detecting oral cancer early on remains critical to preventing it from spreading. The five-year survival rate of patients in whom oral cancer was detected before it metastasized stands at 80 per cent, while patients with distant metastases survive at a rate of 20 per cent over the same period of time.¹ The goal of early detection is to identify oral cancer before it becomes malignant or before it spreads to other areas of the body. Because they are responsible for their patients' oral health, dentists retain an extremely important role in detecting oral cancer early on. By understanding the risk factors, indications, and examination procedures for oral cancer, dentists can recommend potentially life-saving diagnostic surgery. By realising where they fit into the process of detecting oral cancer, dentists can potentially save patients' lives.

Risk Factors for Oral Cancer

Identifying the presence of risk factors aids in early oral cancer detection in patients, so dentists should understand which factors increase the chances of this disease occurring. Those most at risk of developing oral cancer are older patients, males, heavy users of alcohol and tobacco, and those with a poor diet.² Cigarettes, cigars, pipes, and smokeless tobacco put users at an especially high risk for oral cancer. Combining habitual tobacco use with habitual alcohol consumption increases the chances of developing oral cancer over the use of solely one substance or the other.³ Additional risk factors for specific types of oral cancers include infection by the sexually transmitted human papillomavirus (HPV) 16 type, and exposure of the lips to ultraviolet rays such as those from sunlight.⁴ By asking a few simple questions, dentists can identify when their patients are at risk of developing oral cancer and will be better able to draw links between risk factors and particular indications.



¹ <http://www.oralcancerfoundation.org/discovery-diagnosis/detailed-brush-cytology.php>

² [http://www.journalcancerpolicy.net/article/S2213-5383\(13\)00003-9/fulltext](http://www.journalcancerpolicy.net/article/S2213-5383(13)00003-9/fulltext)

³ <http://www.nidcr.nih.gov/oralhealth/topics/oralcancer/detectingoralcancer.htm>

⁴ Ibid

Indications

Lesions remain the clearest indication that a patient might be afflicted by oral cancer, though dentists should also be aware of other, less-pronounced symptoms in order to determine when diagnostic surgery is advisable.

Lesions

Two types of lesions in the oral cavity can become cancerous: leukoplakia and erythroplakia. The former appears white in color, is unable to be scraped away, and cannot be confused with any other type of lesion. The latter appears red in color, holds a much greater likelihood of developing cancer, and resembles other types of less-noxious lesions. Leukoplakia with erythroplakic components also holds a higher chance of becoming cancerous than an entirely leukoplakic lesion. If either type of lesion does not resolve itself within two weeks, the practitioner should consider diagnostic surgery as the next step in identifying whether the lesion is cancerous or not.⁵



Other Symptoms

In addition to lesions, dentists should be aware of other symptoms that might indicate the presence of oral cancer in patients. These include a lump or thick spot in oral soft tissue, pain while chewing or swallowing, a persistently sore throat, ear pain, swelling of the jaw, and numbness in the tongue or other areas of the oral cavity. If these symptoms remain for two weeks, dentists should conduct further examinations and laboratory tests to reach a conclusive diagnosis.⁶

⁵ <http://www.nidcr.nih.gov/oralhealth/topics/oralcancer/detectingoralcancer.htm>

⁵ <http://emedicine.medscape.com/article/1840467-overview>

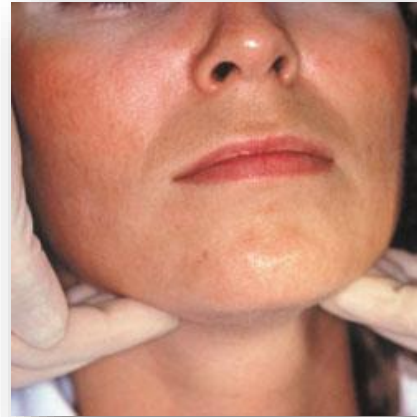
⁶ <http://www.nidcr.nih.gov/oralhealth/topics/oralcancer/detectingoralcancer.htm>

Examining the Patient

The most simple and a highly effective way to detect indications that oral cancer might be present is to examine the patient. Dentists should start with an extraoral examination to look for indications outside of the oral cavity and then conduct an intraoral examination

Extra oral Examination

An extra oral examination remains critical to detecting oral cancer indications that might otherwise not be easily discernible. It includes look for asymmetry, tenderness, or swelling around the head and neck, touching the lymph nodes in the neck, submandibular, and supraclavicular region to see if any are tender or swollen, and looking for irregularities in the lips and perioral tissues by inspecting and touching.¹



Intraoral Examination

An intraoral examination should reveal lesions as well as less-obvious oral cancer indications. When lesions are present, it is important to take note of the size, color, texture, and outline of each one. Direct fluorescence visualization can help make less-discernible lesions more visible. During this process, molecules in mucosal cells absorb blue light that a device casts into the oral cavity and reflect it back as fluorescent light. Healthy tissue appears fluorescent, while areas with a lesion appear dark or muted.

In addition to looking for lesions, it is important to also inspect all soft tissues in the oral cavity by palpation. The lateral and ventral tongue aspects, the floor of the mouth, and the soft palate complex remain particularly vulnerable to oral cancer.¹

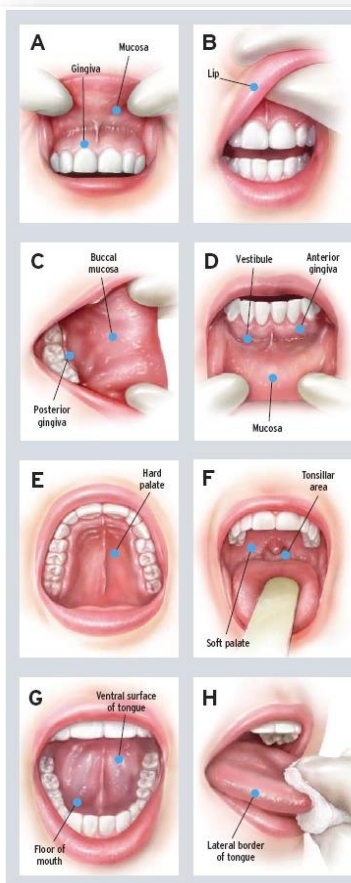


FIGURE 1. A brief screen for oral cancer includes this eight-step examination of the inside of the mouth.



Surgical Procedures

If indications of oral cancer are detected, diagnostic surgery to conclusively diagnose the condition follows as the next logical step. A biopsy represents the only way to retrieve a suitable sample for testing, though a few options are available for how to carry out this procedure. Understanding the different methods should help dentists decide which one to choose. Biopsies are beyond the scope of training of many dentists, but patients can be referred to specialists such as periodontists and oral surgeons for these procedures.

Incisional Biopsy

For an incisional biopsy, the practitioner removes all or part of the tissue where an indication of oral cancer was detected. Removing all of the tissue is sometimes referred to separately as an excisional biopsy. If the tissue lies in an easily reachable area of the oral cavity, the practitioner can perform the incisional biopsy in an office or clinic with the patient under local anesthesia. An incisional biopsy of tissue that remains more difficult to reach should take place in an operating room with the patient under general anesthesia.¹

Fine-Needle Aspiration Biopsy

A fine-needle aspiration biopsy is recommended when a lump in the neck is detected. A less-invasive procedure, it entails aspirating the lump with a thin needle, which draws cells from the lump. The practitioner can then examine these cells under a microscope to determine if they are cancerous or not.¹

Brush Biopsy

A brush biopsy represents the least-invasive of the different biopsy methods. In this newer procedure, which is also known as exfoliative cytology, the practitioner lightly abrades the tissue with a small brush featuring stiff bristles and then gathers cells for analysis. A brush biopsy offers an effective, non-invasive technique for determining if an incisional biopsy is necessary. Practitioners who are unsure whether to respond to possible indications of oral cancer with an incisional biopsy can instead proceed with a brush biopsy. Results that are either inconclusive or show cancer can help them decide conclusively to conduct an incisional biopsy.⁷



⁷ http://www.oralcancerfoundation.org/cdc/cdc_chapter5.php#sthash.ZmejgEUC.dpuf

Imaging Tests

After analysis of tissue samples and cells under a microscope shows the presence of oral cancer, the next step is to perform imaging tests to determine the extent of the malignancy. These tests are generally left to oral cancer specialists who understand how to evaluate these tests and which of them are more effective at detecting certain characteristics of the cancer than others are. Dentists and dental specialists should also understand basic points about imaging tests to answer questions from patients before referring them to an oral cancer specialist.



MRI

Magnetic resonance imaging (MRI) provides a three-dimensional picture of the tumor, which helps indicate the extent to which the tumor affects the surrounding soft tissue. This imaging technique is also recommended for nasopharynx carcinoma and lesions on the paranasal sinuses.⁸

CT or CAT Scan

A computed tomography (CT) or co-axial tomography (CAT) scan indicates the size, shape, and position of the tumor and lymph nodes enlarged by cancer cells, which indicates metastization. These scans are generally more effective than others in detecting when oral cancer has spread to other areas.⁹

PET Scan

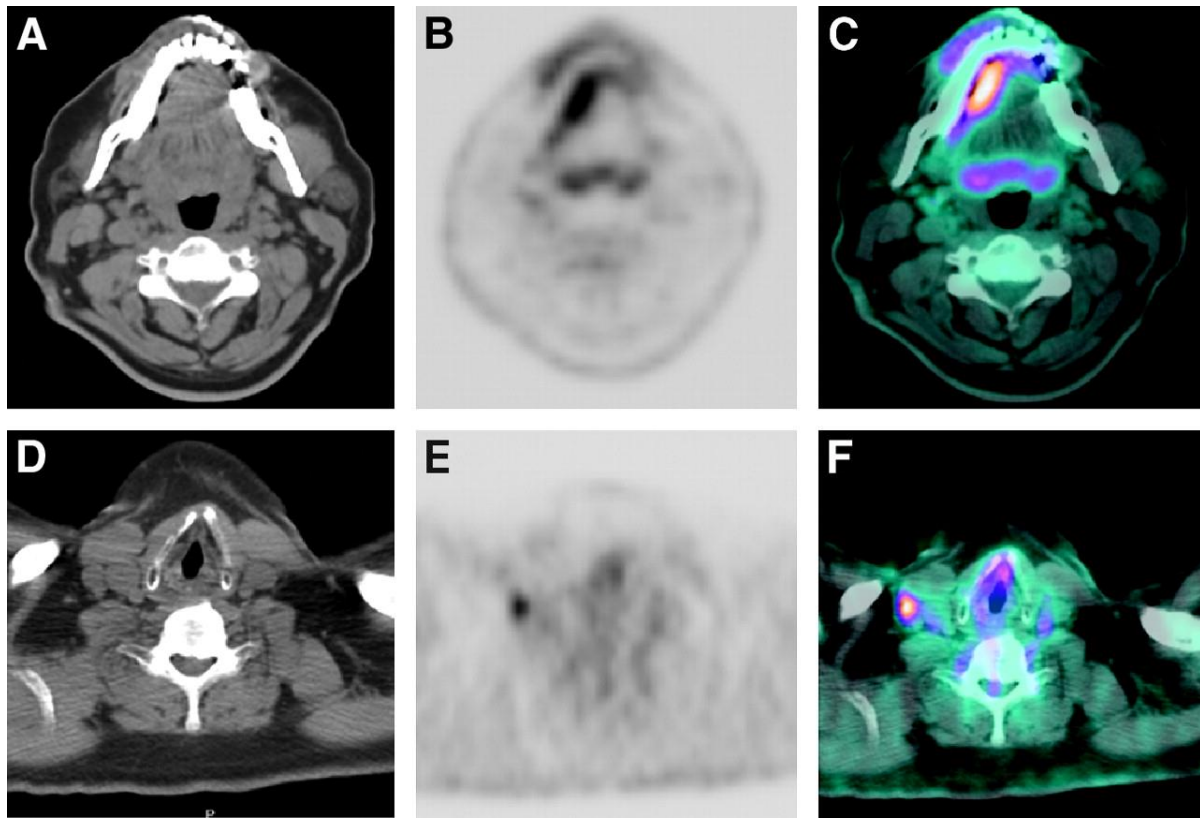
A positron emission tomography scan remains an effective technique for evaluating whether or not oral cancer has metastasized. It measures the body's metabolism in various tissues, which indicates where the cancer resides because cancer cells divide rapidly. This test is relatively expensive to administer and not necessarily more effective than other imaging techniques.¹⁰

⁸ Ibid

⁹ Ibid

¹⁰ http://www.nyuoralcancer.org/oral_cancer/diagnosis.html

¹⁰ <http://www.cancerresearchuk.org/cancer-help/about-cancer/tests/pet-scan>



J Nucl Med May 2006 vol. 47 no. 5 755-762

FP PET/CT in 50-y-old man with cancer of right oral tongue. Primary tumor is not well seen on noncontrast CT (A) but is clearly delineated on PET (B) and PET/CT fusion (C) images. (D) CT shows small lymph node in right neck level III, which shows moderate ^{18}F -FDG uptake (SUV, 4.6) on PET image (E). Fusion image shows ^{18}F -FDG uptake clearly within this node (F). Histopathology revealed abundant lymphocytes but no metastatic deposit.

Conclusion

Early detection of oral cancer remains critical to treating malignancy before it spreads. Although dentists are not trained to treat oral cancer, they serve as a critical first line of defense in preventing it from threatening their patients' lives. Being aware of the factors that put patients at risk for developing oral cancer helps dentists understand the importance of examining certain patients for this disease. Knowing how to examine their patients helps dentists detect possible symptoms of oral cancer and determine whether or not to perform a biopsy. Dentists might be trained to perform a biopsy themselves, or they can refer patients to specialists. Both vigilance and proper training enable dentists to detect oral cancer early on and possibly save patients' lives.