

Fall Rounds 2020

Xerostomia



Group 2A-2



D4 - Turner Schmidt

D3 - Maddy Zastrow

D2 - Carly Schaefer and Audrey Chu

D1 - Ian Soto

Patient X

Patient presents for free denture program.

CC: "I need a new denture, this one is broken."

Medical Consult indicated due to complex history and medical problem list





Dr. Ikasjdf

Medical
Problem
List

22

28

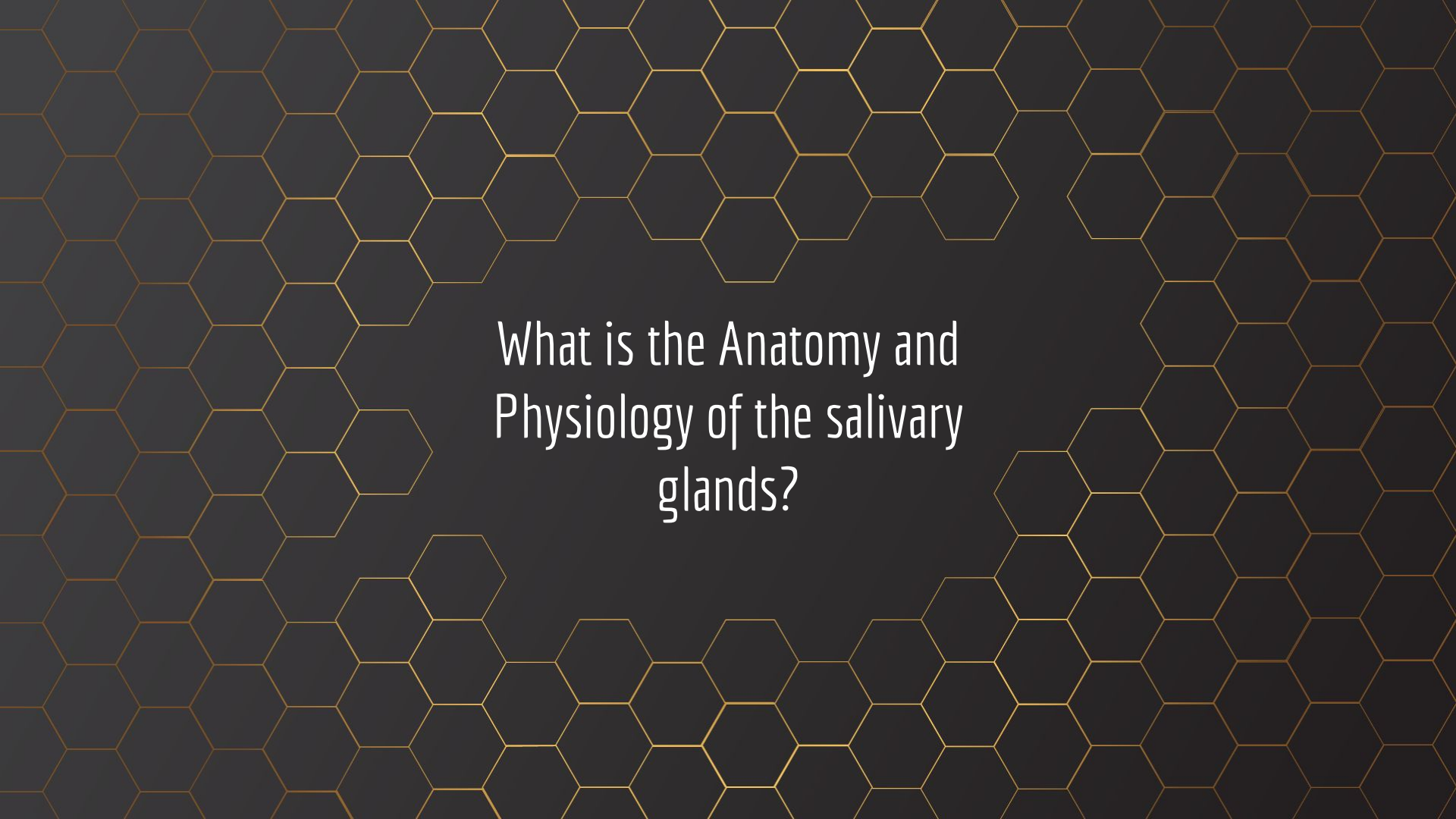
Medications

Allergies

7



D1 - Basic Science



What is the Anatomy and Physiology of the salivary glands?

Anatomy of the Salivary Glands

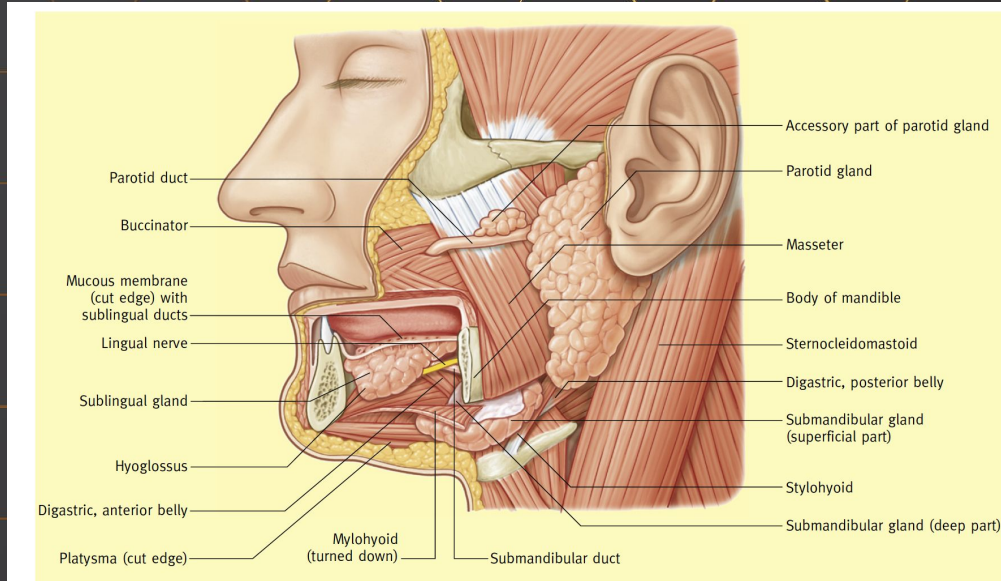
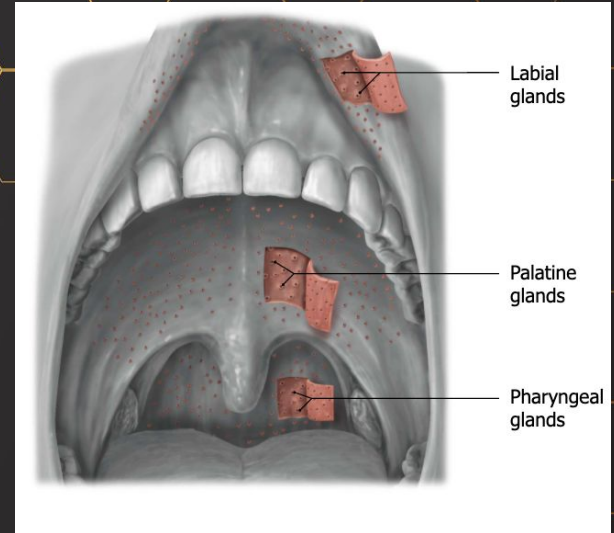


Figure 1 The parotid, submandibular and sublingual glands and their relations.

Major Salivary Glands:

Parotid
Submandibular
Sublingual



Minor Salivary Glands:

Buccal, Lingual, Palatal, Incisive, Labial surfaces of the mouth

Figure 1 From Ellis, Harold. "Anatomy of the Salivary Glands." *Surgery (Oxford)*, vol. 30, no. 11, 2012, pp. 569-572., doi:10.1016/j.mpsur.2012.09.008.

Fig. 8.44 Minor Salivary Glands from Schuenke, Michael, et al. *Anatomy for Dental Medicine*. 2nd ed., Thieme Medical Publishers, 2020

Physiology of Salivary Glands

Protective functions

Mucosal lubrication
and growth factors
Lysozyme
Salivary Mucins
IgA

Production of saliva

0.5-1.5 L daily
90% Major Glands
10% Minor Glands

Digestive functions

Salivary Amylase
Breast milk lipids

References

Ellis, Harold. "Anatomy of the Salivary Glands." *Surgery (Oxford)*, vol. 30, no. 11, 2012, pp. 569–572.

Paula, Fernanda De, et al. "Overview of Human Salivary Glands: Highlights of Morphology and Developing Processes." *The Anatomical Record*, vol. 300, no. 7, 2017, pp. 1180–1188.

Schuenke, Michael, et al. *Anatomy for Dental Medicine*. 2nd ed., Thieme Medical Publishers, 2020, pp. 214-215.

Varga, Gábor. "Physiology of the Salivary Glands." *Surgery (Oxford)*, vol. 33, no. 12, 2015, pp. 581–586.



D2 - Pathology

What is the etiology and treatment of medication-induced xerostomia?

Xerostomia: the sensation of a dry mouth

- Can occur with reduced salivary flow, but also with normal salivary flow

Etiology

- Salivary secretion is mediated by the parasympathetic nervous system
- Medication-induced xerostomia occurs due to inhibition of the parasympathetic nervous system's activity
 - Parasympatholytics, cholinolytics, anticholinergics = Muscarinic receptor antagonists
 - Prevention of acetylcholine from binding to muscarinic receptor
- Elderly are often affected due to polypharmacy

What is the etiology and treatment of medication-induced xerostomia?

Common classes of medications that cause xerostomia:

- Antihistamines
- Antidepressants
- Antipsychotics
- Sedative agents
- Antihypertensive medications

Treatment

- Topical medications are the first to be recommended
 - Chewing gums, candies, salivary stimulants, and saliva substitutes.
- Sialogogues are not recommended

References

Millsop, Jillian W., et al. "Etiology, Evaluation, and Management of Xerostomia." *Clinics in Dermatology*, Elsevier, 27 June 2017, www.sciencedirect.com/science/article/pii/S0738081X17301062.

Villa, A., Wolff, A., Aframian, D. et al. World Workshop on Oral Medicine VI: a Systematic review of medication-induced salivary gland dysfunction: prevalence, diagnosis, and treatment. *Clin Oral Invest* 19, 1563–1580 (2015). <https://doi.org/10.1007/s00784-015-1488-2>



D2 - Alt Pathology

What is the Etiology, Symptoms, & Treatment of Sjogren Syndrome

Sjogren Syndrome: chronic autoimmune disorder characterized by glandular dysfunction due to lymphocyte infiltration of the exocrine glands.

- Salivary and Lacrimal glands tend to be the most affected

2 Types of Sjogren's Syndrome:

- Primary- absence of other autoimmune disorders
- Secondary - occurs along with other autoimmune disorders

Etiology: currently remains unknown/not fully understood

- Genetic predisposition, hormones, and environmental factors may predispose an individual to developing this disorder.
- Women tend to be affected more than men
- Salivary and lacrimal gland dysfunction results in hyposalivation and decreased tear production

What is the Etiology, Symptoms, & Treatment of Sjogren Syndrome

Hallmark Symptoms of Sjogren's Syndrome are:

- Xerostomia
- Keratoconjunctivita sicca (dry eyes)

Treatment: There is no cure for Sjogren's Syndrome and so treatment is supportive and focused on the patient's symptoms.

- **Sialagogue Drugs:** Pilocarpine and Cevimeline
 - Direct-acting Muscarinic receptor agonists
 - Used to increase salivation when the problem is due to salivary gland dysfunction
 - High affinity for the muscarinic receptors located in the lacrimal and salivary glands
- Cyclosporine- Prescription eye drops used to decrease inflammation of the lacrimal gland
- Artificial tears

References:

Nair JJ, Singh TP. Sjogren's syndrome: Review of the aetiology, Pathophysiology & Potential therapeutic interventions. *J Clin Exp Dent*. 2017;9(4):e584-e589. Published 2017 Apr 1. doi:10.4317/jced.53605

Paris D, Chivasso C, Perret J, Soyfoo MS, Delporte C. Current State of Knowledge on Primary Sjögren's Syndrome, an Autoimmune Exocrinopathy. *J Clin Med*. 2020;9(7):2299. Published 2020 Jul 20. doi:10.3390/jcm9072299

The background of the slide is a dark gray or black color, overlaid with a repeating pattern of thin, gold-colored lines forming a honeycomb or hexagonal grid. The pattern is uniform and covers the entire area.

D3 - PICO

PICO

- P: Patients with medication induced xerostomia
- I: Maintaining the medications and treating the dry mouth
- C: Changing medications
- O: Affect on quality of life

Clinical Question

How does xerostomia affect denture fit?

PICO Formatted *Q*uestion

In patients with medication induced xerostomia, is changing medications or primarily treating the xerostomia more effective in improving the patients quality of life?

Clinical Bottom Line

Search Background

- Date of Search:
- Database(s) Used:
- Search Strategy/ Keywords:
- MESH terms used:

Article 1

Levels of Evidence

- ☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
- ☐ **2b** – Individual Cohort Study
- ☐ **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research
- ☐ **4a** – Systematic Review of Case Control Studies
- ☐ **4b** – Individual Case Control Study
- ☐ **5** – Case Series, Case Reports
- ☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

Article 2

Levels of Evidence

- ☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
- ☐ **2b** – Individual Cohort Study
- ☐ **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research
- ☐ **4a** – Systematic Review of Case Control Studies
- ☐ **4b** – Individual Case Control Study
- ☐ **5** – Case Series, Case Reports
- ☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

Article 3

Levels of Evidence

- ☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
- ☐ **2b** – Individual Cohort Study
- ☐ **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research
- ☐ **4a** – Systematic Review of Case Control Studies
- ☐ **4b** – Individual Case Control Study
- ☐ **5** – Case Series, Case Reports
- ☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

Conclusion

Discussion Questions to be added