



HIV and Oral Health 101

Part 4: HPV/ Oral/Dental Treatment Planning for Oral Health

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Disclosures

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- **The speakers will not discuss any off-label use or investigational product during the program.**
- **This slide set has been peer-reviewed to ensure that there are no conflicts of interest represented in the presentation**
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Objectives



- **Understand the changes in Oral HPV with associated HIV Infection**
- **Understand the association between HPV and Oropharyngeal Cancer**
- **Evaluate HPV lesions and treatment options**
- **Explain dental recommendations for treating patient with HIV**
- **Explain the barriers to oral health care for patients living with HIV**
- **Understand appropriate treatment planning for patients living with HIV**

Oral Manifestations of HIV

■ Human Papilloma Virus

- About 7% of Americans have oral HPV. That's far fewer than the number who have the genital version, which is the most common sexually transmitted disease in the U.S.
- Every day in the US, about 12,000 people ages 15 to 24 are infected with HPV. Approximately 26 million Americans on any given day have an oral HPV infection. Of those approximately 2600 are HPV16 the strain that can lead to oral cancer.
- The vast majority of individuals will clear the virus naturally through their own immune response, and never know that they were exposed or had it.

■ <http://oralcancerfoundation.org/hpv/hpv-oral-cancer-facts.php>

Human Papilloma Virus

More than 40 types of HPV can infect people, but only a few cause cancer. One of the types that causes most cervical cancers, called HPV16, is also linked with most HPV-related head and neck cancers.

Oral warts are caused by human papillomavirus (HPV) and may appear anywhere within the oral cavity or on the lips. They occur more frequently and more extensively in people with HIV infection than in those with normal immune function, especially in patients with advancing immune suppression (CD4 counts of <200-300 cells/ μ L).

Oral warts may be refractory to therapy.

The frequency of oral warts may increase, at least temporarily, in patients treated with antiretroviral therapy.

<http://oralcancerfoundation.org/hpv/hpv-oral-cancer-facts.php>

Human Papilloma Virus

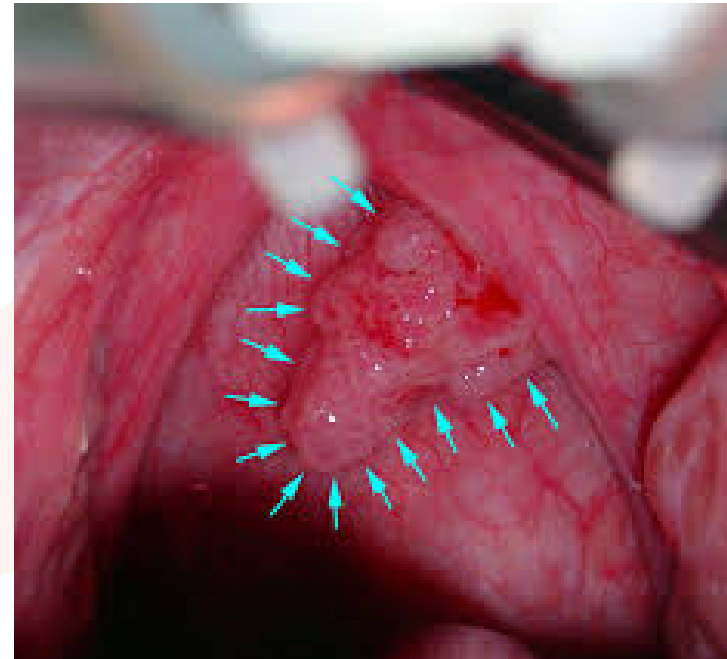
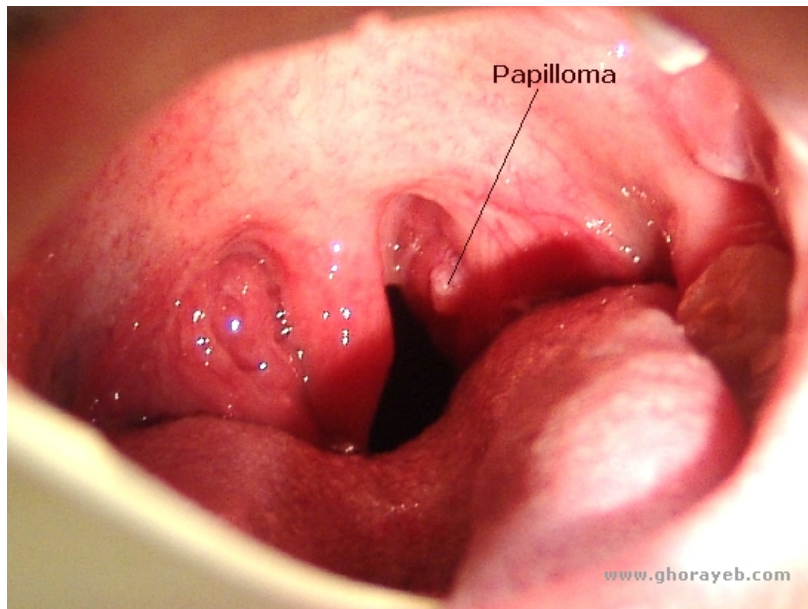
- About one in nine American men is infected with the oral form of human papillomavirus (HPV), according to a [new study](#) published in the Journal Annals of Internal Medicine 2017. Nationwide, rates for oral HPV infections are 11.5% of men and 3.2% of women: 11 million men, compared with 3.2 million women, the researchers estimated.
- Annually, an average of 38,793 cases of HPV-related cancer -- 59% of them in women and 41% in men -- were diagnosed in the United States
- Oropharyngeal squamous cell carcinoma was far more likely to strike men: 12,638 cases diagnosed in men each year, compared with just 3,100 cases in women.
- It is the most common of all the HPV-related cancers, and its incidence among men (7.8 per 100,000) now surpasses incidence rates of cervical cancer among women (7.4 per 100,000). Cervical cancer is also known to be caused by HPV.

Human Papilloma Virus

- Human papilloma virus (HPV), commonly known as the virus that causes genital warts and cervical cancer in women, is increasingly being recognized as a cause of infections that colonize the back of the mouth (throat), including the tongue base and tonsils
- Evidence strongly suggests that tonsillar HPV is predominantly transmitted by sexual contact.
- An increase in oral sex is suspected as the cause of the increase in the prevalence of tonsillar HPV infection, although several sexual behaviors seem to be related to oral HPV prevalence. The risk of infection increases with an increasing number of lifetime or recent sexual partners for any type of sexual behavior (ie, vaginal sex, oral sex). With 20 or more lifetime sexual partners, the prevalence of oral HPV infection reaches 20%.
- Smokers are also at greater risk than nonsmokers, with current heavy smokers at particularly high risk.

Human Papilloma Virus

Men who have had multiple sex partners, men who reported having sex with men, and men with genital HPV infections were found to have the highest rates of oral HPV



Human Papilloma Virus



**Possible spread through Oral Sex
and French Kissing**

<http://saude-joni.blogspot.com/2012/02/hpv-oral.ht>

Human Papilloma Virus



<http://saude-joni.blogspot.com/2012/02/hpv-oral.ht>

Human Papilloma Virus

Initial signs:

- trouble with swallowing.
- coughing up blood
- a lump on the neck or in the cheek, or
- hoarseness that doesn't go away

Unfortunately, these are late signs of the disease.

Other potential signs and symptoms of oral cancers are:

- sore throat
- a white or red patch on the tonsils
- jaw pain or swelling, and
- numbness of the tongue, among others

These signs don't necessarily mean that you have cancer, but if any signs are present for longer than 2 weeks, you should see your doctor.

Human Papilloma Virus

- There is no test that can find early signs of HPV infection of the throat. Some cancerous or precancerous tonsillar HPV lesions may be detected during screening or examination by a dentist or doctor, but most are found by testing in persons who already have signs or symptoms.
- To inspect hard-to-see areas of the throat, larynx (voice box), and the base of the tongue, doctors may use instruments called laryngoscopes or pharyngoscopes together with small mirrors
- Perform a [biopsy](#) of areas that look suspicious for cancer. A biopsy is a small sample of cells taken with a thin, hollow needle. The cells are then viewed under a microscope to look for signs of cancer. Biopsy samples from throat cancers may be tested for the presence of HPV DNA. The presence of HPV DNA signals a cancer that is more responsive to treatment than one that is HPV-negative

Human Papilloma Virus

Tonsillar HPV infection can cause oropharyngeal cancer.

An increase in the incidence of oropharyngeal cancer has paralleled the increased prevalence of tonsillar HPV infection. However,

The vast majority of people with tonsillar HPV infections do not develop cancer because the subtypes of HPV with which they are infected are not linked to development of cancer. Although millions of Americans have tonsillar HPV, fewer than 15,000 get HPV-positive oropharyngeal cancers annually.

Many oropharyngeal cancers are not related to HPV infection but rather with tobacco and alcohol use. People with HPV-positive oropharyngeal cancers tend to be younger and are less likely to be smokers and drinkers.

Oral Health and HIV

HAB's (HIV AIDS Bureau) Oral Health Performance Measures

- **Dental and medical history**
- **Dental treatment plan oral health education**
- **Periodontal screening or examination**
- **Phase I treatment plan completion (prevention, maintenance, elimination of oral health disease)**

http://hab.hrsa.gov/abouthab/files/oral_health_fact_sheet.pdf

Oral Health and HIV

Oral health is important for everyone... But it is especially important for HIV(+) patients:

- **The usual: oral function, esthetics, self-image**
 - **Critical difference Oral Health : Body Connection Oral cavity can be site of specific HIV-related lesions**
 - **Oral lesions can reflect immune status**
 - **Do oral infections accelerate HIV disease course?**

Immune system activation accelerates HIV infection

Opportunistic infections

Candida, HSV, other viral infections, etc.

Dental and Periodontal infections?

Patient Susceptibility for Oral Infection

General Immune status: CD4 Count and Viral Load

- Specific oral infection risk: Neutrophils (*marrow suppression*)**
- Additional considerations Diabetes mellitus, especially poorly controlled**

Specific medical considerations: *Hemodialysis*
Risks for bacterial endocarditis

The approach to medical considerations is generally handled the same as medical conditions in the non HIV-infected patients

- Actual dental treatment is the same**
- Communicate with medical providers Obtain: Lab tests, medications, status reports**
- Universal Infection Prevention precautions do WORK – follow them for all patients!!**

HIV Status: CD4 Count

- **CD4 Count: T- 4 Helper Lymphocyte count Normal CD4 count: 400 - 2000 cells/mm³ (per lab standard)**
- **Indicates progression of HIV infection**
- **Correlates with degree of immune suppression**

Healthy Asymptomatic >500 cells/mm³

Symptomatic 200 – 499 cells/mm³

AIDS <200 cells/mm³

Viral Load

HIV-1 RNA

- Indicates level / rate of viral replication
- Portends future immune suppression ↑ VL Increased rate of CD4 lymphocyte destruction

The higher the viral load, the faster the progression of HIV disease and the poorer the long term prognosis

- < 10,000 copies/ml (mean survival rate >10 years)**
- > 30,000 copies/ml (mean survival rate <5 years)**

With therapy, VLs can be suppressed to an undetectable level (< 20-75 copies/mL; optimal viral suppression)

Measure of therapeutic success or failure for retroviral therapy (HAART)

Risk for Infection

Hematology: Neutropenia

Normal neutrophil count: 1,800 -7,000 cells/mm³

Mild neutropenia: 1,200 - 1,800 cells/mm³

Moderate neutropenia: 1,000 - 1,200 cells/mm³

Severe neutropenia:

Major indicator for oral infection risk and potential need for antibiotic prophylaxis for invasive dental procedures

<1,000 cells / mm³ -< 500 cells / mm³

Platelet Count

Normal platelet count: 150 – 400 x 10³ cells/mm³

Empiric guidelines for simple surgical treatment:

>60,000: Most all routine dental care can be provided

**Adequate for routine dental care including simple
extractions / curettage**

20,000 – 50,000: consider platelet transfusions

**< 20,000: risk for spontaneous/protracted bleeding, obtain
consult: platelet transfusion / hemostatic agents**

LAB TESTS FOR HIV STATUS	NORMAL RANGE ¹	TREATMENT CONSIDERATION	MEDICAL SIGNIFICANCE	DENTAL SIGNIFICANCE	CRITICAL VALUES RECOMMENDED MEDICAL CONSULTATION
<u>HIV VIRAL LOAD</u> # of HIV RNA copies per ml of blood	Can be <20copies/mL on commercially available tests Uncontrolled HIV up to 750,000	If > 20 copies/mL Should be under copies/mL If. over 6 months on ART	Indicates rate of HIV progression and ART response	Predictor of oral manifestation including Candidiasis Xerostomia, Recurrent Caries, cancer, etc.	If > 20 copies per mL after 6 months of ART
<u>CD4 HELPER T CELL COUNT</u> T-lymphocytes/mm ³ (absolute T-cell count) ²	500-1500 ART recommended for all HIV infected patients regardless of CD4 cell count	<200 = AIDS Defining	Indicates immune status & determines therapy irrespective of total Lymphocyte	In general, HIV disease is progressing if the CD4 count is going down.	IF < 200 after 6 months of ART
<u>ANC</u> (Absolute Neutrophil Count) NEUTROPHIL % X WBC COUNT	1500 to 8000	< 500 requires premedication	Susceptibility to infection	Susceptibility to infection	< 2,500/mm ³

Dental Recommendations for Treating HIV/AIDS Patients

- **The magnitude of the viral load is not an indicator to withhold dental treatment for the patient. High viral loads may be present in a patient with early asymptomatic disease, while low viral loads can be seen in very advanced patients on suppressive antiviral therapy. Knowledge of these markers can tell the dentist the general health of the patient and the risk of progression**
- **The dentist can play an important part in reminding patients of the need for regular follow up and monitoring of these markers. It is recommended that the CD4 and viral load determinants be done every three-six months.**

Premedication for Neutropenia in HIV Patients

Antibiotic prophylaxis in neutropenic patients reduces mortality, febrile episodes, and bacterial infections

Antibiotic coverage, prior to procedures likely to cause bleeding and bacteremia, is recommended for the immunocompromised HIV-infected patient when the neutrophil count drops below 500 cells/mm³ (neutropenia). Patients at this advanced stage of disease may already be taking antibiotics to prevent opportunistic infection, therefore, additional medications may not always be required. However, when antibiotic coverage is indicated, regimens similar to those for the prevention of bacterial endocarditis are considered effective.

<http://www.uptodate.com/contents/hematologic-manifestations-of-hiv-infection-neutropenia>

ANTIBIOTIC COVERAGE AND THE HIV-INFECTED PATIENT:

- Indications for antibiotic coverage should not be based solely on a patient's HIV status, and should not be based on CD4+lymphocyte counts alone. However, a CD4+lymphocyte count of less than 200 cells/mm³ may indicate the need for a thorough review of the patient's medical history prior to initiating procedures likely to cause bleeding and bacteremia.
- Antibiotic coverage, prior to procedures likely to cause bleeding and bacteremia, is recommended for the immunocompromised HIV-infected patient when the neutrophil count drops below 500 cells/mm³ (neutropenia). Patients at this advanced stage of disease may already be taking antibiotics to prevent opportunistic infection, therefore, additional medications may not always be required. However, when antibiotic coverage is indicated, regimens similar to those for the prevention of bacterial endocarditis are considered effective.
- An antibiotic mouth rinse (e.g., chlorhexidine), prior to and up to three days following procedures, may be a useful adjunct to antibiotic coverage particularly in patients with poor oral hygiene.
- Furthermore, scaling and subsequent irrigation of the gingival sulcus with chlorhexidine, prior to tooth extraction and gingival flap procedures, may also be useful in reducing the risk of post-procedural complications.

As with all patients, the dentist should recommend treatment, present alternative treatments (if any), and discuss the probable benefits, limitations and risk associated with treatment. Any treatment performed should be with the concurrence of the patient and the dentist.

When dental treatment is indicated, decisions regarding the appropriateness of ongoing and long-term dental care of patients with HIV infection should take into account the patient's general medical status, and should not be based solely on HIV status. The immunocompetent, asymptomatic HIV-infected individual usually does not require any special consideration when planning, and in the provision of, dental treatment. However, as the infection advances to AIDS, laboratory test evaluating the progression of HIVD may become important in determining an appropriate treatment plan.

It is important to consider general trends in CD4+lymphocyte counts and other laboratory values, rather than any single value, as counts may vary considerably even on a daily basis.

Lets start with the Basics

- **Patient's ability to keep appointments and withstand treatment.**
- **Patient's ability to comply with and understand instructions.**
- **Dental IQ**
- **Mental Health and Substance Abuse**
- **Past Dental History**
- **Patient's financial resources and ability to invest in dental care.**

Periodontal

- **Home Care**
- **Ability to commit to recall**
- **Physical and Mental status**
- **HIV Stage**
- **CD4 and Viral Load Trend**
- **Smoking, Diet, Drug, Alcohol Abuse**

Restorative

- Home Care
- Ability to commit to recall
- Physical and Mental status
- HIV Stage
- CD4 and Viral Load Trend
- Smoking, Diet, Drug Abuse
- Past Dental History
- **Number and type of caries**
- **Other comorbidities and medications, acid reflux, reduced salivary flow.**
- **Caries Risk Assessment**

Endo

- Home Care
- Ability to commit to recall
- Physical and Mental status
- HIV Stage
- CD4 and Viral Load Trend
- Smoking, Diet, Drug Abuse
- Past Dental History
- Presence or history of periodontal or dental disease.
- Restorability
- Contraindication for Extractions
- Other comorbidities and medications
- Success of endodontic retreatment?

Removable Prosthodontics

- Home Care
- Ability to commit to recall
- Physical and Mental status
- HIV Stage
- CD4 and Viral Load Trend
- Smoking, Diet, Drug Abuse
- Past Dental History
- Presence or history of periodontal or dental disease.
- Restorability
- Other comorbidities and medications

Orthodontic

- Home Care
- Ability to commit to recall
- Physical and Mental status
- HIV Stage CD4 and Viral Load Trend
- Smoking, Diet, Drug Abuse
- Past Dental History
- Presence or history of periodontal or dental disease.
- Restorability
- Other comorbidities and medications
- ART Therapy

Oral Surgery

- **Physical and Mental status /Ability to withstand treatment/time**
- **Past Dental History**
- **Smoking, Diet, Drug Abuse**
- **Other comorbidities and medications**
- **ANC**
- **Anemia**
- **Aseptic and atraumatic techniques should be used to minimize the introduction of pathogens and postoperative complications.**
- **Improvements in oral hygiene should be encouraged, when necessary, together with preoperative scaling to minimize the risk of postoperative complication**
- **Use of a prophylactic, intra-alveolar socket medicament after oral surgery may prevent delayed healing in patients with HIV. This is a consideration for patients with a history of delayed healing or those having multiple extractions.**
- **Removal of partially erupted third molars in the absence of oral disease may be necessary to reduce the possibility of problems later in the course of the patient's HIV disease (especially in younger patients)**

Recommendations for patient treatment

- Communicate with the patient and other health professionals
- Comprehensive medical histories and updates
- Listen

Goal of Treatment

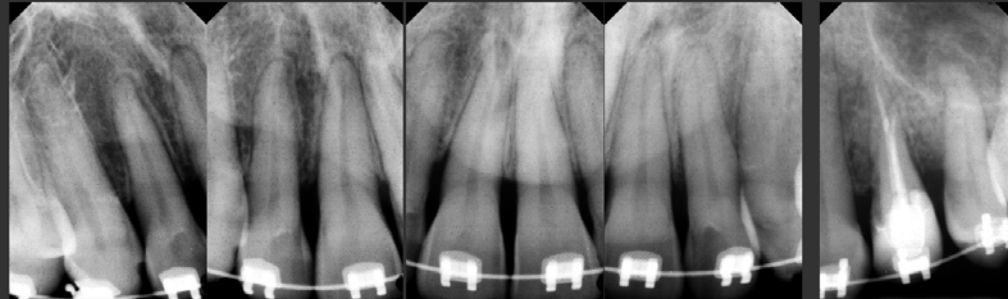
- **Disease Elimination**
- **Function**
- **Esthetics**
- **Self Esteem**

Case Presentations

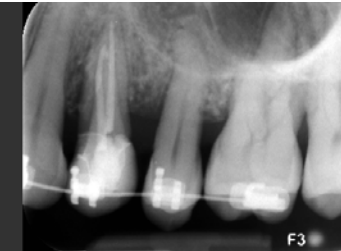
- **51 year old male/Caucasian**
- **Mode of Transmission/MSM**
- **On ART Therapy since 2005**
- **CD4 905**
- **<20 copies/ml**
- **Current Medication**
 - **Genvoya 1x day since December 2017**
 - **Percocet as needed**
 - **Acyclovir 1x day**
 - **Atripla 1x day since 2005 Previous**



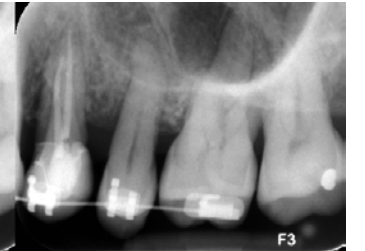
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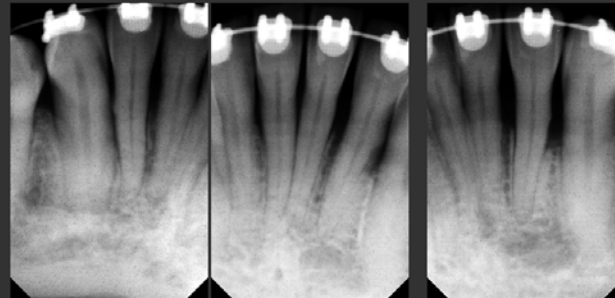
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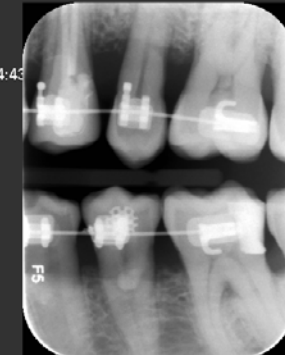
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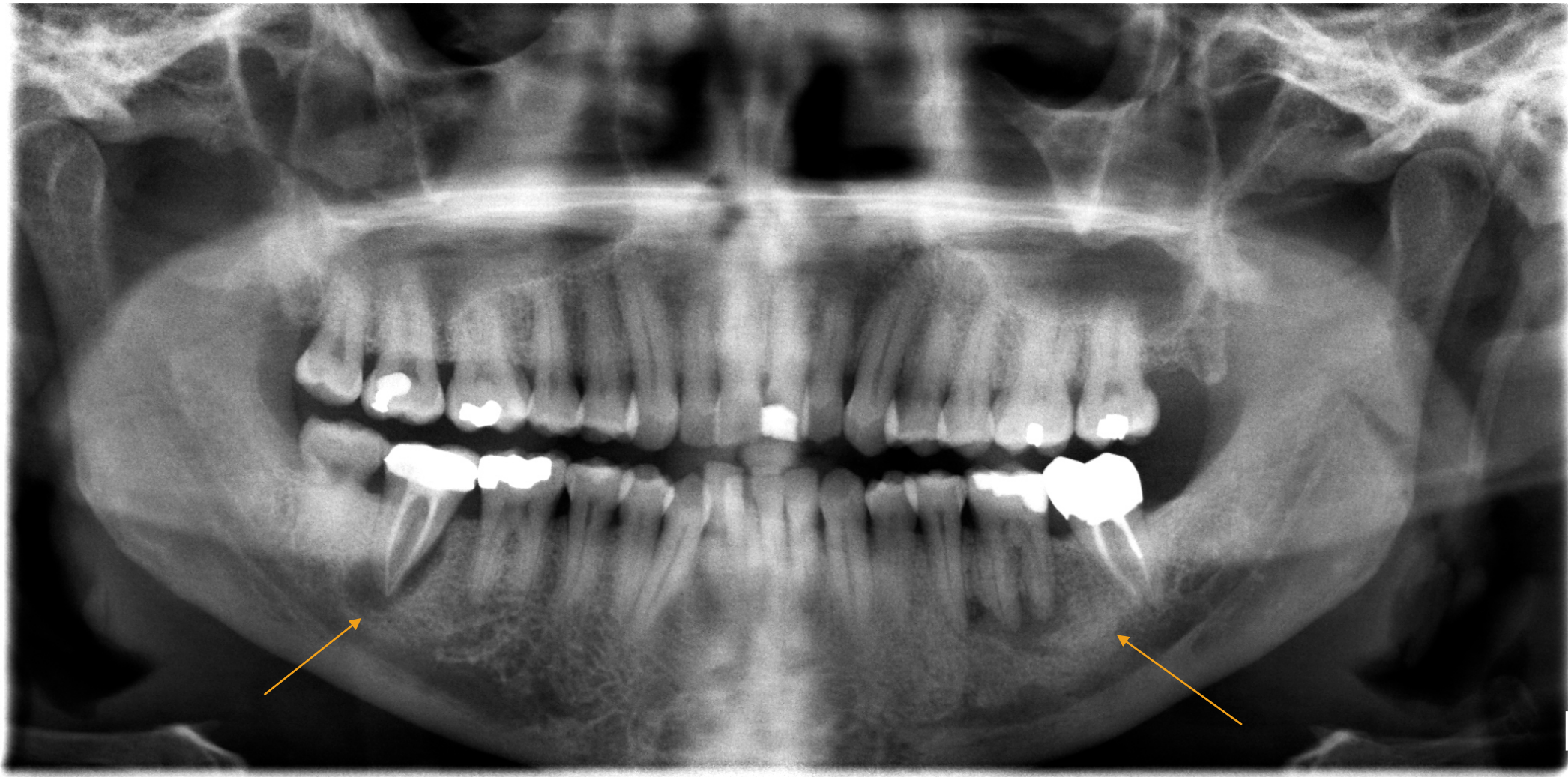
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Thank you

- ▶ We are available for clinical consultations and trainings

