



# INTRODUCTION TO OPERATIVE DENTISTRY

*Presented by*

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# OBJECTIVES

- To know the **definition** of operative dentistry
- To know the **definition** and **classification** of dental **caries**
- To know the **Most common restorative materials**

# DEFINITION

- Operative dentistry is the art and science of the diagnosis, treatment, and prognosis of defects of teeth that do not require full coverage restorations for correction



- Operative Dentistry is also known as Restorative Dentistry or Conservative Dentistry

# PURPOSES OF OPERATIVE DENTISTRY

- **D**iagnostics: Proper diagnosis is mandatory for treatment planning
- **P**revention: To prevent any **recurrence** of the causative disease and their defect
- **I**nterception: Preventing **further loss** of tooth structure
- **P**reservation: Preservation of the **vitality and periodontal support** of remaining tooth structure
- **R**estoration: Includes restoring form, function, phonetics, and esthetics

# INDICATIONS FOR OPERATIVE TREATMENT

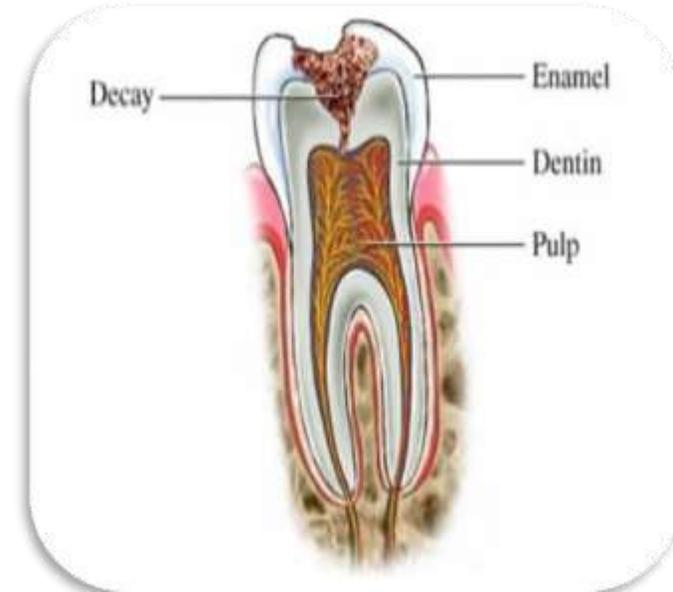
- ✓ Caries
- ✓ Malformed, discolored, non-esthetic, or fractured teeth
- ✓ Restoration replacement or repair



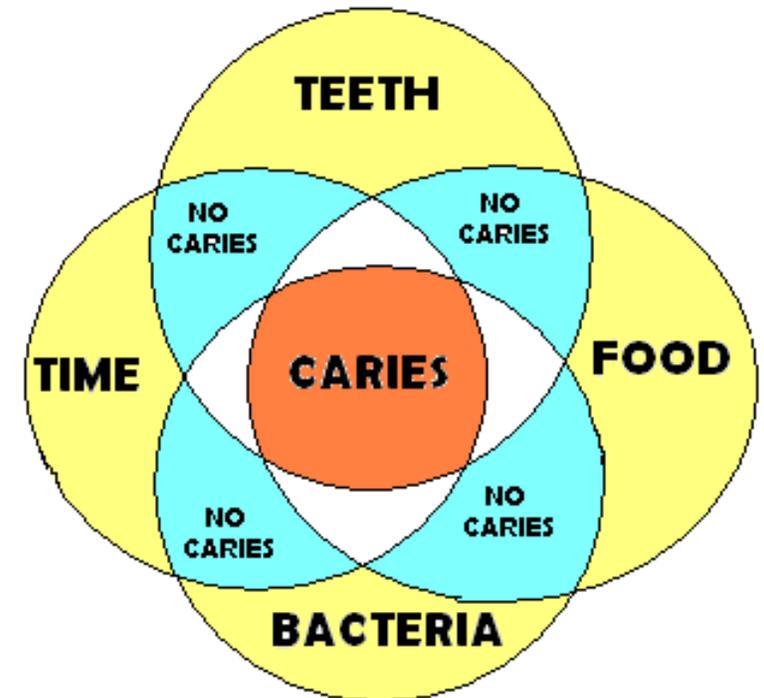
# DENTAL CARIES

## Definition

- It is an **infectious microbiologic disease of the teeth** that results in localized dissolution and destruction of the calcified tissue.



- **Dental caries** and **periodontal disease** are probably the **most common chronic diseases** in the world.
- Although caries has affected humans since prehistoric times, the prevalence of this disease has greatly increased in modern times on a worldwide basis, an increase strongly **associated with dietary change**.
- There are **four main criteria** required for caries formation:
  - **A tooth surface**
  - **Caries-causing bacteria**
  - **Substrate**
  - **Time**



Clinical **sites** for caries **initiation**:

- ✓ **Pit and fissures caries**
- ✓ **Smooth surface of crown caries**
- ✓ **Root surfaces caries**



# CLASSIFICATION OF DENTAL CARIES

**Caries can be classified according to:**

**1- Location**

**2- Rate of progression**

**3- Affected hard tissues**

# 1- LOCATION

**G.V. Black** created a classification system that is widely used and based on the **location of the caries on the tooth**

# BLACK'S CLASSIFICATION OF CARIES LESIONS

## Class I

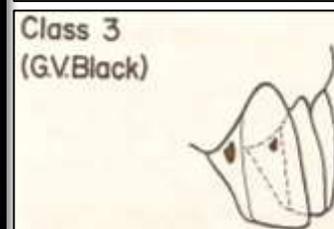
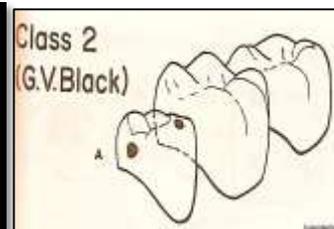
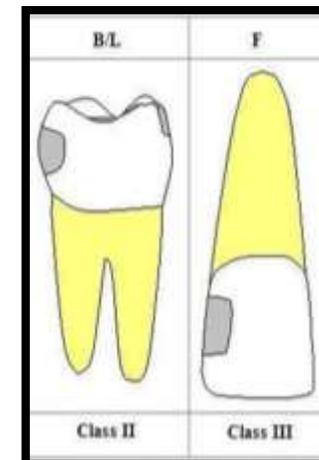
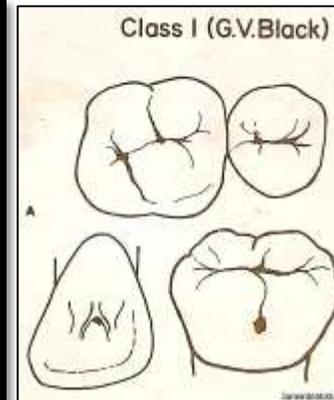
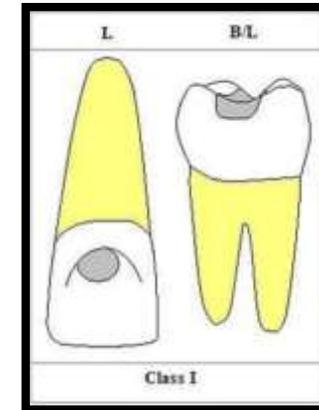
- Caries that affects the **pits and fissures** of posterior teeth (premolars and molars) on the occlusal, buccal and lingual surfaces. The **lingual surface of anterior teeth** is also Class I.

## Class II

- Caries that affects the **proximal surfaces** (mesial and distal) of **premolars and molars**.

## Class III

- Caries that affects the **proximal surfaces** of **central, lateral and canine** teeth.



## Class IV

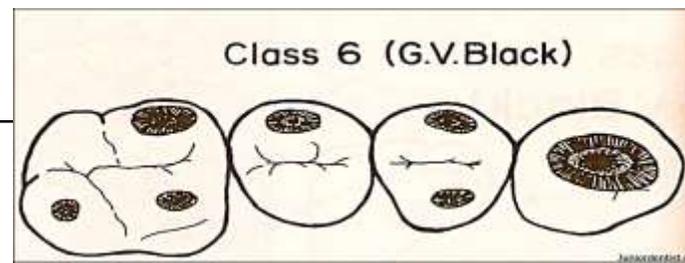
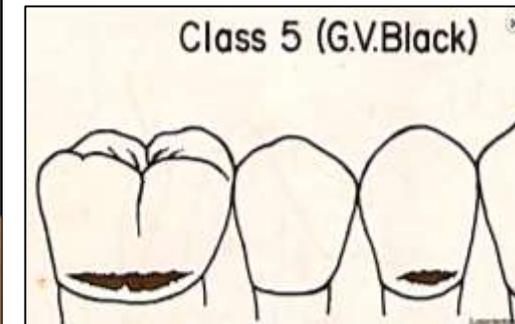
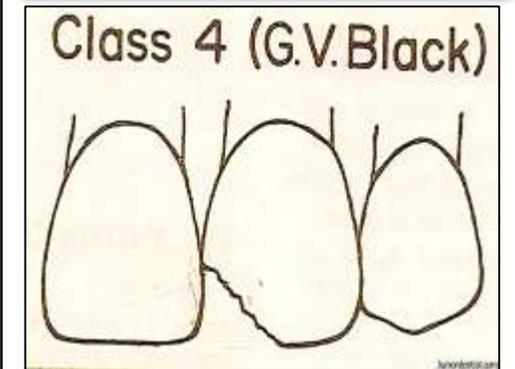
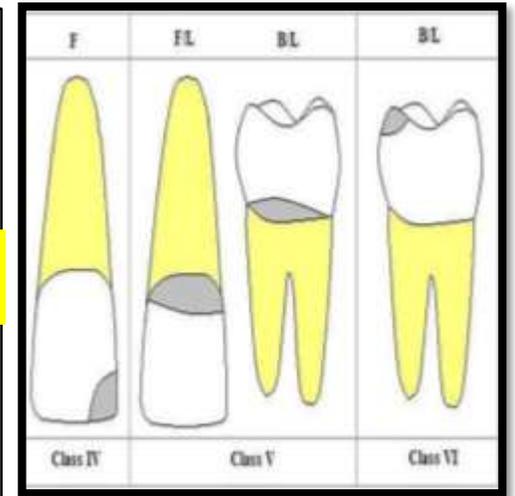
- Caries that affects the proximal surfaces of anterior teeth but also involves the incisal edge.

## Class V

- Caries that affects the gingival 1/3 of the buccal or lingual surface on anterior and posterior teeth

## Class VI

- Caries that affects cuspal tips of molars, premolars, and canines.



## 2- RATE OF PROGRESSION

1-"Acute" signifies a **quickly developing** condition

2-"Chronic" describes a condition which has taken an **extended time to develop**





**4- Incipient** caries describes decay at a location that has not experienced previous decay.

**5-Arrested** caries describes a lesion on a tooth which was previously demineralized but was remineralized before causing a cavitation



Figure 17. Clinical illustration of arrested caries. The dentin is hard, darkly discolored, dry looking and plaque free.

# 3-CARIES AFFECTED HARD TISSUE

1-Enamel caries

2-Dentinal caries

3-Cementum caries



## RAMPANT CARIES "BABY BOTTLE CARIES"

- ✓ Is a pattern of decay found in young children with their *deciduous teeth*
- ✓ The teeth most likely affected are the *maxillary anterior teeth*
- ✓ Significance advance or severe decay on multiple surfaces of many teeth



# **MOST COMMON RESTORATIVE MATERIALS**

## ➤ **Temporary restorative materials:**

**ZOE**

## ➤ **Permenant restorative materials**

**Amalgam**

**Composite resin**

**GIC**

# ZINC OXIDE-EUGENOL (ZOE)

- zinc oxide-eugenol (ZOE) used to cover cavities temporarily until a permanent restoration can be placed



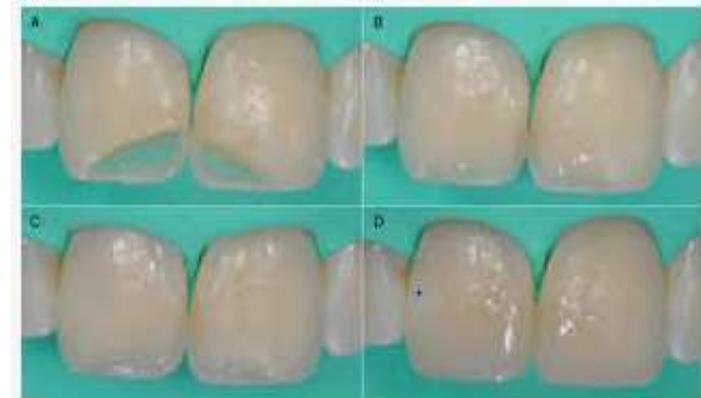
# DENTAL AMALGAM

- durable, **metallic** filling material made from a mixture of metals, including mercury, silver, tin, and copper
- Widely used for **posterior teeth** due to its strength and longevity



# COMPOSITE RESINS

- **Tooth-colored materials** made from a mix of plastic and glass particles.
- Used for anterior and posterior restorations, offering **aesthetic** benefits as they can be blended to **match** the natural tooth color.



# GLASS IONOMER CEMENTS (GIC) .

- Tooth-colored materials
- Material that releases fluoride and bonds chemically to the tooth structure.
- Often used for fillings, particularly in areas that are not subject to heavy chewing forces, and for cavity liners and bases





Thank you