Oral Health Care for the HIV-Infected Patient

KY AETC 2010 Intensive Clinical Update

David A. Reznik, D.D.S.
Chief, Dental Service
Director, Oral Health Center
Infectious Disease Program
Grady Health Systems
Atlanta, Georgia
INFECTIOUS DISEASE PROGRAM

IDP – Ponce Center
Goals

• The largest, most comprehensive program in the United States for people living with HIV disease.
• Over 71% have advanced, symptomatic HIV disease (<200 CD$_4$ cells and/or AIDS-defining condition) – *Per the Atlanta Ryan White Part A Triage Protocol (exceptions for infants, children, youth and their families and for clients co-infected with HCV)*
Grady Health System® - Infectious Disease Program

Community Services
- Living Room
- Open Hand
- AIDS Legal Project
- DHR/DFACS
- AID Atlanta

Grady Memorial Hospital
- Inpatient Care
- Continuum of Care Team
- Surgery
- Diagnostics

Community Resources and Policies
Funding, Infrastructure, Services

IDP

Oral Health Care

Nursing
Primary Medical Care

Acute Care, D/C Planning & Adherence

Radiology

Pharmacy

Pt. Intake/Education

Clinical Research

Subspecialty Care (Derm & Neuro)

Mental Health/Substance Abuse Program

Volunteers

Transition Program

Lab

Empowered, Adherent Patients

Productive Interactions

Expert, Cohesive Practice Team

↓ Viral Load, ↑ T-cells, ↑ Quality of Life
You thought he was going to show an ugly oral pathology slide 😊 05.09.2006
Oral Health Care

“Those who suffer the worst oral health include poor Americans . . . Members of racial and ethnic groups also experience a disproportionate level of oral health problems. And people with disabilities and complex health conditions are at greater risk for oral diseases that, in turn further complicate their health” (U.S. Surgeon General David Satcher, May 25, 2000).
Case #1

- 38 year old Caucasian male - initially diagnosed with AIDS in the hospital (07/08) where he presented with sub-acute onset of fevers, chills, night sweats, dry cough and a penile ulcer.
- CD4 count 19 cells/mL
- Significant history: oral candidiasis (08); MRSA left upper extremity (12/07) – skin graft performed. Allergies to vancomycin, penicillin, linezolid. Possible history of syphilis – treated with doxycycline due to PEN allergy.
- Diagnosed with *Pneumocystis* pneumonia, candidiasis and HSV-related penile ulcer.
- Patient was started on PO Bactrim, steroids for PCP; PO acyclovir for ulcer; and PO fluconazole for candidiasis.
Lab results

- **Relevant Laboratory Test Results at Time of Visit (07/08)**
  - Hemoglobin: 11.4 g/dL
  - Hematocrit: 34.5%
  - Absolute neutrophil count: 1,474 cells/µL
  - CD4+ count: 19 cells/µL
  - CD4+/CD8+ ratio: 0.18
  - Rapid plasma reagin: Nonreactive
  - Plasma HIV RNA level: 711,980 copies/mL
Case #1

- Patient placed on HAART
- Presents to the Infectious Disease Program with a neck mass in late 11/08.
- Lab tests performed in 11/08 revealed an increase in CD4 count to 139 cell/mL$^3$, VL now 360 copies/mL.
Fine needle aspirate (FNA) performed during 12/08 revealed the following: culture positive for AFB – final ID - Mycobacterium Avium Complex - Immune Reconstitution Inflammatory Syndrome (IRIS)
Case #1

- While concerned with the neck mass, the patient’s primary care provider did not look in the patient’s mouth nor did the patient complain of any oral discomfort.

- Patient self-presents to the Oral Health Center on 03/09 with the chief complaint of tooth pain.

- Radiograph and clinical exam reveal the following:
Case #1

- Biopsy performed and revealed the following results: Burkitt’s lymphoma.
  - Uncommon type of Non-Hodgkin Lymphoma (NHL)
  - Aggressive B-cell lymphoma that is often curable with modern intensive therapies.
- Two types:
  - Endemic Burkitt’s lymphoma (equatorial Africa) – where the disease impacts children much more than adults, has a high chance of involving the mandible, is related to EBV 95% of the time.
  - Sporadic Burkitt’s lymphoma (Europe and the Americas) – mandibular involvement is rare and the link to EBV is not as strong (~20% of cases)
Improvement after one round of chemotherapy
Unmet Need for Dental Care

- Oral Health Care remains in the top 3 unmet needs for PLWHA who obtain services through the Ryan White Programs nationwide.

- Research identified that PLWHA most likely to report unmet need for dental care are African-American, uninsured, Medicaid recipients and within 100% of federal poverty limits (FPL).*

*Access to HIV Care: Initial Results from the HIV Cost and Services Utilization Study, Santa Monica, Calif.: RAND Corporation, RB-4530, 2000
Prevalence of Dental Caries, Periodontal Disease, and Oral Lesions in a Ryan White-funded Dental Clinic in the HAART Era

- 100 patients seen in Grady’s Oral Health Center.
  - Median age: 46 (26 – 66)
  - 65% male
  - 79% African-American
  - 74% reported past or current tobacco use
  - 43% reported past or current regular alcohol use
  - 34% reported receptive oral intercourse within the past 3 months
  - 88% reported seeing a dental healthcare worker two or more times per year
Prevalence of Dental Caries, Periodontal Disease, and Oral Lesions in a Ryan White-funded Dental Clinic in the HAART Era

- The proportion of patients seen in the dental clinic within 3 years of HIV diagnosis was lower before year 2000 than after 2000 (34.3 % versus 66.7%, p=0.0014)
- Median nadir CD4+ was 62 cells/μL (range: 97-464).
- Median recent CD4+ cell count was 393 cells/μL (range 14-1091) with 55% having CD4+ count above 350 cells/μL.
- 76% had an undetectable viral load with 92% being on HAART.
Prevalence of Dental Caries, Periodontal Disease, and Oral Lesions in a Ryan White-funded Dental Clinic in the HAART Era

- Dental caries were present in 66% of patients.
- 54% had gingivitis, and 28% had periodontal disease.
- Fourteen patients (14%) presented with oral lesions including 7 patients (7%) with oral warts, 5 with oral candidiasis and 2 presented with an oral ulcer.
Conclusion

- Despite more aggressive and earlier dental care and improved immune response (CD4+ >350 cells/μL in 55% of patients) and controlled viral load, the presence of dental caries, periodontal disease and oral lesions among HIV infected patients is still significant.
- Regular ongoing dental visits and treatment are critical to minimizing long-term oral health complications for people living with HIV disease.

Deepa Reddy¹, Anitra Sumbry¹, David Reznik², Clifford Gunthel¹, Judy McGuire², Minh Ly Nguyen¹

¹Emory University School of Medicine, ²Grady Health Systems, Atlanta, GA

Infectious Disease Society of America (IDSA) 47th Annual Meeting – November 2009 – Poster #1063
Xerostomia

- Over 400 medications lead to symptoms of xerostomia
- Approximately 30% of people living with HIV/AIDS experience moderate to severe xerostomia.
  - Effect of medications
  - Proliferation of CD8 cells in the major salivary glands
- Changes in the quantity and quality of saliva lead to rapidly advancing dental decay and periodontal disease.
“Meth Mouth”

- The key ingredients in meth—lithium, muriatic and sulfuric acids, lye—they are all corrosive.
- Xerostomia
- Bruxism
- Poor diet
Meth Mouth – damage within 9 months
“Meth Mouth”
Dental Treatment Considerations

- Evidence-based research has proven that providing dental care for the vast majority of people living with HIV/AIDS is no different than providing care for the general patient population.
Dental Complications After Treating Patients With AIDS.

- 331 patients (average CD4 count of 71 cells/mm$^3$) 1,800 invasive dental procedures (defined as the breaking of the mucosal membrane) were performed.

- RESULTS: The number of post-procedural complications was only 17, representing an overall complication rate of 0.9%.

- CONCLUSIONS: Incidence of post-procedural complications is no greater than in other populations.
# HIV and the Dental Team

**HIVDent – Dental Treatment Considerations**

## Table 1. Pertinent Laboratory Information

<table>
<thead>
<tr>
<th>Lab Values</th>
<th>Normal, Male</th>
<th>Normal, Female</th>
<th>Abnormal Values of Importance</th>
<th>Impact on the Provision of Invasive Dental Care</th>
<th>Need to Premedicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 count</td>
<td>400 – 1,200 cells/mm³</td>
<td>500 – 1,600 cells/mm³</td>
<td>&lt; 200 cells/mm³ is an AIDS defining condition</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>HIV viral load</td>
<td>Undetectable</td>
<td>Undetectable</td>
<td>40 copies/mL, &lt; 750,000 copies/mL</td>
<td>None, even at the highest levels</td>
<td>No</td>
</tr>
<tr>
<td>Platelet count</td>
<td>150,000 – 450,000 per microiter (mcl) of blood</td>
<td>150,000 – 450,000 per microiter (mcl) of blood</td>
<td>&lt; 20,000 platelets/mcl may lead to spontaneous bleeding</td>
<td>Dental procedures can safely be performed with a platelet count of 60,000 mcl or greater.</td>
<td>No</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>14.0 g/dL – 17.4 g/dL</td>
<td>12.3 g/dL – 15.3 g/dL (nonpregnant women)</td>
<td>Anemia in men &lt; 13 g/dL. Anemia in women &lt; 11.0/dL</td>
<td>Periodontal and minor surgical procedures (eg, single extraction) are usually routine for patients with hemoglobin level above 7 g/dL and no bleeding abnormalities</td>
<td>No</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>40% - 52%</td>
<td>35% - 47%</td>
<td>Values that fall below the normal limit indicate anemia</td>
<td>Monitor hematocrit as excessively low values may indicate severe anemia</td>
<td>No</td>
</tr>
<tr>
<td>White blood cell count/ absolute neutrophil count (ANC)</td>
<td>4,500 – 10,000 white blood cells/mcl</td>
<td>4,500 – 10,000 white blood cells/mcl</td>
<td>&lt; 1,000 white blood cells/mcl</td>
<td>May signify low absolute neutrophil count. An absolute neutrophil count &lt; 500 cells/mcl requires premedication prior to invasive dental procedures.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Note: Normal lab values obtained from Medline Plus, a service of the National Institutes of Health.*
Oral Manifestations of HIV Disease: The Basics

- Oral manifestations of HIV infection are a fundamental component of disease progression and occur in approximately 30 to 80 percent of the affected patient population.

- Factors, which predispose expression of oral lesions, include:
  - CD4 counts less than 200 cells/mm³
  - Viral load greater than 3,000 copies/mL
  - xerostomia (dry mouth)
  - poor oral hygiene
  - smoking
Smoking – Fat Redistribution and Metabolic Change in HIV infection (FRAM)

- Current smoking proved the major modifiable death risk factor among HIV-infected people enrolled in the Fat Redistribution and Metabolic Change in HIV Infection (FRAM) study.
- Current smoking (but not past smoking) nearly tripled the death risk (hazard ratio [HR] 2.73, 95% CI 1.64 to 4.53, P = 0.0001).

Now that I have your attention
A thorough oral examination can detect signs of nutritional deficiencies as well as a number of systemic diseases, including microbial infections, immune disorders, injuries and some cancers.

(U.S. Surgeon General David Satcher, May 25, 2000).
Oral Manifestations of HIV/AIDS

- For those with unknown HIV status, oral manifestations may suggest HIV infection, although they are not diagnostic.
Oral Manifestations of HIV/AIDS

- For persons living with HIV disease not yet on therapy, the presence of certain oral manifestations may signal progression of disease.
For persons living with HIV disease on antiretroviral therapy the presence of certain oral manifestations may signal a failure in therapy.

Case Study 2

- 42 year old African-American female presented to the Oral Health Center for routine dental work 04/04/07. She was originally diagnosed in 1999 with a CD4 count of 13 cells/mm³. Reports health is within normal limits, no new symptoms. Spent most of the visit talking about a mutual friend.
- Against her providers recommendations, she stopped taking her antiretroviral therapy in the latter part of November 2006.
- Her last CD4 count, taken early in December 2006, was greater than 450 cells/mm³.
Case Study 2

- She returns to the Oral Health Center for her routine dental hygiene visit three weeks later. Again, she reports no changes in her general health and well-being.
- An oral exam revealed the following:
Case Study 2

- A new CD4 count was taken in 04/15/07.
- A thorough review of her lab values revealed that her CD4 count is now 43 cells/mm$^3$.
- Working with her primary care provider and nurse educator we were able to convince her to restart therapy.
Trends in Oral Manifestations

Studies from both the Americas and Europe report a decreased frequency of HIV-related oral manifestations of 10-50% following the introduction of ART.

Evidence suggests that ART plays an important role in controlling the occurrence of oral candidiasis.

The effect of ART on reducing the incidence of oral lesions, other than oral candidiasis, does not appear as significant.
Trends in Oral Manifestations

- Increased prevalence of oral warts in patients on HAART has been reported from the USA and the UK.
- HIV-related salivary gland disease may show a trend of rising prevalence in the USA and Europe.
- A possible association between an increased risk of oral squamous cell carcinoma and HIV infection has been suggested by at least three epidemiological studies.
Are you really going to show those...

04.26.2008
Oral Warts due to HPV

Published reports show a markedly increased incidence of oral warts in the HAART era.


HPV infection is strongly associated with oropharyngeal cancer among subjects with or without the established risk factors of tobacco and alcohol use.

Data suggest two distinct pathways for the development of oropharyngeal cancer:

- one driven predominantly by the carcinogenic effects of tobacco or alcohol (or both)
- another by HPV-induced genomic instability.
HPV and Oral Cancer
Cancer Prevention Research – 07/09

- Analysis of stored samples suggests that the percentage of all oropharyngeal cancers that are HPV-positive has increased from about 20 percent to 60 percent since about 1980, said Dr. Scott Lippman, a researcher at the M.D. Anderson Cancer Center in Houston. He called it a lagging effect of the sexual revolution.

- But in a bit of good news, the researchers reported that HPV-related oral cancers were among the most responsive to chemotherapy and radiation.
After controlling for other risk factors for throat cancer, such as drinking and smoking, the analysis revealed that people who had prior infection with HPV were 32 times as likely to have this cancer as those with no evidence of ever having the virus.

Those who tested positive for a particularly aggressive strain of the virus, called HPV-16, were 58 times more likely to have throat cancer.
HPV Associated With Oropharyngeal Cancers

NEJM, May 10, 2007

• Oral--genital contact was strongly associated with oropharyngeal cancer, but the data cannot rule out transmission through direct mouth-to-mouth contact or other means.

• People who have had more than five oral-sex partners in their lifetime are 250% more likely to have throat cancer than those who do not have oral sex.

• Factors associated with HPV-16-positive oropharyngeal cancer:
  • A high lifetime number of oral-sex or vaginal-sex partners
  • Engagement in casual sex
  • Early age at first intercourse
  • Infrequent use of condoms
Fast Facts

- According to the National Center for Health Statistics, 90 percent of heterosexual men and 88 percent of heterosexual women report engaging in oral sex.
- Half of all American teenagers have had oral sex; by age 19 the number rises to 70 percent.
- Despite the fact that nearly all Americans engage in oral sex, throat cancer accounts for ~2% of the roughly 1.5 million cases of cancer diagnosed every year.
Oral Ulcerative Diseases

- HSV
- Aphthous ulcers
- Neutropenic ulcers
- Idiopathic ulcers
Oral ulcer secondary to HSV
Aphthous Ulcer
Minor Aphthous Ulcers
Neutropenic ulcer
Case study #3

- 49 year old Caucasian male presents with a shallow ulcer approximately 1 cm in diameter on the maxillary anterior buccal mucosa – present 4 weeks – gray/yellow pseudomembrane - painful. Has been using Listerine and believes the ulcer is infected.
- Patient does have a hx. of recurrent aphthous ulcers, but has not had an episode similar to this in 10 years.
- Patient also has a history of lymphoma.
Case study #3

- Initial diagnosis: recurrent aphthous ulcer
- Rx. dexamethasone elixir, metronidazole.
- CD4: 558 cells/mm³; VL undetectable; all other labs including AGC are normal.
- ART: Viramune, Norvir, Invirase, DDI.

- Visit 2: pain 3 on 0-10 pain scale. Swelling present. Raised borders – 8mm X 8mm
- Rx systemic prednisone – 60 mg X 3 days; 40 mg X 7 days; 20 mg X 7 days
Idiopathic Oral Ulcer
Case Study #3

- Visit 3; pain 4 on 0 – 10 scale – “does not feel smaller, but it seems smoother”. Patient states that the “pseudomembrane” peels off in the morning.

- Clinical exam reveals borders are no longer raised, ulcer is shallow. Dx: idiopathic ulcer somewhat responding to treatment.
Case study #3

- Visit 4: improvement continues, continued prednisone 20mg for an additional week.
- Visit 5: no pain reported, however clinical appearance is worse. Punch biopsy taken.
  - Results: acute and chronic inflammation with vaguely formed histiocytic microgranulomas.
    - Poorly organized epithelial histiocytes – unproven specificity and may be seen in chronic inflammatory diseases such as ulcerative colitis.
  - No evidence of lymphoma, no evidence of carcinoma. AFB negative, no fungal organisms.
Case study #3

- Visit 6: Symptoms return, prednisone restarted at 60 mg for 1 week. Crusting noticed on the margin closest to the lip. Acyclovir added as a precaution. Specimen taken to rule out MRSA. Patient noticed “rash/bumps” on scalp. Consider using thalidomide.
- Sexual history taken in dental setting.
- After consultation with primary care provider, a RPR is ordered primarily due to bumps on scalp and lack of a known reason for oral ulcer.
Case study #3

- Results of culture: MSSA+, resistant to Bactrim and Penicillin.
- Visit 7: RPR reactive 64 dilution; treatment initiated for syphilis.
Oral Ulcer due to Syphilis – 1 week into therapy
Oral Ulcer due to Syphilis – 3 weeks into therapy
Gelclair™ - Provides Protective Coating

- Polyvinylpyrrolidone
  - hydrophilic polymer
  - muco-adherent and film-forming agent
- Hyaluronic acid (sodium hyaluronate)
  - viscous fluid that occurs naturally in the body
  - muco-adherent and film-forming agent
  - enhances tissue hydration
  - accelerates wound healing in animal models and various human wounds
- Glycyrrhetinic acid
  - anti-inflammatory

Daddy’s Coming Home!
Questions?