



Case-Based Learning (CBL) for Dental Students

**Topic:
Carbohydrates in Dental Health**

CASE Scenario1

Sweet Tooth – The Cariogenic Carbohydrate

Learning Objectives:

- Differentiate between various types of carbohydrates (mono-, di-, polysaccharides).
- Understand the biochemical link between sugar metabolism and caries development.
- Connect microbial fermentation with acid production and enamel demineralization.

CASE Scenario1

Sweet Tooth – The Cariogenic Carbohydrate

An 8-year-old child presents to your dental clinic with complaints of pain in the molar region while eating sweets. Clinical examination and radiographs reveal advanced caries in the molars. The parents mention that the child consumes candy and soft drinks almost daily.

CASE Scenario1

Sweet Tooth – The Cariogenic Carbohydrate

Discussion Questions:

1. What type of carbohydrates is most associated with dental caries?
2. How do monosaccharides and disaccharides differ in their cariogenic potential?
3. How do oral bacteria utilize carbohydrates to produce acid?
4. What is the role of saliva in buffering acid and protecting teeth?
5. How does the chemical structure of carbohydrates affect their fermentability by bacteria?

CASE Scenario2



"The Bleeding Gums – A polysaccharide Link"

Learning Objectives:

- Recognize a certain type of **polysaccharide** with clinical relevance.
- Understand its **biochemical structure and function**.
- Apply this knowledge to safely manage **dental patients on anticoagulant therapy**.
- Appreciate the **role of polysaccharides** beyond energy storage—in therapeutic and regulatory contexts.

CASE Scenario2



"The Bleeding Gums – A polysaccharide Link"

□ Mr. Samy, A 54-year-old male, came to hospital with **sever pain and swelling** of his left leg. Doppler ultrasound revealed a **thrombus** in the femoral artery an. **An anticoagulant** was given to prevent further enlargement of the thrombus.



CASE Scenario2



"The Bleeding Gums – A polysaccharide Link"

Mr. Samy, afterwards, presents to your dental clinic for **tooth extraction**. During examination, you observe mild **gingival bleeding and ecchymosis on the buccal mucosa**. The patient also reports occasional nosebleeds over the past few days. You are concerned about excessive bleeding during and after the planned extraction



CASE Scenario2



"The Bleeding Gums – A polysaccharide Link"

Discussion Questions:

- 1. Predict the name of the given drug and its chemical nature.**
- 2. How does this polysaccharide exert its anticoagulant effect?**
- 3. What are the dental considerations when treating a patient on anticoagulant therapy?**
- 4. What precautions should be taken before, during, and after dental surgical procedures in such patients?**

BELIEVE IN
YOURSELF

