# The impact of hormonal fluctuation on woman’s oral health




# Objectives

Create an awareness for our viewers about the hormonal changes in a woman’s life.

Educate the audience , offer options of treatments and where to find help when need it to improve oral health.

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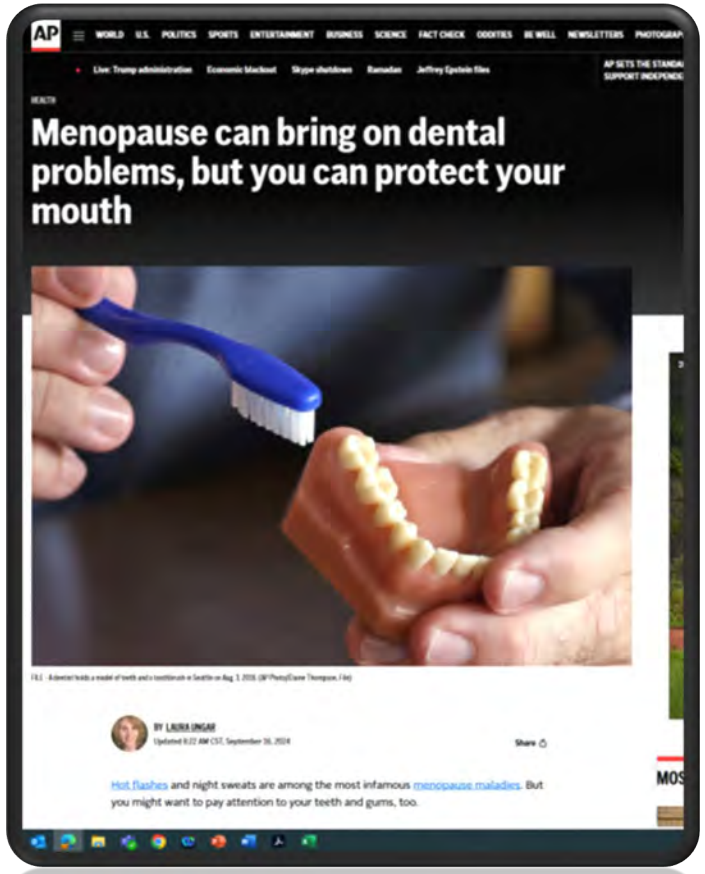
Clinical Associate Professor at UTHSCSA

Operative Course Director of  first and second year dental students and Clinical faculty for third and fourth year dental students.

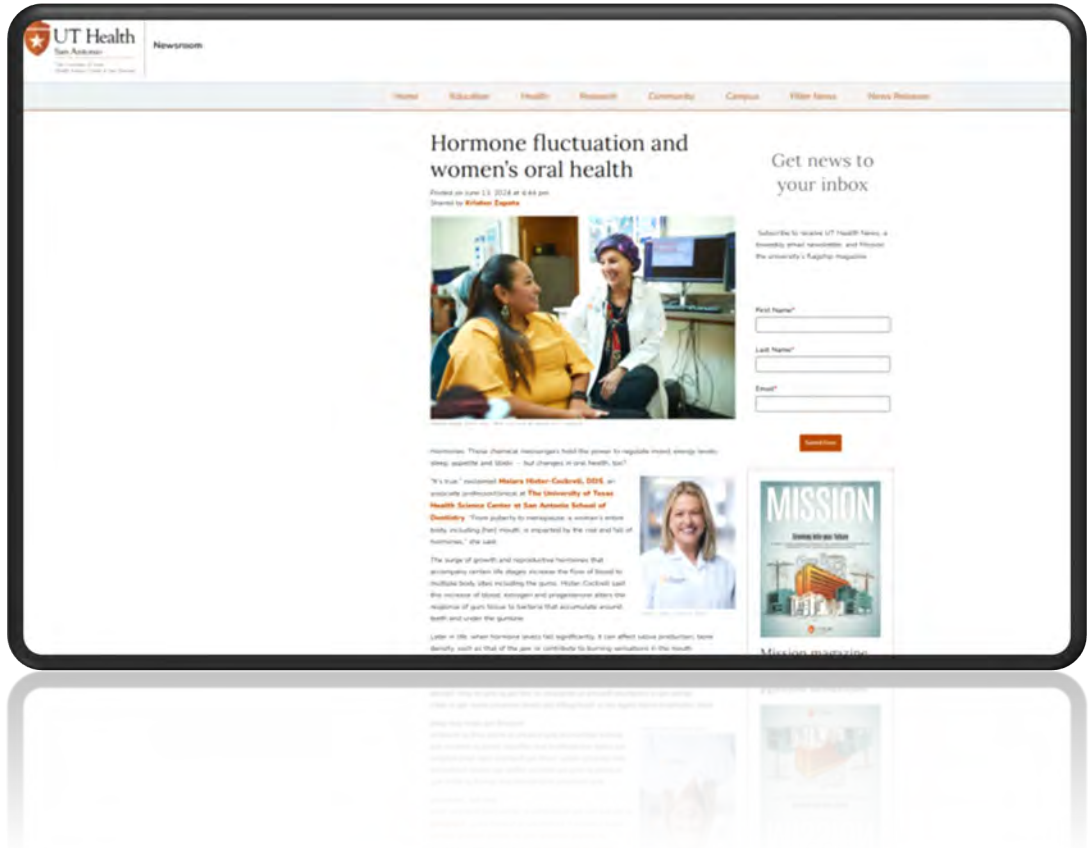
# News/ Media Spotlight of Dr. Hister-Cockrell's Work

**Interview with Laura Unger**

**reporter from the Associated Press**




**UT Health SA Newsroom**

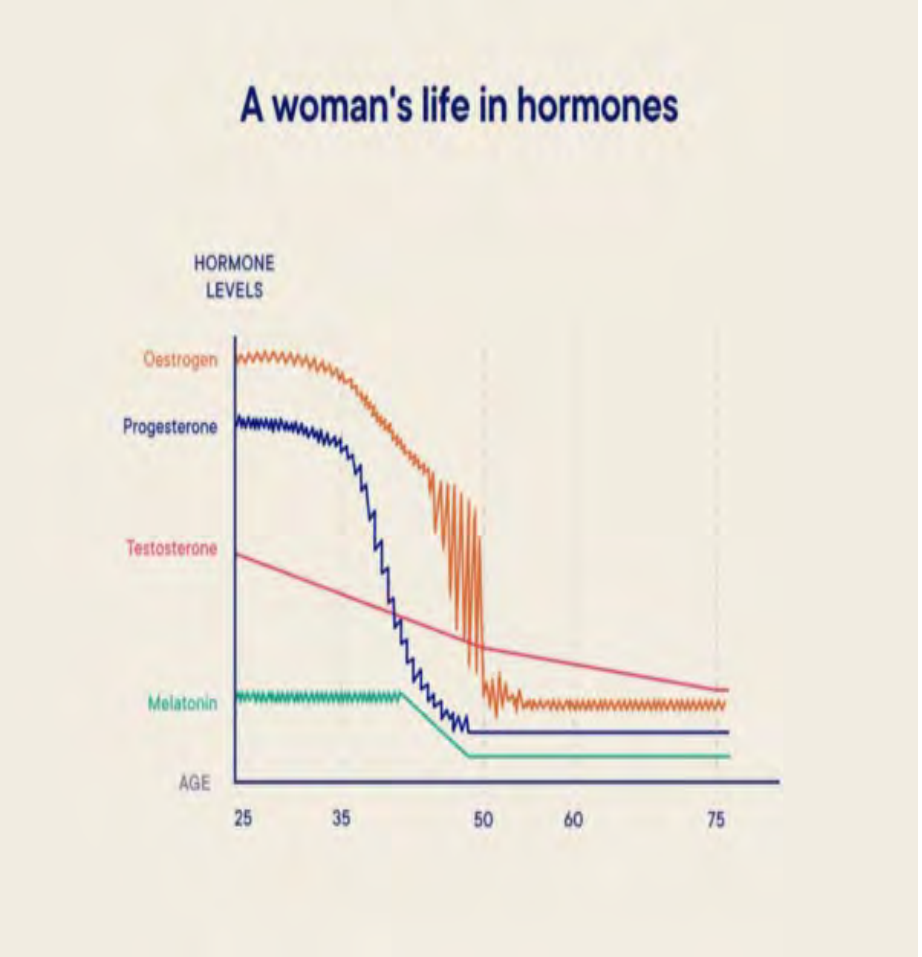


# Hormones

- These chemical messengers hold the power to regulate mood, energy levels, sleep, appetite and libido.
- The questions is: **Any changes in oral health too?**

Yes, from puberty to menopause , a woman's entire body , including

{ her} mouth, is impacted by rise and fall of hormones.



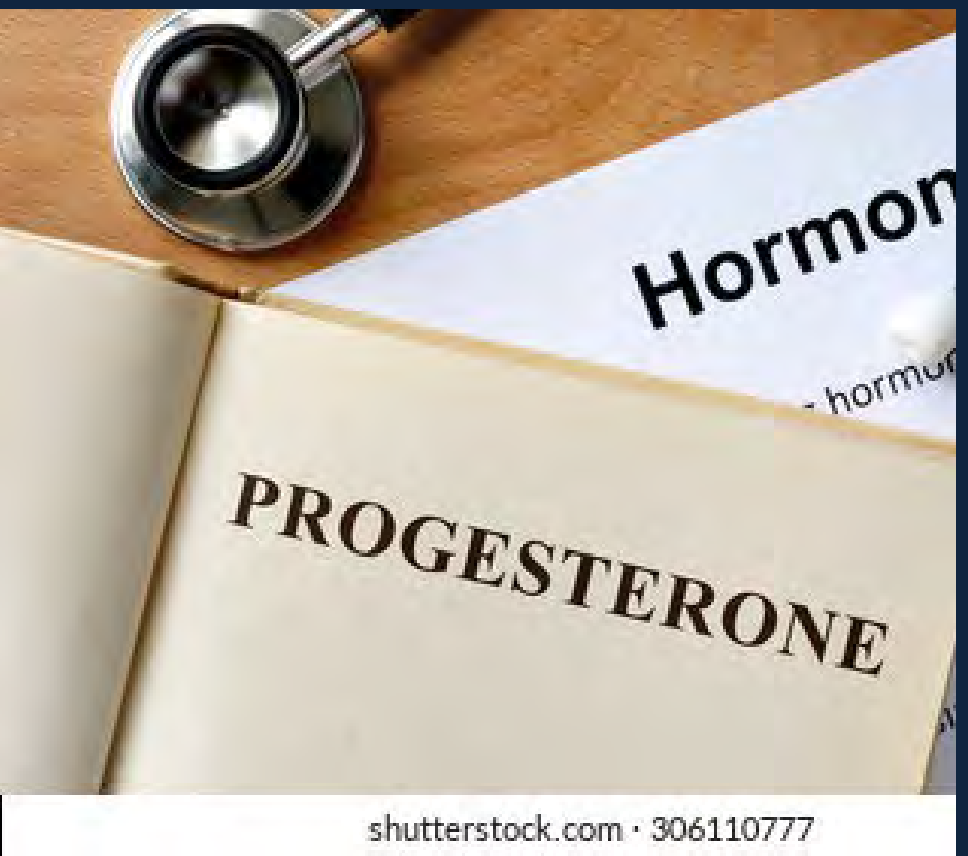
# Puberty

The increase in hormones triggers puberty and swell gums making them sensitive. They are easily irritated and prone to bleeding. While gums are vulnerable , they are subjected to infection by bacteria that live naturally in the mouth.

A diligent oral hygiene routine is important to prevent early-stage of gum disease know as gingivitis and gingivitis can lead to periodontitis.

Healthy, balance diet

# Impacts of birth control and pregnancy


- Individuals on birth control or pregnant find themselves on two sides of the same coin. For both, hormones levels are similar. Contraceptives mimic the stages of pregnancy, so you have higher levels of progesterone and estrogen. This surge makes woman vulnerable to bacteria colonization and gingivitis.
- Gingivitis is seen 60-75 % of pregnant woman. Usually, woman stop going to the dentist during this time.
- Seeing a dentist during the second trimester of pregnancy is highly recommended.

Both **The American Dental Association** and **The American College of Obstetrician and Gynecologists** have stated that seeing a dentist during pregnancy is safe.

**The American Academy of Periodontology** states that's it is safe to received dental treatment during pregnancy , including scaling and root planning. Non-urgent procedures in the second trimester (14-20 weeks) is ideal, said Dr. Kajimoto., Periodontist at UTHSCSA.

# Public Health and Women's Health:

Sohini Dhar, Clinical Assistant Professor, Dental Public Health

## Disparity and Access to Oral Health Care During Pregnancy


Hwang SS, Smith VC, McCormick MC, Barfield WD. Racial/ethnic disparities in maternal oral health experiences in 10 states, pregnancy risk assessment monitoring system, 2004-2006. Matern Child Health J 2011;15:722–9

Preventative approaches will help women to keep mouth and teeth in the best condition for a lifetime.

- attention to good home care
- regular dental visits
- good eating habits
- limiting sugar-sweetened beverages

# Counseling During Pregnancy: Oral health

During pregnancy women are more likely to be motivated to adopt to healthy behavior.

Counseling about oral health care has been shown to be highly correlated with teeth cleaning during pregnancy.

Interprofessional practice between oral health and obstetric providers motivate women to initiate and maintain oral health care during pregnancy to improve lifelong oral hygiene habits.

Oral health care during pregnancy and through the lifespan. Committee Opinion No. 569. American College of Obstetricians and Gynecologists. Obstet Gynecol 2013;122:417–22.
Thompson TA, Cheng D, Strobino D. Dental cleaning before and during pregnancy among Maryland mothers. Matern Child Health J 2013;17:110–8.

# Menopause

Here it's noticed a reduction in estrogen and progesterone.

Body temperature fluctuates.

Menstruation becomes irregular and then stops.

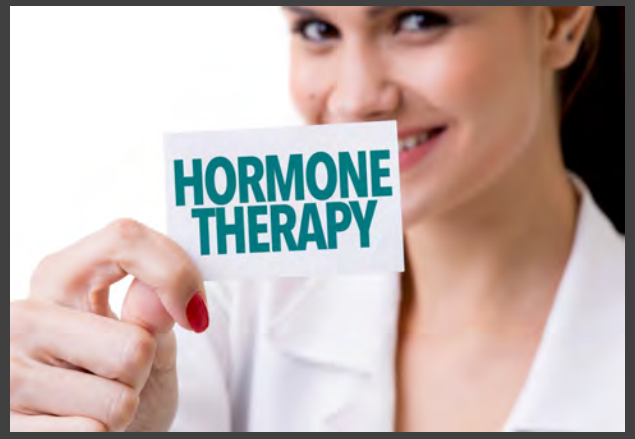
Sleep cycles change.

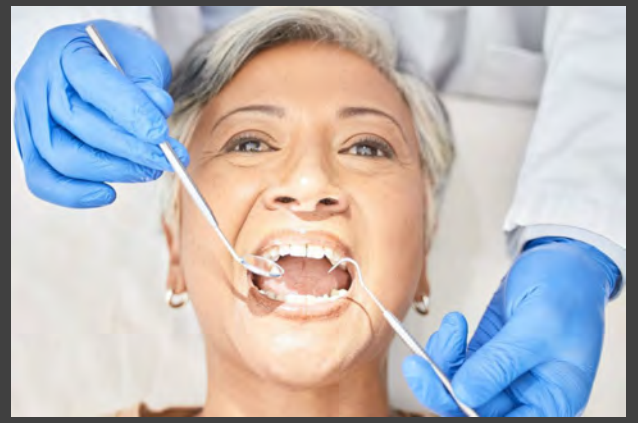
Bone loss, dry mouth, gum recession, sensitive teeth due to root exposure etc notice in oral health. Studies show that in average , woman lose up to 10% of their bone mass in the first 5 years after menopause.

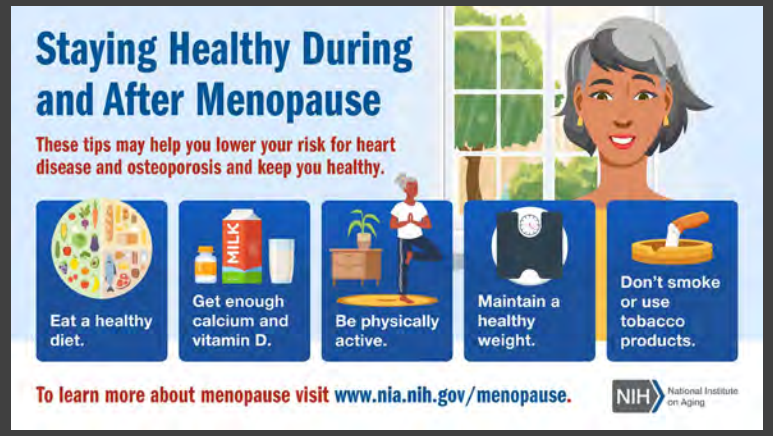
# Periodontic topics

Dr. Kajimoto, Assistant professor – Department of Periodontics at UHTSCSA, highlight that hormonal changes during puberty, menopause and contraceptive use can affect the progressions of periodontal disease in woman with diabetes.

Diabetic woman with periodontal disease have an increased risk for cardiovascular disease. When co-occurring, the risk may be compounded , increasing the likelihood of atherosclerosis, stroke and other heart –related issues.


HORMONE
THERAPY




Staying Healthy During and After Menopause
These tips may help you lower your risk for heart disease and osteoporosis and keep you healthy.
Eat a healthy diet.
Get enough calcium and vitamin D.
MILK
Be physically active.
Maintain a healthy weight.
Don't smoke or use tobacco products.
To learn more about menopause visit www.nia.nih.gov/menopause.
NIH
National Institute on Aging

**Hormonal Changes & Prosthodontic Care**

Marianela Villarreal, DDS
Clinical Associate Professor, Prosthodontist

## Implications for Oral health and Prosthodontic Treatment

-Hormonal changes during and after menopause, particularly estrogen decline, significantly impact oral health and prosthodontic outcomes.

Practical focus areas include:

- Salivary changes
- Denture fit and function
- Craniofacial changes
- Implant-related bone loss and exposure

# Hormonal Changes and Prosthodontic Outcomes

**Key Hormonal Impact:**

**Saliva Production**

- Reduced saliva flow (xerostomia) → dry mouth, mucosal irritation, denture retention issues.
- **Solutions:** Saliva substitutes or Stimulants, frequent denture adjustments.

**Bone Health**

Accelerated bone resorption & osteoporosis → alveolar ridge loss, craniofacial changes.

**Solution:** Bone grafts, implant-supported prostheses.

# Clinical Challenges in Prosthodontic Care

## Denture Fit

- Thinning mucosa, bone loss → ill-fitting dentures, discomfort, chewing difficulties.
- **Solution:** Regular relining, soft liners, or implant-supported options.

## Craniofacial Changes

- Loss of facial height, lip support → "collapsed" appearance.
- **Solution:** Dentures designed to restore facial aesthetics.

## Implants

- Increased risk of peri-implant bone loss, implant exposure.
- Tx for Osteoporosis including Prolia can limit treatment options and make management more complex.
- **Solution:** Pre-implant bone density assessment, bioactive materials, regular monitoring, medical consult.

# Conclusion

- **Key Takeaways:**
  - Hormonal changes during and after menopause significantly impact prosthodontic treatment outcomes.
  - Prosthodontists must consider salivary changes, tissue and bone loss, and craniofacial alterations when planning treatment.
  - Personalized care, regular follow-ups, and advanced techniques (e.g., implant-supported prostheses) are essential for optimal patient outcomes.

- **Final Message:**
  - By understanding and addressing these changes, we can provide better care and improve the quality of life for our patients.

# Hormonal Changes & Oral Health in Aging Women

Annetty Soto, DMD, FAGSD, FACD

Castella Distinguished Professorship in Geriodontology

Director Geriatrics clinic

# Hormonal Fluctuations & Oral Health in Aging Women

Key Oral Health Impacts of Menopause & Post-menopause

- 🔹 Xerostomia (Dry Mouth) → Higher caries risk, difficulty swallowing & Speaking
- 🔹 Periodontal Disease → Estrogen decline leads to bone loss, inflammation
- 🔹 Osteoporosis & Tooth Loss → Alveolar bone resorption, implant challenges
- 🔹 Oral Mucosal Changes → Burning mouth syndrome, taste alterations
- 🔹 Delayed Healing → Complications post-extractions, implants, surgeries

Oral-Systemic Health Links

- ✅ Periodontal disease & osteoporosis
- ✅ Menopause & cardiovascular disease → Inflammatory pathways
- ✅ Hormone Replacement Therapy (HRT) → Potential protective effects, risks

# Societal & Caregiving Burdens on Oral Health

Barriers Faced by Older Women

- Caregiving Responsibilities → Neglect of personal dental care
- Financial Constraints → Limited insurance coverage, cost concerns
- Limited Access to Care → Mobility issues, long-term care neglect
- Psychosocial Impact → Self-esteem, social isolation due to oral discomfort

Clinical Considerations for Dental Providers

- Preventive Strategies → Fluoride, saliva substitutes, nutritional counseling
- Tailored Treatment Plans → Bone density assessments, healing delays
- Interdisciplinary Collaboration → Working with physicians & caregivers
- Advocacy & Policy Change → Improving dental care access for older women

# Dental Care is Health Care

- At any life stage we recommend regular dental visits and strong dental hygiene routine to maintain oral health.
- A dentist will help you identify an effective treatment plan for any condition and can help a primary care doctor monitor a woman’s overall health. After all, the mouth is part of your body- dental care is health care.

# Oral Lesions and Disorders in the Context of Women's Health

Tiffany Tavares, DDS, DMSc

# Early Childhood and Adolescence

# RECURRENT APHTHOUS STOMATITIS (RAS)

## Pathogenesis and Clinical Features

- Immune-mediated disease: T-cell cytotoxicity
- Increased inflammatory cytokines (IL-2, 6, TNF-α)
- Genetic predisposition and triggering factors
- Recurrent episodes of self-limiting ulcers of the non-keratinized mucosa
    - Minor
    - **Major**
    - **Herpetiform**

# RECURRENT APHTHOUS STOMATITIS (RAS)

## Gender-Specific Considerations

- Common disorder: 20% of population
  - Children
  - Young adults
- Major and herpetiform variants more common in females after puberty
- Cyclic fluctuations in estrogen and progesterone can increase pro-inflammatory cytokine expression. Contraceptives may exacerbate symptoms
- RAS episodes often intensify during the luteal phase of the menstrual cycle, when hormonal changes are most pronounced

# RECURRENT APHTHOUS STOMATITIS (RAS)

## Diagnosis

- Clinical diagnosis
  - Histology is non-specific
- Screen for nutritional deficiencies
- Rule out other disorders that may have aphthous-like ulcerations

## Management

- Self-limiting in most cases (7—14 days)
- Major and herpetiform variants may require treatment
  - Topical anesthetics
  - Topical steroids
  - Systemic immunomodulatory agents for severe disease
- Consider hormonal evaluation and contraceptive influence where applicable

# Gestation

# PYOGENIC GRANULOMA

## Pathogenesis and Clinical Features

- Reactive condition secondary to local irritation (plaque, calculus) or trauma with rapid onset
- Exophytic, pedunculated or sessile papule, nodule or mass, sometimes lobulated
- Mucosa-colored and/or erythematous
- Bleeding and/or superficial ulceration may be present
- Proliferation of granulation tissue and dilated blood vessels (exacerbated wound healing mechanisms) :  VEGF and bFGF

# PYOGENIC GRANULOMA

## Gender-Specific Considerations

- Elevated levels of estrogen and progesterone stimulate the production of angiogenic mediators, reducing endothelial apoptosis and promoting lesion growth

- In pregnancy, granuloma gravidarum ("pregnancy tumor")
    - 0.5% of pregnancies
    - Peak occurrence during 2$^{nd}$ trimester

- Hormonal contraceptive may increase risk of developing PG

- Less common during menopause

# PYOGENIC GRANULOMA

## Diagnosis

- Clinical presentation and history
- Biopsy necessary for definitive diagnosis

## Management

- In pregnancy, may see decrease in the size (regression) after delivery
- Definitive treatment: surgical excision + address chronic irritation/traumatic factor
- Evaluate hormonal contribution where appropriate

# Middle-Age

# ORAL LICHEN PLANUS (OLP)

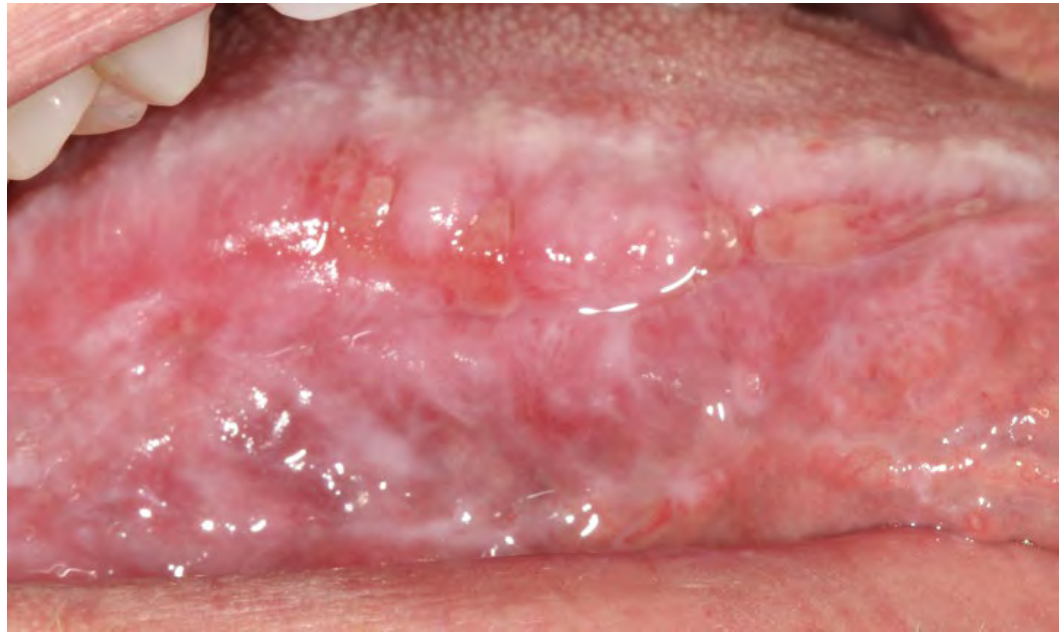
## Pathogenesis and Clinical Features

- Immune-mediated disease: type IV hypersensitivity; CD8+ T-lymphocyte activation against basal keratinocytes

- Bilateral, symmetric reticulations/striae, with or without erythema and/or ulceration, affecting the usual sites
  - Buccal mucosa
  - Gingiva
  - Tongue

- May also affect have cutaneous or genital involvement

- Waxing and waning in nature, many potential triggering/exacerbating factors



# ORAL LICHEN PLANUS (OLP)

## Gender-Specific Considerations

- Affects middle-aged individuals
  - Peak incidence 40 – 60
  - Perimenopausal age
- F>M (3:2)
- Altered estrogen levels may increase pro-inflammatory cytokines and modify T-cell responses and increase severity
- Higher rate of autoimmune comorbidities
- Higher rate of stress as triggering/exacerbating factor

# ORAL LICHEN PLANUS (OLP)

## Diagnosis

- **OLP IS A CLINICAL DIAGNOSIS**

- Many other conditions may have a similar appearance to OLP both clinically and histologically
  - Histology: lichenoid mucositis
  - Differentials
    - Oral lichenoid hypersensitivity (medications and materials)
    - Systemic lupus erythematosus
    - Graft-versus-host-disease
    - Chronic ulcerative stomatitis

## Management

- Topical steroids

- Systemic steroids/Immunomodulatory agents for severe disease

- Identify and avoid triggering/exacerbating factors
  - Consider hormonal factors where applicable

- Monitor lesions at least annually for risk of malignant transformation

# Postmenopausal

# MEDICATION-RELATED OSTEONECROSIS OF THE JAW (MRONJ)

## Gender-Specific Considerations

- Osteoporosis is more common in postmenopausal women
- Decreased estrogen, common after menopause, leads to increased RANKL expression which increases osteoclastic activity and decreases bone mineral density
- Antiresorptives can also prevent and treat bone lesions in patients with metastatic breast cancer
- Menopause and hormone-sensitive cancer treatments increase risk for MRONJ

# MEDICATION-RELATED OSTEONECROSIS OF THE JAW (MRONJ)

## Diagnosis

- Medication history, clinical examination and radiographic evaluation
- Exposed bone or bone that can be probed through an intraoral or extraoral fistula(e) in the maxillofacial region that has persisted for more than 8 weeks
- No history of radiation therapy to the jaws or metastatic disease to the jaws
- 4 stages
  - 0: Nonexposed Bone Variant
  - 1: Exposed – no inflammation/infection
  - 2: Exposed – inflammation/infection
  - 3: Exposed – extensive disease

# MEDICATION-RELATED OSTEONECROSIS OF THE JAW (MRONJ)

## Management

- Conservative therapy: antimicrobial mouth rinses, antibiotics, and analgesics
    - Pentoxifylline + Vitamin E

- Stage 1-2 may sequester on its own
    - Surgical debridement when necessary
    - Surgical sequestrectomy

- Stage 3 typically requires surgical intervention/resection

- Preventive Strategies: Regular monitoring of bone health, consideration of drug holidays*, and, when feasible, hormonal replacement therapy may mitigate risk in postmenopausal women

# BURNING MOUTH SYNDROME (BMS)

## Pathogenesis and Clinical Features

- Idiopathic chronic pain disorder thought to be multifactorial
  - Suggestive neuropathic component
  - Altered central pain processing
  - Psychological contribution (anxiety, depression)

- Characterized by burning sensation (tongue, lips, anterior hard palate) in the absence of any oral mucosal abnormalities

- May be accompanied by xerostomia and/or dysgeusia

- Clinical examination is within normal limits

# BURNING MOUTH SYNDROME (BMS)

## Gender-Specific Considerations

- More common in individuals > 50 years old
  - Post menopausal
- F>M (3-7:1)
- Decreased estrogen may alter neurotransmitted regulation and pain perception
- Decreased estrogen has been associated with impaired modulation of nociceptive signals
- Higher rates of anxiety and depression in women

# BURNING MOUTH SYNDROME (BMS)

## Diagnosis

Diagnosis of exclusion

- Exclude all other conditions that may present with oral burning and oral dryness (local and systemic)
- Clinical and laboratory investigations

## Management

- Multidisciplinary
  - Pharmacological: alpha-lipoic acid, topical capsaicin, tricyclic antidepressants, benzodiazepines, other CNS-altering medications
  - Psychological: cognitive behavioral therapy, managing anxiety, depression and other chronic pain conditions where applicable
  - Hormonal considerations: where applicable addressing hormonal influence

# Special Thanks

- Dr. Dhar
- Dr. Tavares
- Dr. Villarreal
- Dr. Soto
- Dr. Kajimoto
- UTHSCSA Marketing department.

My first article:

- Our Newsroom: https://news.uthscsa.edu/hormone-fluctuation-and-womens-oral-health/

My second article:

- Interview with Laura Unger reporter from the Associated Press: Menopause can bring on dental problems, but you can protect your mouth | AP News