

# Heads Up! — A Call for Dentists to Screen for Oral Cancer

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The first solid evidence that periodic screening of the oral cavity can reduce mortality from oral cancer was published recently in *Lancet*.<sup>1</sup> The article described a large population-based study of about 168,000 participants in India, 87,655 of whom received at least one visual oral screening examination. Over a 9-year period, a 32% reduction in mortality was observed among those screened. These data, along with new advances in screening technologies, support a call to dentists to commit to oral cancer screening as part of routine daily practice.

Globally, survival rates for those with oral cancer have changed little over the last 3 decades. The disease is often identified at an advanced stage, significantly reducing the probability of successful treatment. Half of oral cancer patients die within 5 years of diagnosis. Early detection of the disease (stages I and II) is associated with a vast improvement in survival rate; 80% of patients survive for 5 years compared with 20% of those with advanced disease (stages III and IV).<sup>2</sup>

The typically late diagnosis of oral cancer is ironic because the oral cavity is readily accessible for screening, and visible changes in the mucosa (in most cases) are associated with development of the disease. Oral cancer is frequently preceded by an identifiable premalignant lesion and the progression from dysplasia

to cancer occurs over years.<sup>3</sup> This should allow clinicians an opportunity to detect early changes. Nevertheless, most oral cancers are still detected at a late stage, when treatment is complex, costly, often disfiguring and marked by poor outcome.

It is well known that oral cancer is strongly associated with tobacco and alcohol consumption, together responsible for about 75% of oral cancers in the western world. When these 2 factors are combined, the risk is multiplied.<sup>4</sup> Moreover, 90% of oral cancers occur in people over 45 years of age. Noteworthy, however, is a universally observed trend toward an increase in the number of younger adults without apparent risk, who develop the disease.<sup>5</sup> This trend supports the extension of oral cancer screening to include all adults.

Dentists in Canada could play a major role in early detection of this fatal disease. An early study in British Columbia, undertaken over 20 years ago, showed that regular dental care strongly influenced the early diagnosis of oral cancer.<sup>6,7</sup> Of 158 patients studied, 46% of those with regular dental care (at least one visit annually over the preceding 5 years) had stage I (early) tumours and 12% had stage IV (advanced). In contrast, 19% of patients without regular dental care had stage I tumours and 43% had stage IV tumours. We are now conducting a study to further define this association in patients with precancer and oral cancer referred to the British Columbia

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**Table 1** Step-by-step head and neck evaluation

### A. History taking

The first step in screening for oral cancer is completion of a patient history, which should include:

**I. Family history of head and neck cancer**

**II. Review of oral habits and lifestyle**

Obtain background information related to risk for oral cancer, including tobacco use, alcohol consumption and dietary or nutritional status.

**III. Pertinent signs and symptoms**

Identification of a persistent white patch in the mouth, a nonhealing ulcer, a lump or bump, submucosal fibrosis, spontaneous or unexpected oral bleeding, paresthesia, dysphagia or trismus warrants further investigation. If any of these conditions persists for more than 3 weeks following removal of identified etiologic factors, re-evaluation or referral for further investigation (or both) is recommended.

### B. Visual inspection

Equipment required for visual inspection includes a tongue depressor or mouth mirror, gauze and a good light source.

**I. Extraoral examination**

1. Position patient in an upright sitting position.
2. Inspect the head and neck region for asymmetry, swellings or other discrepancies.
3. Palpate the submandibular, neck and supraclavicular regions for lymph nodes.
4. Inspect and palpate lips and perioral tissues.

**II. Intraoral examination**

1. Position the patient in a semi-reclined position.
2. Examine all oral soft tissues sequentially.
  - Buccal and labial mucosa
  - Mandibular buccal and lingual gingiva and retromolar pad (trigone)
  - Maxillary buccal and palatal gingiva
  - Hard and soft palate, tonsillar tissues and uvula
  - Floor of mouth (including the mandibular lingual vestibule)
  - Tongue — dorsal, lateral and ventral surfaces
3. Make note of any tissue swellings, changes in colour, texture, symmetry, areas of tenderness or changes in tissue mobility.
4. Examine visually and palpate the most common anatomical sites of oral cancer — the ventral–lateral tongue, floor of mouth and soft palate complex — to identify leukoplakia, erythroplasia, ulceration, induration, fibrotic submucosal bands or a palpable mass. These are the sites of 60% of cancers of the oral cavity.

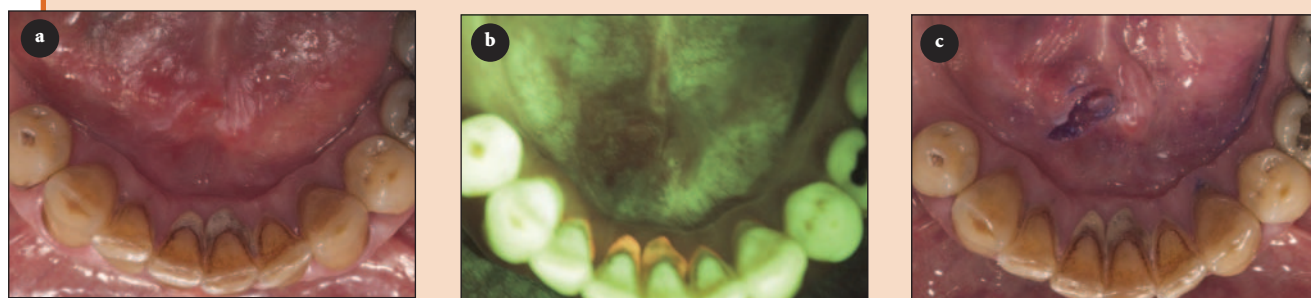
### C. Visualization aids

Techniques to enhance visualization of premalignant lesions and oral cancers are garnering considerable research and media attention. Those currently being evaluated are toluidine blue and fluorescence visualization (the VELscope).

Cancer Agency. Among the first 40 patients interviewed, 34 (85%) reported that they either had their lesions identified by dental practitioners initially or sought the care of dental practitioners after self-identification of the lesions.

Given the potential for dentists to serve as frontline advocates, why has there been so little change in the stage

of identification of this disease? A major challenge has been differentiating between benign and precancerous or early cancerous mucosal changes when there are often no distinctive clinical features that separate the conditions. This often results in diagnostic delay. Fortunately, help may be on the way! Recent research supports the use of diagnostic aids to facilitate a clinical decision (Fig. 1).



**Figure 1:** An asymptomatic, ill-defined red and white lesion on the anterior floor of the mouth of a 57-year-old male smoker. **a.** Viewed under white light. **b.** Viewed with a VELscope, which reveals a well-demarcated dark brown to black area where there is loss of fluorescence. **c.** Viewed following application of toluidine blue (TB); note focal uptake of the vital stain. Biopsy of the site of TB staining and loss of fluorescence showed an invasive squamous cell carcinoma.

Toluidine blue has a long history of use as a vital stain to identify oral cancers and has been used sporadically in dental practice for years. Historically, this stain has been less reliable in the identification of premalignant disease. New data from an ongoing longitudinal study being conducted at the British Columbia Cancer Agency have shown that premalignant oral lesions that stain positively are 6 times more likely to become oral cancers than those that do not stain. This finding supports a new role for this vital stain in identification of high-risk oral lesions.<sup>8</sup>

Another recent focus has been on the use of tissue fluorescence to identify alterations in biochemistry and morphology that may be associated with the development of oral cancer (Fig. 1b).<sup>9</sup> This technique has a long history of use at other body sites, facilitating the identification of cancers and premalignant lesions in the lung and cervix. A simple hand-held device, the VELscope (LED Dental Inc., Vancouver, B.C.), has recently been developed for use by dentists to visualize tissue fluorescence in the oral cavity directly.<sup>10,11</sup> A blue light is directed at the surface of the oral mucosa. Normal tissue will fluoresce and appear pale green. Abnormal tissue loses this fluorescence and appears dark brown to black. A pilot study of 44 patients has had encouraging results. In this group, the device achieved a sensitivity of 98% and a specificity of 100% when discriminating normal mucosa from tissue with biopsy-proven severe dysplasia, carcinoma in situ or invasive carcinoma.<sup>9</sup>

It is vitally important to recognize that the use of any visual aid is an adjunct to the conventional head and neck examination. There is no replacement for this important examination! Table 1 presents a simple systematic approach to a brief but thorough head and neck

examination as a guide for students and residents in training. It is also a refresher for the practising dentist.

Oral cancer is the sixth most common cancer in the world and is a devastating disease with terrible consequences to the individual and to society. Approximately 3,200 new oral cancers and 1,050 deaths from oral cancer are estimated to occur each year in Canada.<sup>12</sup> The integration of an oral cancer screening examination into daily practice requires little additional time or expense in an already busy practice. The challenge to the dental profession is to ensure that all adult patients have a brief but regular oral cancer screening examination.

Working together with a strong commitment to change, dentists have the opportunity to make a dramatic difference. The World Health Organization has made a commitment to take action against the neglected burden of oral cancer, mainly by emphasizing prevention. The call to action in Canada requires a personal response to this need from each of the more than 18,000 dentists in the country<sup>13</sup> and facilitation of change by dental societies through the provision of education. It also represents a challenge to our dental schools to introduce and reinforce the value of incorporating an oral cancer screening examination into the daily practice of the 500–600 dental students who graduate each year. ♦

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