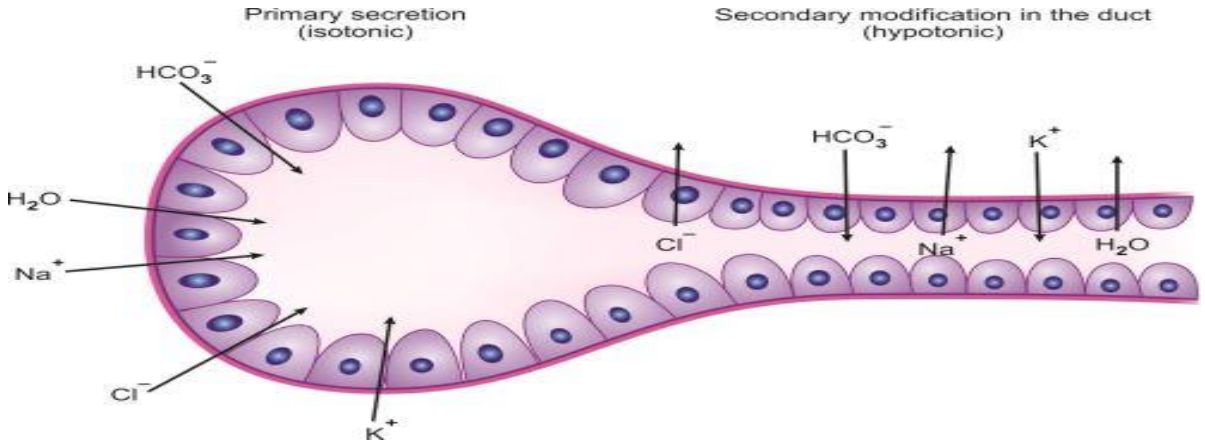
SALIVA

PART-2



DR.SAJDA GAJDHAR

Course coordinator: Oral cavity in health

LECTURE-6 LEARNING OUTCOMES

By the end of this lecture, students should be able to:
1. Describe physiology of salivary secretion
2. Illustrate the clinical consideration of saliva

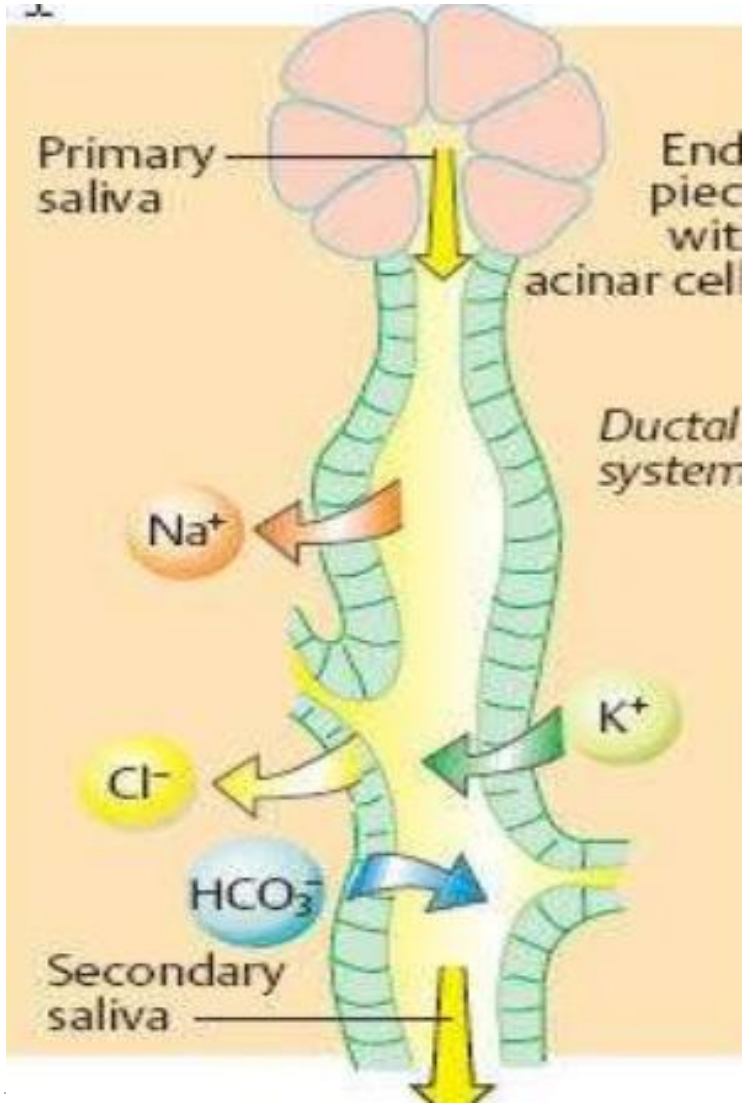
1. pH of saliva????
2. Buffering action of saliva???
3. Antimicrobial action of saliva???
4. Immunoglobin in saliva??
5. Anticariogenic action of saliva??

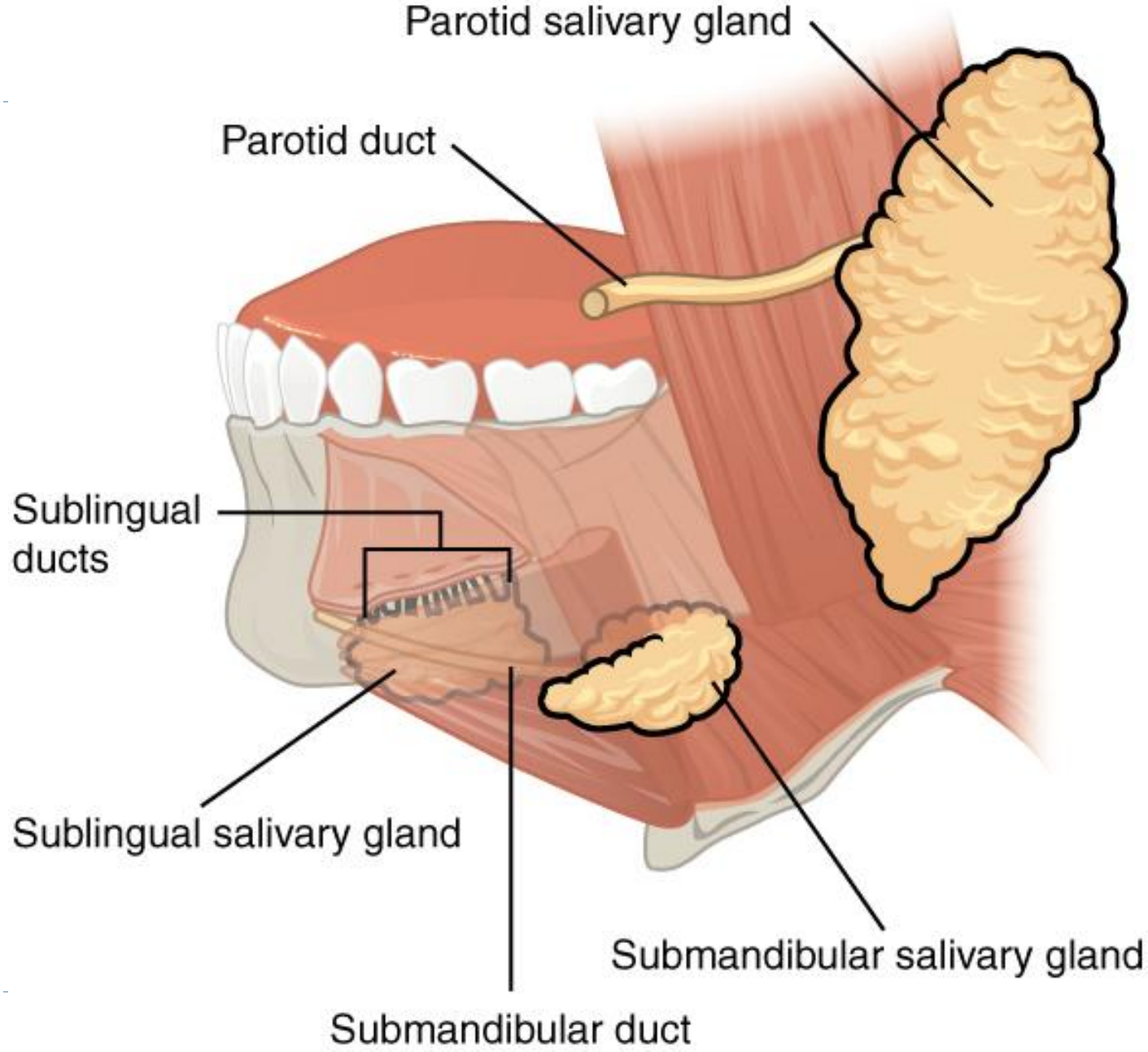
Functions of saliva

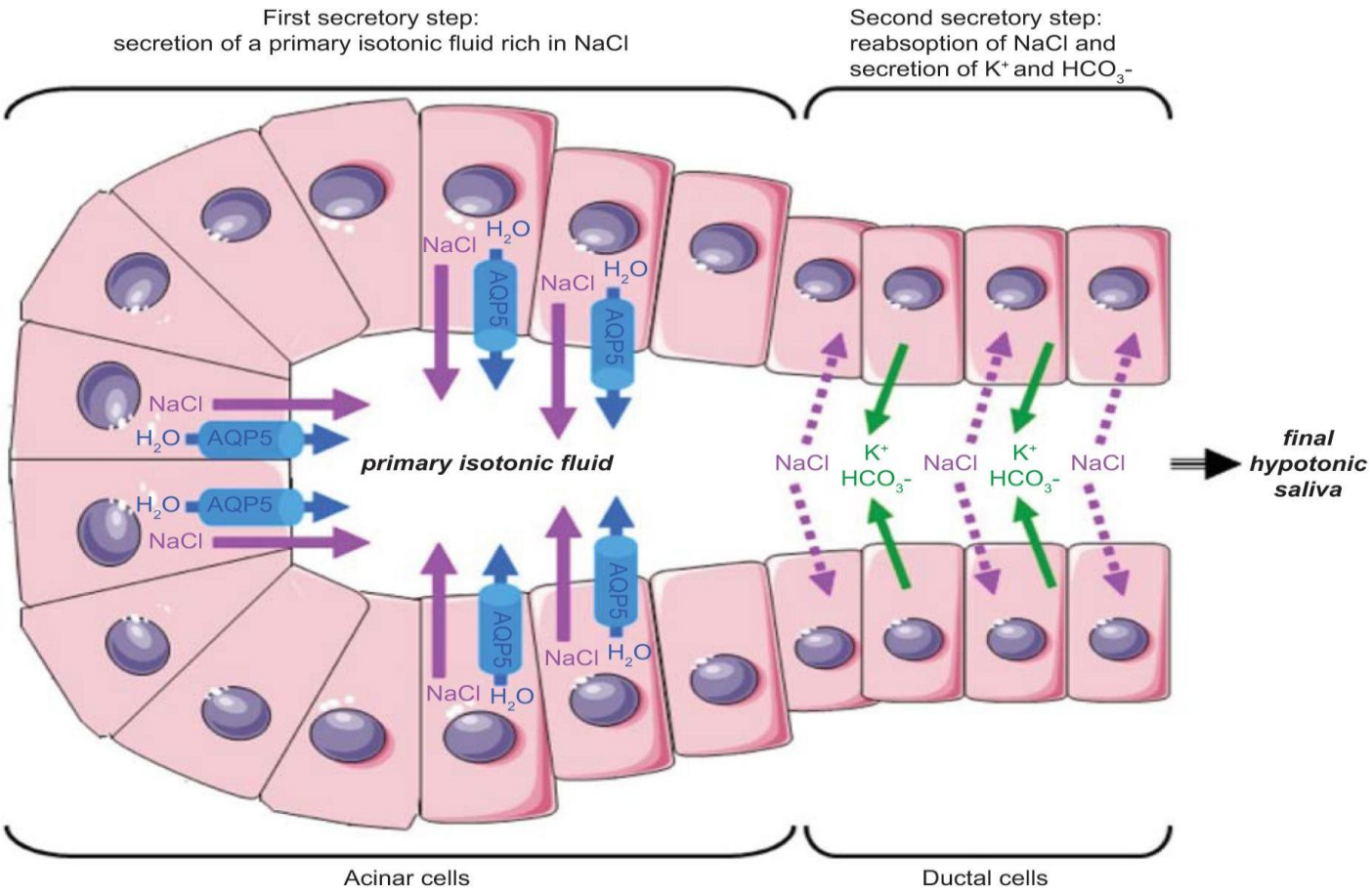
- PROTECTION
- MAINTAINENCE OF TOOTH INTEGRITY
- ANTIMICROBIAL ACTION
- BUFFERING ACTION OF SALIVA
- DIGESTION
- TASTE
- TISSUE REPAIR
- MASTICATION AND SWALLOWING

MECHANISM OF FORMATION OF SALIVA

- Secretion of saliva can be divided into two phases:
- 1. **Primary phase** which involves secretory acini, and
- 2. **Secondary phase** which occurs in ducts.




Parotid salivary gland
Parotid duct
Sublingual ducts
Sublingual salivary gland
Submandibular duct
Submandibular salivary gland



PRIMARY SECRETION: ISOTONIC SALIVA
SECONDARY SECRETION: HYPOTONIC SALIVA

Formation of Saliva

Two stages

Stage I

Production of primary secretion

Isotonic

Acinar cells

Mucous acini

Serous acini

Stage II

Modification of primary secretion

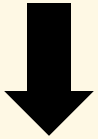
Hypotonic

Ducts

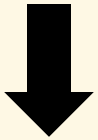
Intercalated duct

Straited duct

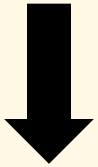
- The fluid formation in salivary glands occurs in the end pieces (acini) where serous cells produce a watery secretion and mucous cells produce a viscous mucin-rich secretion.



- These secretions arise by the formation of interstitial fluid from blood in capillaries, which is then modified by the Acinus cells



- This modified interstitial fluid is secreted into the lumen.



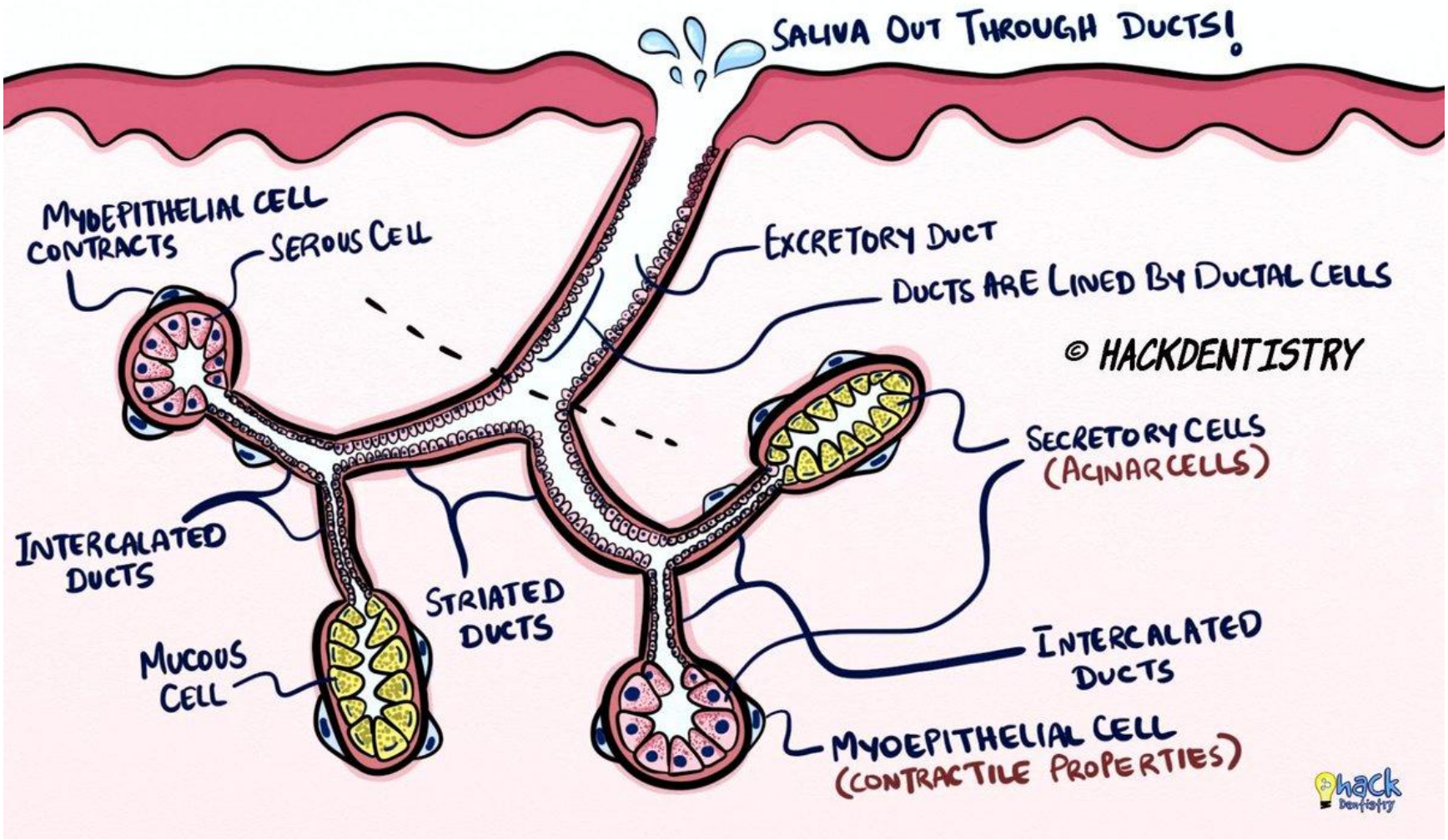
- From the lumen it passes through the ductal system where it is further modified. Most of the modification occurs in the striated ducts where ion exchange takes place and the secretion is changed from an isotonic solution to a hypotonic one.

Secondary/Modification phase of secretion

Saliva undergoes changes as it passes through the salivary ductal system into the oral cavity.

Saliva secreted from the acini is isotonic

In ductal system, reabsorption of sodium and chloride occurs and simultaneously excretion of potassium and bicarbonate ions. Which makes saliva hypotonic.


SALIVA OUT THROUGH DUCTS!
MYOEPITHELIAL CELL CONTRACTS
SEROUS CELL
EXCRETORY DUCT
DUCTS ARE LINED BY DUCTAL CELLS
© HACKDENTISTRY
SECRETORY CELLS (ACINAR CELLS)
INTERCALATED DUCTS
STRIATED DUCTS
MUCOUS CELL
INTERCALATED DUCTS
MYOEPITHELIAL CELL (CONTRACTILE PROPERTIES)

REGULATION OF SALIVARY SECRETION

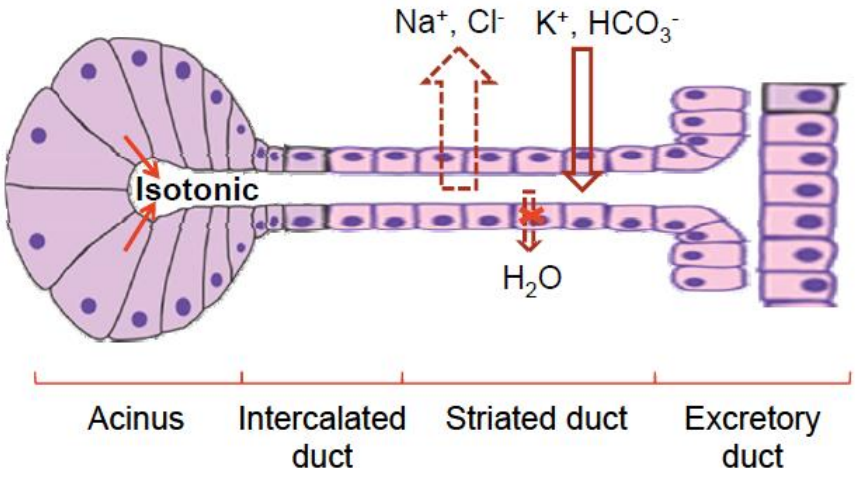
1. Flow of saliva:

2. Autonomic nervous system: The physiologic control of salivary gland secretion is mediated through the activity of the ANS

The parasympathetic system: increase the secretion

The sympathetic system: decrease the secretion (usually works when our 'fight or flight' response is triggered).

3. The control of secretion is also linked to changing **smell or taste of food, and masticatory stimuli.**



CLINICAL CONSIDERATIONS OF SALIVA

- An understanding of the anatomy, histology, and physiology of the salivary glands is **essential for good clinical practice.**
- Saliva regulates the oral environment and has widespread distribution of the salivary glands in the oral cavity. Hence there is a **great impact of salivary gland pathology on clinical practice in dentistry.**


Questions
?
?
Answers
?

CLINICAL CONSIDERATIONS OF SALIVA

HYPOSALIVATION:The reduction in the secretion of saliva is called hyposalivation.

Dry mouth (Xerostomia)

HYPERSALIVATION:The excess secretion of saliva is known as hypersalivation .

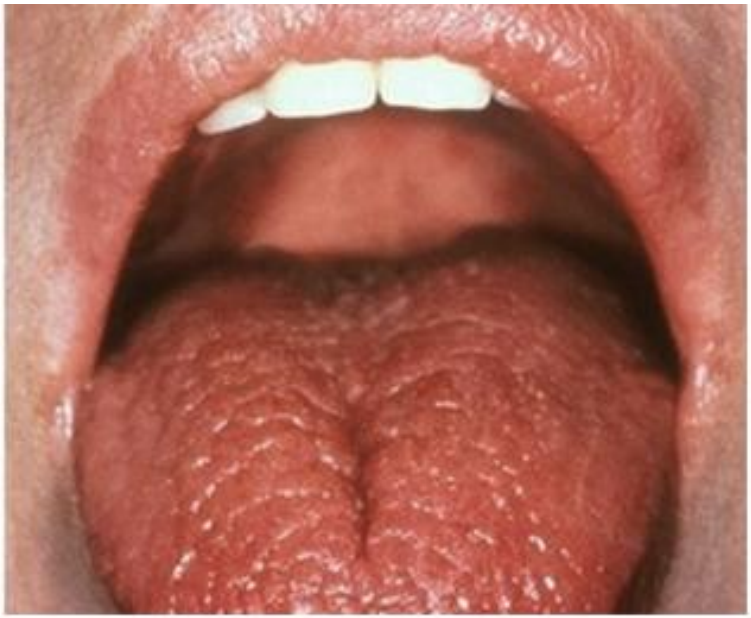
Sialorrhea

XEROSTOMIA

- A loss of salivary function or a **reduction in the volume** of secreted saliva may lead to **oral dryness**.
- **CAUSES:**
- **Destruction of glandular secretory cells by inflammation or by radiation to the gland,**
- **Psychological causes–anxiety and depression.**
- **Dehydration.**
- **Side effects of medications (*The common drugs causing dry mouth are anticholinergics, antidepressants, antipsychotics, antihypertensives) that interfere with the neuro regulation of secretion.**

- Decreased salivary volume leads to **difficulty in speech, mastication and taste perception, and swallowing becomes painful**.
- The **teeth become susceptible to caries**. Oral tissues become susceptible to frequent **oral infection**; inflammation and **ulceration of oral mucosa** is commonly seen.

Healthy



Dry mouth

SIALORRHEA

- **The excess secretion** of saliva is known as hypersalivation .
- Hypersalivation in pathological condition is known as **ptyalism , sialorrhea.**
- Hypersalivation occurs in the following conditions

1. **Acute inflammation of mouth or tongue.**
2. **Neurological disorder such as cerebral palsy & mental retardation.**
3. **Teething.**
4. **Nausea & vomiting.**
5. **Any foreign material eg. orthodontic appliance**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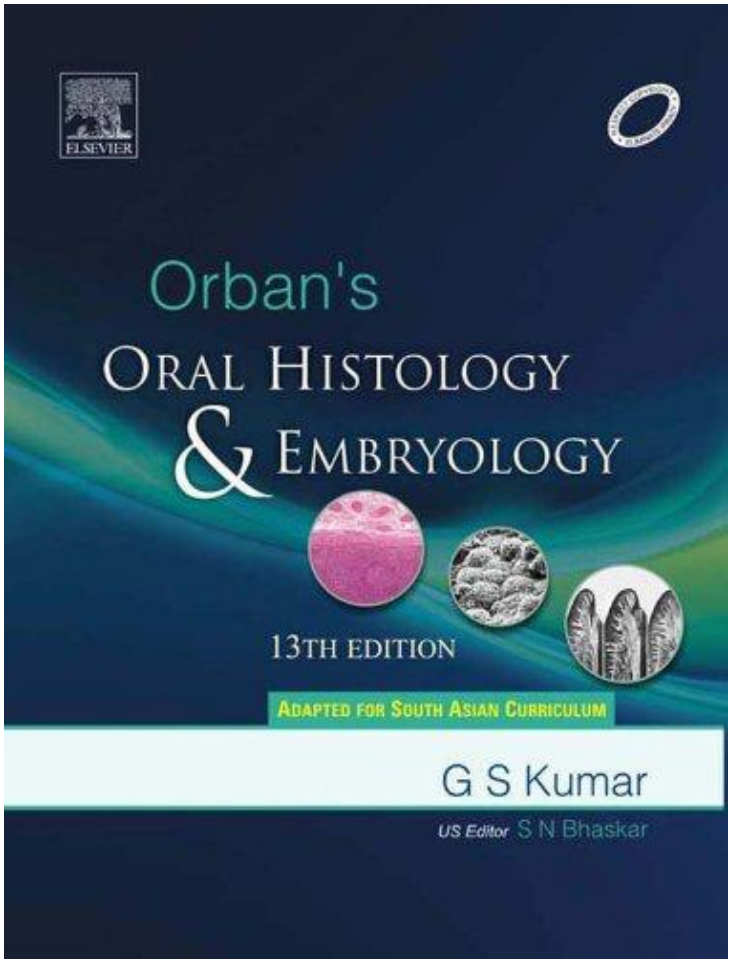
ASK QUESTIONS

REFERENCE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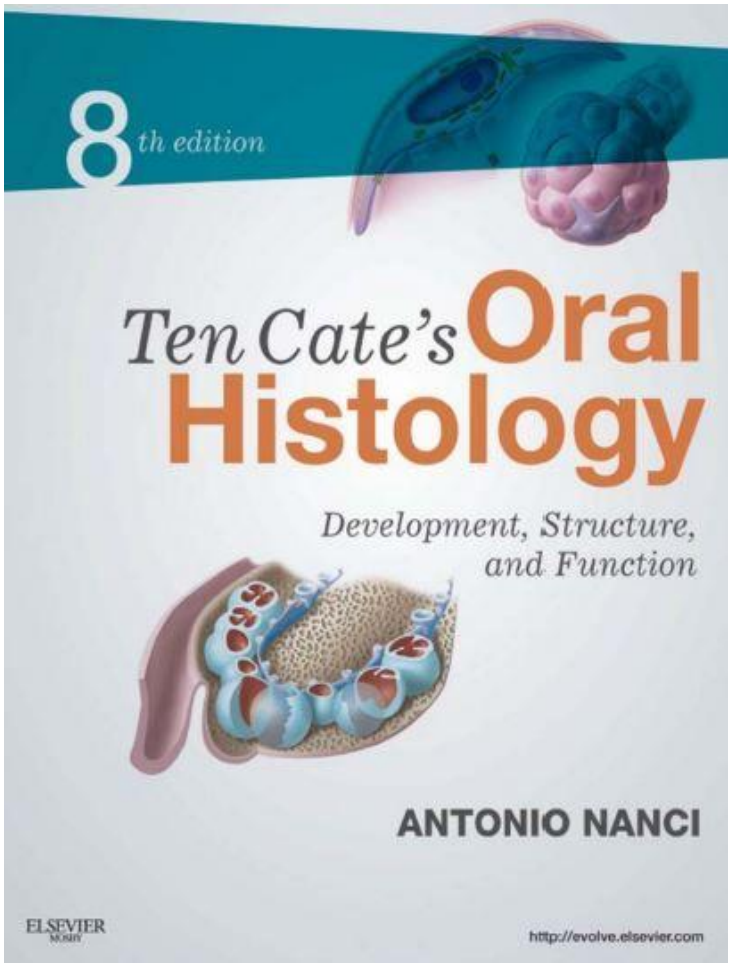
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