



**ADVANCES IN ORAL  
MEDICINE** from Bench  
to Bedside to Bench  
AAOM 2018

# **Oral Abstracts Session I**

## **Thursday, 04/12/2018, 1:00-2:40pm**

# = Oral Abstract Number, \*Presenter

To conserve space, we list only the institution and the country submitted  
as 1<sup>st</sup> organization.

Abstracts Committee:  
Chair: Kentaro Ikeda, DDS, MPH  
Co-Chair: Bhavik Desai, DMD, PhD

## **#1 – 1:00-1:10pm**

### **HIV Screening in the Dental Chair**

Rakkoo Chung, Shu-Yin John Leung, Stephen Abel, \*Michael Hatton, Yanfang Ren, Jeffrey Seiver, Carol Sloane, Howard Lavigne, Travis O'Donnell, Laura O'Shea,  
New York State Department of Health, USA

#### **Objectives:**

New York State (NYS) Blueprint on Ending the AIDS Epidemic (ETE) recommends routine HIV testing be permitted in additional care settings, including dental offices. A demonstration project was initiated to implement HIV screening in participating dental clinics in NY. We assessed the percentages of patients who accepted the HIV test offer and tested HIV reactive/positive.

#### **Methods:**

Since February 2016, dentists, hygienists, assistants and non-clinical staff have offered free HIV tests (the OraQuick oral fluid rapid HIV test) to patients who visit dental clinics of three dental schools (University at Buffalo, University of Rochester, and Stony Brook University) and their community partners. We collected patient information (e.g., demographics, previous HIV tests, past-year primary care provider (PCP) visit, test acceptance and results, and oral signs of HIV infection for those who tested HIV reactive). Data were analyzed using univariate/bivariate/multivariate statistical methods.

#### **Results:**

By October 2017, 13,685 patients were offered an HIV screening test. Of those, 8,087 (59%) accepted and were tested. The two most common reasons for not accepting HIV screening included recent HIV testing (55%) and feeling “not at risk” (39%), among those provided reasons. Of those tested, three (.04%) tested HIV reactive: one was confirmed HIV positive and linked to care; two patients had negative results on confirmatory serum tests. Of those who took the test, 3,030 (37%) were first-time testers. 5,939 (73%) did not report a past-year PCP visit, or an HIV test offer by their PCP in the past year. The screening process was facilitated by these factors: The HIV test kit was easy to administer, results were rapidly available, tests were free of charge, and did not involve testing the patient’s blood.

#### **Conclusions:**

HIV screening in the dental setting shows great potential, given the large percentages of first-time testers, and those who were not given an opportunity for HIV testing by PCPs in the past year. Dental patients also show a high rate of accepting the test offer. The manner in which the test is offered matters. Acceptance rate is lower if the test was offered by non-clinical staff, and higher when presented as part of routine dental care.

## **#2 – 1:10-1:20pm**

### **Toumbak, the New King of Smokeless Tobacco**

**\*Amel Sami, Imad Elimairi, Nancy Burkhart**

National Ribat University, Sudan

#### **Objectives:**

Toumbak is a smokeless tobacco of Sudan that is made from the finely ground leaves of the *Nicotiana rustica*, a tobacco species with a particularly high content of nicotine, tobacco specific nitrosamines and minor alkaloids. Tobacco is mixed with sodium bicarbonate (about 4:1), water is added and the mixture becomes one of a high pH (11.0 - 11.8) where nicotine is completely protonated and the rate of absorption spikes in the blood rapidly. It is a powerfully addictive and harmful product. Recent reports through consultations, social media and word of mouth indicate the increasing use of Toumbak within the USA and amongst American teenagers and young adults. The knowledge of Toumbak amongst oral medicine clinicians must therefore be fully developed as well as further awareness protocols amongst society initiated.

#### **Methods:**

300 questionnaires were distributed to Toumbak users within the Dental department of National Ribat University in the year 2017. 256 responded with mean age group of 36 years. Patients were asked in regards the initiation of Toumbak, social implications including early age initiation (EAI), health awareness and difficulty of cessation. Furthermore, an assessment by an oral medicine clinician was carried out of the oral cavity.

#### **Results:**

Of 256 responders, 41 patients had manifestations of disease in relation to the use of Toumbak. This ranged from poor oral hygiene (37), halitosis (24) and periodontal disease (16) to oral epithelial dysplasia (7) and oral cancer (5). 94% of patients were of EAI with 76% unable or unwilling to cessate the habit.

#### **Conclusions:**

Toumbak is a type of smokeless tobacco originating from Sudan but with new trends of worldwide spread. More young US citizens may be at risk of developing the habit of Toumbak and awareness amongst US clinicians is vital. Toumbak carries a number of health risks and is highly addictive.

### **#3 – 1:20-1:30pm**

#### **Burning Mouth Syndrome: A Diagnostic Challenge**

Michal Kuten-Shorrer, \*Jacob Freilich, Nathaniel S. Treister, Sook-Bin Woo, Alessandro Villa, Tufts University School of Dental Medicine, USA

#### **Objectives:**

To evaluate the potential delay in the diagnosis and management of patients with burning mouth syndrome (BMS) and to identify common diagnostic pitfalls.

#### **Methods:**

A single center retrospective electronic medical record review was conducted for patients with newly diagnosed BMS (primary diagnosis: ICD10: K14.6) from January 2014 to April 2017. Abstracted data included onset, duration and characteristics of oral symptoms, as well as consultations with health practitioners prior to referral to the Division, including any diagnoses and treatments. Data was evaluated using descriptive statistics.

#### **Results:**

There were 77 cases (65 females, 84%) with a median age of 60 years (range 26-85 years). The median time from onset of symptoms to referral for definitive BMS diagnosis and management of BMS was 11 months (range 4-180 months). Over this period, 96% of patients (n=74) saw a median of 3 providers (range 1-6), including primary care physicians (53% of patients), general dentists (37%), and otorhinolaryngologists (26%). Laboratory tests were ordered in at least 30% of patients with the most common being blood tests (33%), fungal culture (27%) or imaging (27%). The most frequent provisional diagnoses were BMS (31%), candidiasis (23%) and GERD (10%). Treatment was provided prior to referral in 79% of patients (n=61) with the most frequent being antifungals (20% of patients), anesthetics (14%) and anticonvulsant therapy (11%).

#### **Conclusions:**

Patients with BMS endure a significant delay in diagnosis and appropriate management, despite seeking and receiving professional care. Because patients in this study were all seen in an oral medicine clinic, these results likely underestimate the severity of this problem.

#### **#4 – 1:30-1:40pm**

### **Taste Thresholds in Patients with Hypogeusia Differ According to Subjective Complaints**

**\*Yuko Yamazaki**, Yoshinori Jinbu, Tadahide Noguchi, Yoshiyuki Mori

Jichi Medical University, Japan

#### **Objectives:**

Although hypogeusia is a common complaint, actual taste thresholds do not always match patient complaints. We previously analyzed the taste thresholds of patients with hypogeusia who had difficulty recognizing all or some tastes. The present study aimed to determine whether taste thresholds differ between patients who experience difficulties recognizing some or all tastes, but who were not complicated by any other symptoms of taste disorders.

#### **Methods:**

This study included 45 (male, 22; female, 23) patients who complained only of hypogeusia and had been previously separated into groups who experienced difficulty recognizing all (DRA; n = 25), or some (DRS; n = 20) tastes. Taste functions in all patients were analyzed using electrogustometry (EGM), filter paper discs (FPD) and the whole mouth test. We measured levels of serum zinc, copper, and iron and assessed salivary flow rates using a gum test. Cultured were tested for Candida species. All findings were statistically compared between the two groups.

#### **Results:**

The rate of dry mouth was statistically higher in the DRA group than the DRS group. The glossopharyngeal thresholds for EGM and the bitter taste on FPD were higher for the DRA group than the DRS group. The threshold for salty taste was higher in the DRS group.

#### **Conclusions:**

The thresholds were higher only at the glossopharyngeal area of the DRA group. Even if a patient complained that a taste was difficult to recognize, this would be provoked by different causes according to the subjective nature (DRA or DRS) of the complaint. The present findings may help to find novel approaches to treat taste disorders.

## **#5 – 1:40-1:50pm**

### **Referral Patterns to a University Oral Medicine Clinic in Edmonton, Alberta**

**\*Reid Friesen**, Tim McGaw

University of Alberta, Canada

#### **Objectives:**

To assess, characterize and analyze, the referral patterns to an oral medicine clinic at the University of Alberta. An emphasis was placed on assessing what types of referrals were made by dental and medical practitioners, as well as access to care issues patients face when receiving Oral Medicine specialty care.

#### **Methods:**

A retrospective chart review of all Oral Medicine specialists at the University of Alberta for the year 2015 was performed. Data included: patient's age and gender, type of practitioner, years of experience of the practitioner, the time between referral and first appointment, distance traveled by patient, reason for referral, the location of lesion, nature of referral, final diagnosis, provisional diagnosis.

#### **Results:**

924 patients were included in the analysis. Dental practitioners referred cases most frequently (81.4%) with general dentists representing the largest total proportion (74.5%). White/red lesions were the most common reason for referrals (38.0%), with the tongue (21.8%) and gingiva (17.6%) representing the most common locations of issues. There was no significant difference between the accuracy of provisional diagnoses between physicians and dentists, although dentists referred cases urgently more frequently (16.9% vs 7.0% of cases). The experience of dentists did not have any effect on the accuracy of provisional diagnoses, however, it did affect the type of conditions referred. Immune-mediated conditions were the most common final diagnosis (28.7%) of cases. The average wait time for patients was 105.5 days. The average distance traveled by patients was 55.44km.

#### **Conclusions:**

Patients often travel long distances, and experience extended wait times after referral. There are small differences between the referral patterns of dental and medical practitioners, but increased training and continuing education would benefit both groups. This data can be used to develop future curricula for dental students and can aid in developing CE courses for graduated dentists. In sum, this research highlights the need for improvement of access to Oral Medicine care by patients.

**#6 – 1:50-2:00pm**

**Oral Mucosal Substrates Detect Autoantibodies in Mucous Membrane Pemphigoid**

**\*Mayumi Kamaguchi, Hiroaki Iwata, Takuya Asaka, Hideyuki Ujiie, Wataru Nishie, Hiroshi Shimizu, Yoshimasa Kitagawa**

Hokkaido University Graduate School of Dental Medicine, Japan

**Objectives:**

Mucous membrane pemphigoid (MMP) is a rare autoimmune subepithelial blistering disease. Collagen XVII (COL17) and laminin332 are the main targeted antigens. It is often difficult to detect autoantibodies in MMP due to low titers. To detect these autoantibodies, indirect immunofluorescence (IIF) or immunoblotting (IB) is usually performed. Even though MMP predominantly involves the mucosa, the skin is used rather than the mucosa. In the present study, we investigated whether oral mucosal substrates are more effective than skin substrates for detecting autoantibodies in MMP. Moreover, we compared the reactivity of the epitope-difference to skin and mucosa.

**Methods:**

We tested 20 MMP and 20 BP sera by IIF using normal human oral mucosa and skin as substrates. Various organs of a COL17-humanized mouse (COL17m<sup>-/-</sup>, h<sup>+</sup>) were also used for IIF. The reactivity of two mAbs targeting the COL17 NC16A domain and the C-terminus of COL17 were compared by IIF. Immunoblotting was performed using oral mucosal keratinocyte lysates to detect autoantigens of MMP. Fisher's exact test was used to compare dichotomous variables. The p-values were considered significant at <0.05.

**Results:**

In IIF, 17 MMP sera (85%) reacted to oral mucosa and 7 MMP sera (35%) reacted to skin (p<0.05). In IIF using COL17-humanized mouse substrates, the MMP sera reacted with greater specificity to the oral mucosa than to the skin. The mAbs targeting the C-terminus of COL17 were found to preferentially react to the mucosal basement membrane. Autoantigens of 11 MMP sera (55%) were identified by immunoblotting with oral mucosal keratinocyte lysates (p<0.05).

**Conclusions:**

Normal human oral mucosa and oral mucosal keratinocytes are beneficial substrates for diagnosing MMP. The different reactivity of autoantibodies to the skin and the mucosa could be due to differences in the epitopes on COL17.

**#7 – 2:00-2:10pm**

**Assessing the Incidence of Oral Ulceration with Sequestration**

**\*Vandana Singh, Edmund Peters, Aliya Khan**

School of Dentistry University of Alberta, Canada

**Objectives:**

There have been multiple case reports and small case series describing the apparently spontaneous development of oral mucosal ulcers with necrotic bone bases, involving the posterior lingual mandible or exostoses, in patients not using anti-resorptive medications. The aim of this study was to determine incidence and characteristic features of this condition, called oral ulceration with sequestration (OUS), in patients presenting in general dental practices.

**Methods:**

This was a clinical non-interventional cross sectional survey study involving the entire population of general dental practitioners (GDPs) in a Canadian province. A one-page survey was developed and validated with a GDP focus group. GDPs were subsequently invited to access an on-line survey, after completing a tutorial in the dental association newsletter, which described OUS diagnostic features. Respondents were asked to indicate only definitive cases with known histories. To minimize notoriety bias, respondents were specifically encouraged to respond in the event they had never seen any OUS cases. Reminders were published in two subsequent newsletters and there were direct follow-up requests at regional dental meetings.

**Results:**

391 responses were accumulated representing about 20% of all active GDPs who reported on their informed observations of 685 thousand patients (17% of the population). Overall, 51 GDPs (13%) had seen 113 OUS cases. They reported a predilection for the posterior lingual mandible (46%) and mandibular or palatal tori (54%). 20 cases (18%) had occurred in the last 2 years, which represented a yearly incidence of 0.0015%. This corresponded to a yearly 2.5% chance that a GDP serving this provincial population will see the condition. All cases resolved spontaneously or in response to conservative surgical intervention although 68% of cases persisted beyond 8 weeks.

**Conclusions:**

The results suggest a yearly 0.0015% OUS incidence in our study population. The cases presented preferentially in the lingual mandible or on tori. All cases resolved although 68% persisted past 8 weeks.



**#8 – 2:10-2:20pm**

**Differential Diagnosis of Jaw Pain Using Informatics Technology**

\*Yoon Nam, Hong-Gee Kim, Hong-Seop Kho

School of Dentistry, Seoul National University, Republic of Korea

**Objectives:**

The purpose of this study was to investigate evidence-based clinical clues that could distinguish temporomandibular disorders (TMD)-mimicking conditions from genuine TMD by informatics technology.

**Methods:**

The medical records of 29 patients diagnosed with TMD-mimicking conditions were compared with those of 290 genuine TMD patients. Unstructured clinical raw data such as chief complaints and histories were preprocessed via text mining using natural language processing (NLP) to compare the frequency of word usage. In addition, recursive partitioning was used to deduce the optimal size of mouth opening, which could distinguish TMD-mimicking from genuine TMD groups.

**Results:**

While the genuine TMD group showed a high female prevalence and the most frequent occurrence in the age range of 10-30 years, the patients with TMD-mimicking conditions was more evenly distributed across all age groups and showed a nearly equal gender ratio. TMD-mimicking conditions were mainly caused by inflammation and/or infection (13 patients, 44.8%). Six cases of hereditary/developmental disease, six cases of neoplasm, and other four cases were associated with TMD-mimicking conditions. Patients with TMD-mimicking conditions frequently used “mouth opening limitation” ( $P < 0.001$ ), but less commonly used words such as “noise” ( $P < 0.001$ ), “temporomandibular joint” ( $P < 0.001$ ), “both sides” ( $P = 0.016$ ), and “treatment” ( $P = 0.029$ ) than patients with genuine TMD. A diagnostic classification tree for TMD-mimicking and genuine TMD groups on the basis of recursive partitioning suggested that 12.0 mm of comfortable mouth opening and 26.5 mm of maximum mouth opening were deduced as the most optimal mouth-opening cutoff sizes.

**Conclusions:**

TMD-mimicking and genuine TMD groups could be differentiated by frequency of word usage in chief complaint and mouth-opening size. Artificial intelligence-based methodologies could be applied in the field of differential diagnosis of orofacial pain disorders.

**#9 – 2:20-2:30pm**

**Durability of Response and Need for Second-Line Topical Therapy in the Management of Oral Chronic Graft-Versus-Host Disease**

\*Muhammad Ali Shazib, Jillian Muhlbauer, Shuli Li, Corey Cutler, Nathaniel Simon Treister, Brigham and Women's Hospital, USA

**Objective:**

An open label phase 2 study in oral chronic graft-versus-host disease (cGVHD) of topical dexamethasone versus tacrolimus solutions revealed superior efficacy of dexamethasone. The objective of this study was to report long-term management and outcomes in this study cohort after completing the 30-day trial.

**Methods:**

A retrospective record review was performed from the date of study completion to January 2017. Topical therapies, systemic immunosuppressive therapies, NIH oral cGVHD scores, and adverse effects were recorded for all cGVHD-related outpatient visits. Patient follow up (FU) was characterized by the following time intervals: FU1 = 1 month (m), FU2 = 6-12 m, FU3 = 18-24 m, FU4 = >24 m.

**Results:**

Forty patients (50% male, median age = 58.8 y) completed the clinical trial, had persistent oral cGVHD, and were included in the analysis. At FU1 all patients remained on topical therapy (dexamethasone [DEX, 90% of patients], clobetasol [CLO, 10%]) and/or tacrolimus (TAC, 40%). This reduced to 55%, 52% and 49% at FU2 (n = 35), FU3 (n = 21) and FU4 (n = 28), respectively. Mean NIH (0-3) and sensitivity (0-10) scores fluctuated from FU1 (NIH = 1.4; severity = 3.5), to FU2 (1.3; 3.7), to FU3 (0.7; 2.3), to FU4 (0.8, 3.2). Mean and maximum ulceration scores (0, 3, or 6) decreased from FU1 (1.1, 6), to FU2 months (0.7, 4), to FU3 months (0.05, 1), and to FU4 (0.6, 3). Nine patients (23%) developed oral candidiasis and were treated with antifungal therapy.

**Conclusions:**

Patients with de novo symptomatic oral cGVHD are likely to require long-term care with topical immunomodulatory therapy, possibly for years. Topical steroid and tacrolimus therapies are safe and effective in managing the condition. Second-line topical therapy for refractory oral cGVHD requires further investigation.

**#10 – 2:30-2:40pm**

**Local Recurrence and Epithelial Dysplasia at the Resection Margin of Oral Squamous Cell Carcinoma**

**\*Ayaka Abe, Kenji Kawano**

Oita University, Japan

**Objectives:**

At the annual meeting of AAOM in 2014, we have reported local recurrence from dysplastic epithelia remaining at the resection margin in 15 patients with oral squamous cell carcinoma (OSCC). In the present study, relationship between p53 status in dysplasia at the resection margin and recurrence was investigated with the same series of 15 OSCCs.

**Methods:**

Fifteen patients (five males and 10 females) who met to the following criteria were included in this study; (1) OSCC of the tongue or floor of the mouth, (2) epithelial dysplasia histologically confirmed at the resection margin, and (3) neither chemotherapy nor radiotherapy conducted. Degree of dysplasia at the resection margin was mild in 9 patients, moderate in 6, and severe in 1. Immunohistochemical staining of p53 was carried out using an anti-p53 antibody (DO-7) against paraffin sections of surgical materials, and the positive rate in dysplastic epithelia at the surgical margin was obtained by (p53 positive cells / total cells) x 100 (%).

**Results:**

Local recurrence was observed in 9 out of 15 patients 6 - 154 months after surgery. Recurrence occurred more frequently in higher dysplasia cases; 4 out of 9 mild dysplasia cases (45%), 4 out of 5 moderate dysplasia cases (80%), and 1 out of 1 severe dysplasia case (100%). No new local recurrence cases were observed during the extended follow-up up to date. Then, we compared p53 positive rates at the surgical margin between recurrence and non-recurrence cases. Results showed that the average p53 positive rate of 9 recurrence cases was significantly higher than that of 6 non-recurrence cases (30.4% vs. 14.4%,  $p < .05$ ). Furthermore, when examined in 9 mild dysplasia cases, 5 recurrence cases had a higher average positive rate than 4 non-recurrence ones, though the difference was not significant (30.2% vs 12.9%, NS).

**Conclusions:**

1) Immediate additional resection is recommended, when moderate or severe dysplasia is observed at the resection margin of surgical specimens. 2) To assess p53 positive rate would be useful in deciding the necessity of additional resection in cases which show mild dysplasia at the margin.