

## Overview of Drug Implants

### Definition of drug implants

Are specialized medical devices engineered to deliver therapeutic agents into the body over a prolonged period.

### Features of drug implants

These devices are typically small, biocompatible, and constructed from materials such as biodegradable or non-biodegradable polymers, metals, or ceramics, designed to allow the controlled and sustained release of medications.

## Routes of Administration

### •Subcutaneous:

Often used for contraceptives, hormonal treatments, and some long-term therapies.

### •Intramuscular:

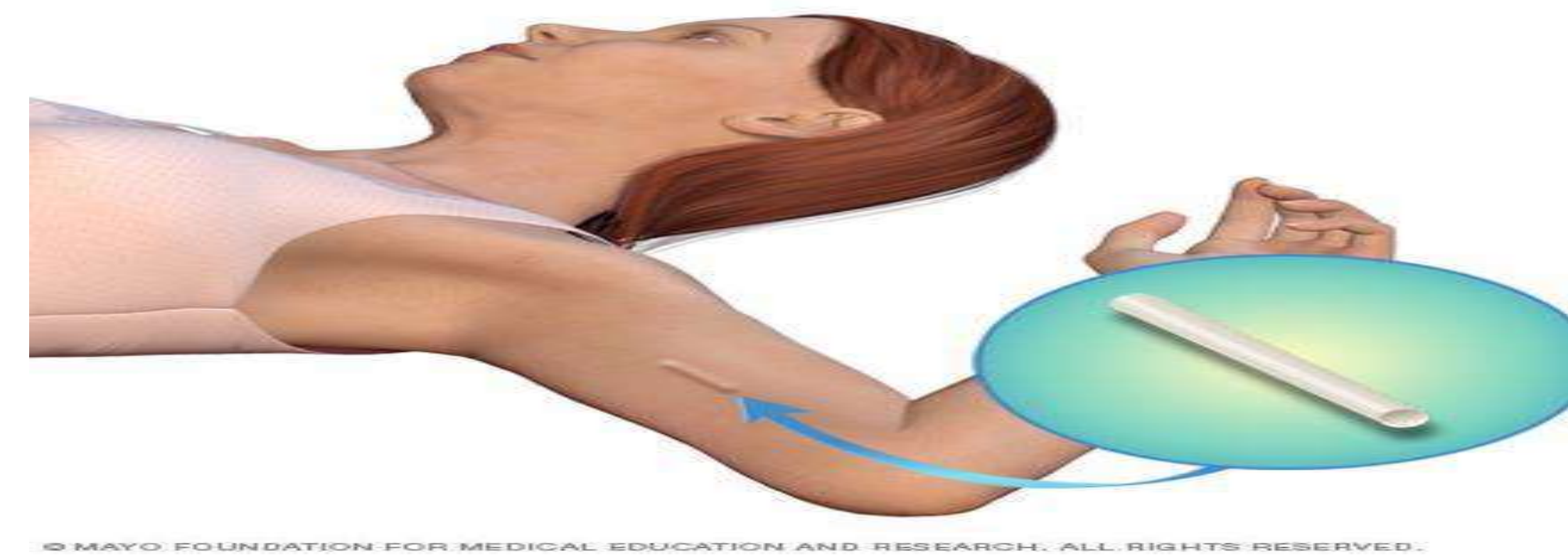
Suitable for delivering larger implants or drugs that require gradual release over time.

### •Intraocular:

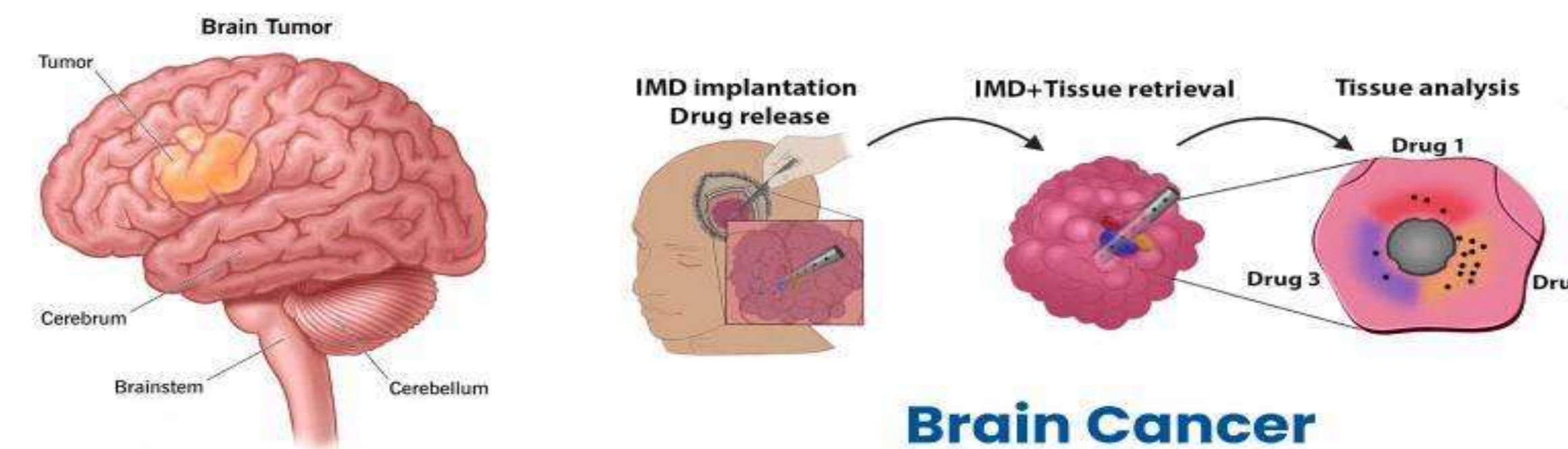
Used for treating eye conditions such as macular degeneration or diabetic retinopathy.

## Uses of Drug implants

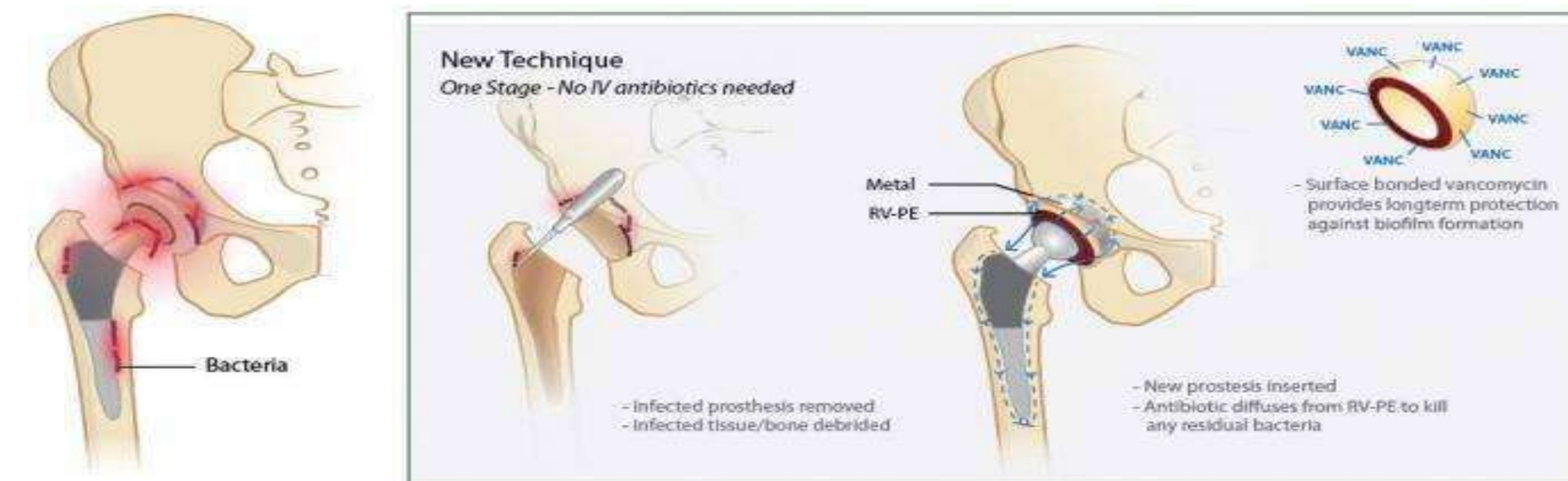
### Gynecology



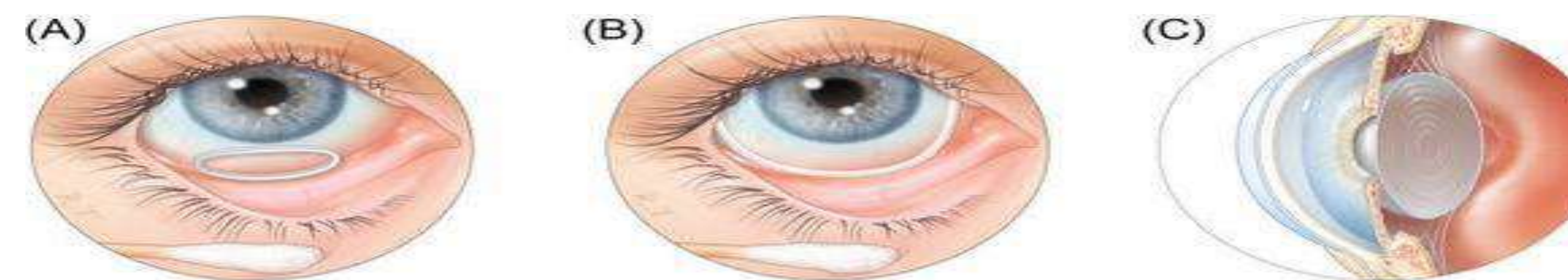
### Oncology



### Orthopedics



### Ophthalmology



### Cardiovascular



## Advantages and Disadvantages

### Advantages of drug implants:

1. Continuous and Controlled Drug Release.
2. Improved Patient Compliance.
3. Reduced Frequency of Administration.
4. Localized Treatment.
5. Reduced Gastrointestinal Side Effects.
6. More Convenient for Chronic Conditions.

### Disadvantages of drug implants:

1. Invasive Procedure.
2. Risk of Implant Failure .
3. Limited Flexibility in Adjusting Dosage.
4. Removal Complications.
5. Cost.
6. Potential Long-Term Side Effects.

## Reference

1. [Advanced implantable drug delivery technologies: transforming the clinical landscape of therapeutics for chronic diseases - PMC](<https://pmc.ncbi.nlm.nih.gov/articles/PMC7161312/>)
2. [Implantable Drug Delivery Systems and Foreign Body Reaction: Traversing the Current Clinical Landscape - PMC](<https://pmc.ncbi.nlm.nih.gov/articles/PMC8698517/>)
3. [Implantable device for wirelessly controlled drug delivery | Chemical Engineering](<https://cheme.stanford.edu/implantable-device-wirelessly-controlled-drug-delivery>)