Spotlighting articles from past ADA Journals that have achieved landmark status thanks to their lasting impact on dental care and the dental profession

Drs. Tiecke and Bernier: pioneers in oral pathology

J.W. Hellstein, DDS, MS

This article, published in 1954 by Drs. Richard Tiecke and Joseph Bernier, helped define the etiology of oral cancer, its histology, its associated demographics, its location in the oral cavity, its propensity for metastasis to distant locations and its survival rates. The data presented in this article were based on 401 cases of intraoral squamous cell carcinoma that were selected from the archives of the Armed Forces Institute of Pathology (AFIP). The AFIP began as the Army Medical Museum in 1862 and was decommissioned and closed in 2011. This institution served as a consultation service to both military and civilian pathologists in the United States and the world.

Drs. Tiecke and Bernier lamented the problem faced by dentists and physicians in not detecting squamous cell carcinoma in relatively easily viewed locations such as the oral cavity, cervix, rectum and skin. As reported by Cameron...
In this JADA centennial landmark article, the authors recognize and present data that describe the distribution of oral cancer in the familiar horseshoe-shaped area in which oral and oropharyngeal carcinomas most often occur (the floor of the mouth, the lateral and ventral tongue and the palatal arches). They also present data on areas such as the buccal mucosa, where oral cancer occurs less often. This landmark article was important in describing the metastasis of oral cancer to regional lymph nodes and distant sites in terms of the original tumor location in the oral cavity and survival rates.

Drs. Tiecke and Ber nier reported a combined 30 percent three-year survival rate for all patients who had oral cancer of the buccal mucosa, floor of the mouth, palate and alveolus, and only a 22 percent three-year survival rate for patients who had squamous cell carcinoma of the tongue (see the figure, which is Table 3 from the original article). Overall, they reported that 21 percent of patients with oral cancer were alive five years after their initial hospitalization for treatment. Although they didn’t specifically utilize modern criteria for classifying cancer into various stages, it is obvious from their report that about 75 percent of their cases were diagnosed as either stage III or stage IV tumors. As seen in modern reports of cancer survival, progression of tumors to stage III or stage IV continues to have a dire prognosis as compared with stage I or stage II lesions. Unfortunately, as in 1954 when this article was published, the majority of oral cancers continue to be found at advanced stages (III or IV). As when this landmark article was published, in their recent systematic review, Scott and colleagues continued to lament the delay in the diagnosis of oral cancers in the 21st century. They reported that there continues to be a number of psychosocial and health care factors that have a role in the late diagnosis of oral cancer, and that there is a general lack of high-quality research in this area.

It is relevant that in 1900, the numerical or-
prevalence of oral cancer in women today as compared with earlier decades. As when Drs. Tiecke and Bernier published their article in JADA, oral cancer today is treated mainly by surgery and/or radiation therapy. The extension of oral cancer to the cervical lymph nodes is usually an indication for surgical neck dissection or radiotherapy. In 1954, the spread of cancer to the lymph nodes primarily was detected by palpation. Today, the use of soft-tissue computed tomography, magnetic resonance imaging and fluorine-18 fluorodeoxyglucose-based positron emission tomography has greatly increased our ability to detect cancer metastasis to lymph nodes and distant sites. This increase in detection has resulted in the cervical nodes’ being addressed during the initial cancer therapy. There also have been remarkable therapeutic advances for oropharyngeal soft-palate tumors. Patients with these tumors, which often are HPV-related, have an approximately 90 percent five-year survival rate with combined radiation therapy and chemotherapy.

As reported by the American Cancer Society, cancer screening can lead to early diagnosis of breast, colon, rectum, cervix, prostate, skin and oral cancer. In this regard, it is important to recognize that there is a difference between screening for malignant cancerous lesions and screening for premalignant lesions. Moreover, implementation of effective screening for oral cancer remains problematic, and “screening” for oral cancer itself might be better termed “early case finding.” It is important to emphasize that, as in 1954 when Drs. Tiecke and Bernier published their landmark article, standard surgical biopsy remains the method of choice for diagnosing suspicious oral lesions.

It is important that clinicians be able to screen and treat premalignant lesions accurately before they become cancerous. While a variety of tests and instruments have been developed for screening premalignant oral lesions, these screening methods have yet to be scientifically validated as being effective in reducing oral cancer incidence or death from oral carcinoma. A systematic review of screening for oral squamous cell carcinoma was recently published in JADA. It reviewed screening methods that used tissue reflectance, autofluorescence, transepithelial cytology, a combination of tissue reflectance and autofluorescence, and clinically based screening programs. It was concluded that screening by means of visual and tactile examination to detect potentially malignant and malignant lesions may result in detection of oral cancers at early stages of development, but...
that there is insufficient evidence to determine if screening alters disease-specific mortality in asymptomatic people seeking dental care." The authors of this review also suggested that “clinicians remain alert for signs of potentially malignant lesions or early-stage cancers while performing routine visual and tactile examinations in all patients, but particularly in those who use tobacco or who consume alcohol heavily.” The article emphasized the need for additional research in the area of oral cancer screening.

The American Cancer Society estimated that there were about 23,000 new cases and 4,500 deaths from oral squamous cell carcinoma in 2010. Those data reflect changes in treatment modalities and improvement in cancer survival since 1950. In 2010, the five-year survival for all stages of oral cavity and pharyngeal cancers was 61 percent, with a 54 percent survival rate at five years for patients with regional lymph node involvement and a 32 percent survival rate for those with distant metastases. Because 23,000 people per year are diagnosed with oral cancer and because 4,500 people die of it every year, there is a need to improve the prevention of, diagnosis of and treatment for this devastating disease. Drs. Tiecke and Bernier clearly recognized the need to identify risk factors for oral cancer and to improve oral cancer treatment outcomes; these remain as prominent needs for research today, as identified in the recent ADA systematic review on oral cancer screening.

The goals of early cancer diagnosis and identifying premalignant stages of oral cancer continue to drive our profession so that we can better serve our patients and improve the health of all people.

Dr. Hellstein is a clinical professor, Department of Oral Pathology, Radiology & Medicine, College of Dentistry, University of Iowa, Iowa City. He also is the vice president of the American Academy of Oral and Maxillofacial Pathology and a member of that organization’s executive council. He is one of the directors of the American Board of Oral and Maxillofacial Pathology and a recent past chair of the American Dental Association’s Council on Scientific Affairs. Address reprint requests to Dr. Hellstein at Department of Oral Pathology, Radiology & Medicine, College of Dentistry, University of Iowa, 356 DSB South, Iowa City, Iowa 52246, e-mail john-hellstein@uiowa.edu.

Disclosure. Dr. Hellstein did not report any disclosures.

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