

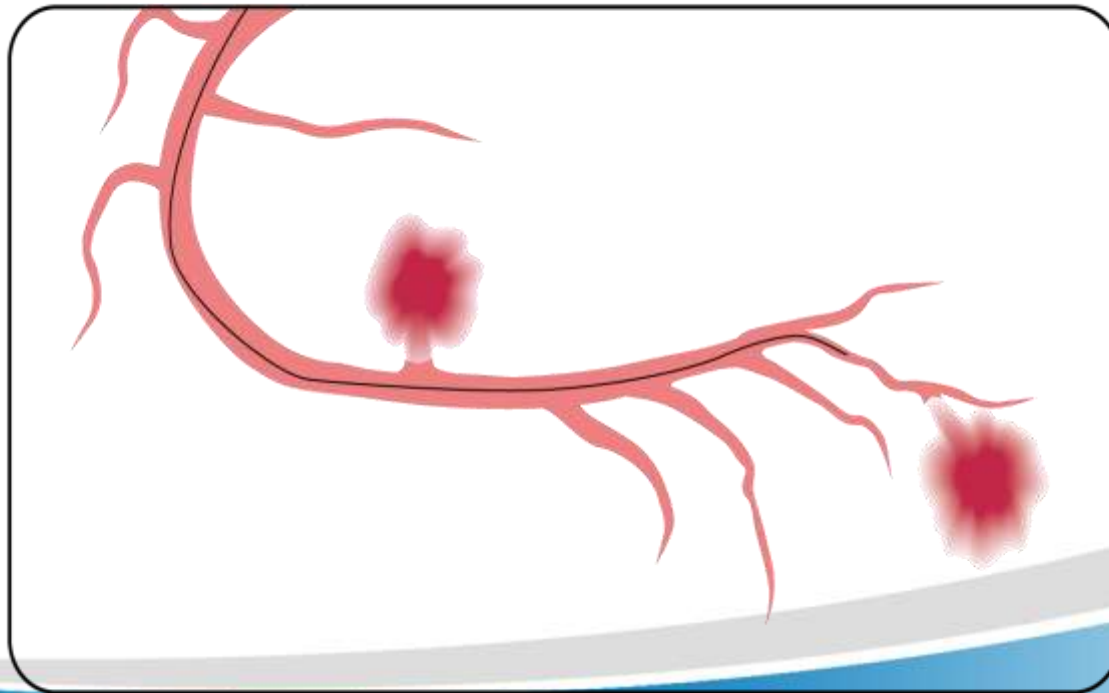
# Jam technique for management of Coronary Perforation

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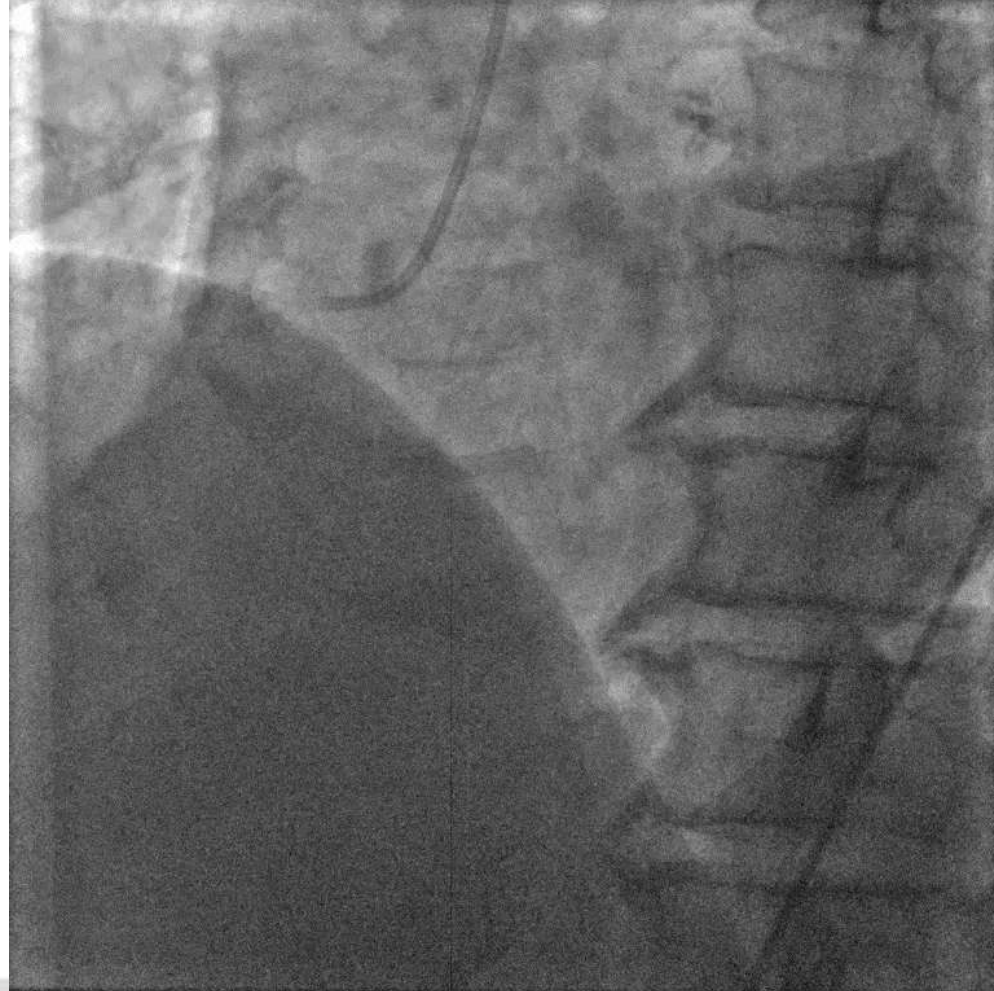


# Cath lab nightmare

- **Coronary perforation**



# CTO & Calcification



# Rota 1.5mm burr

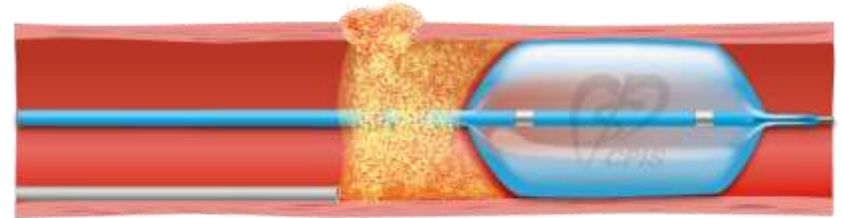
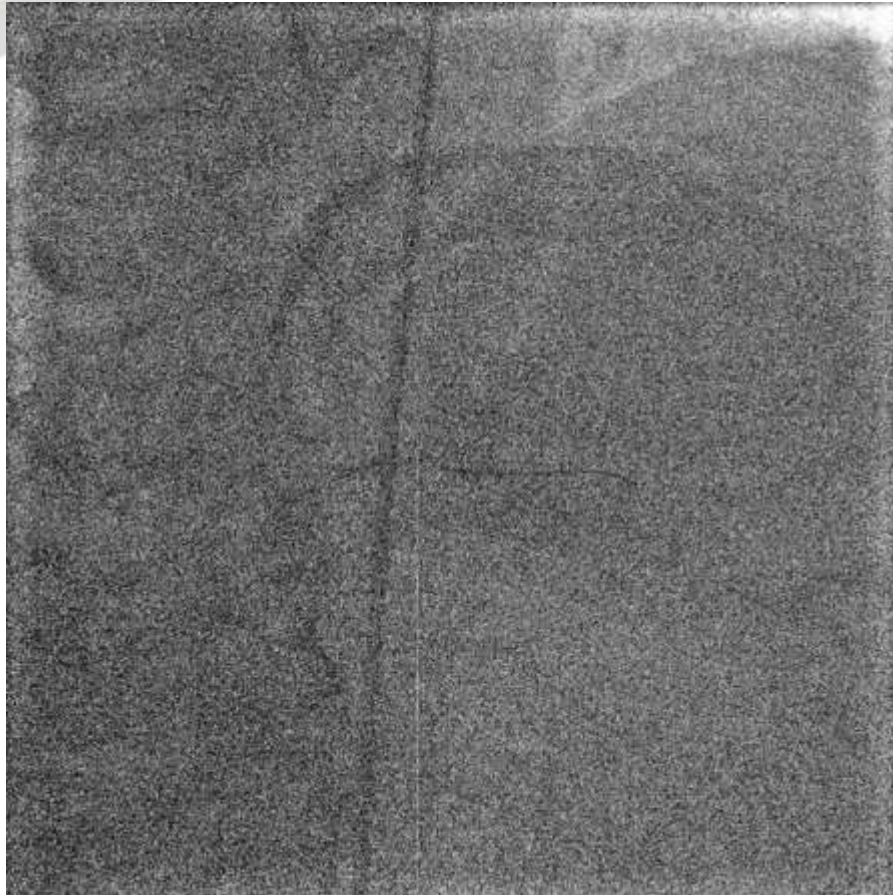


# Strategy

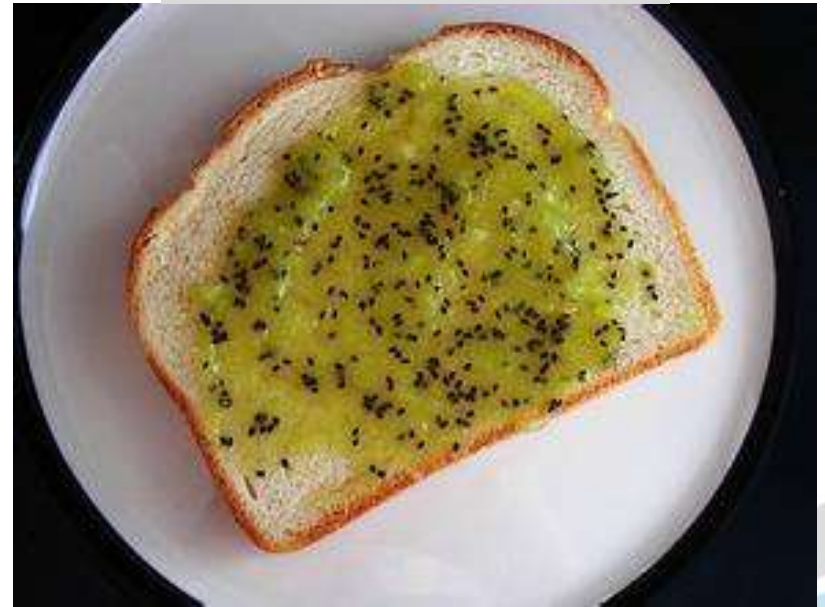
- ✓ Balloon colluding ( $\approx 1h$ )
- ✓ Hand make stent graft
- ✓ Embolization
- ✓ Leave it ?



# Jam-Balloon technique



Gelatin Sponge Particle

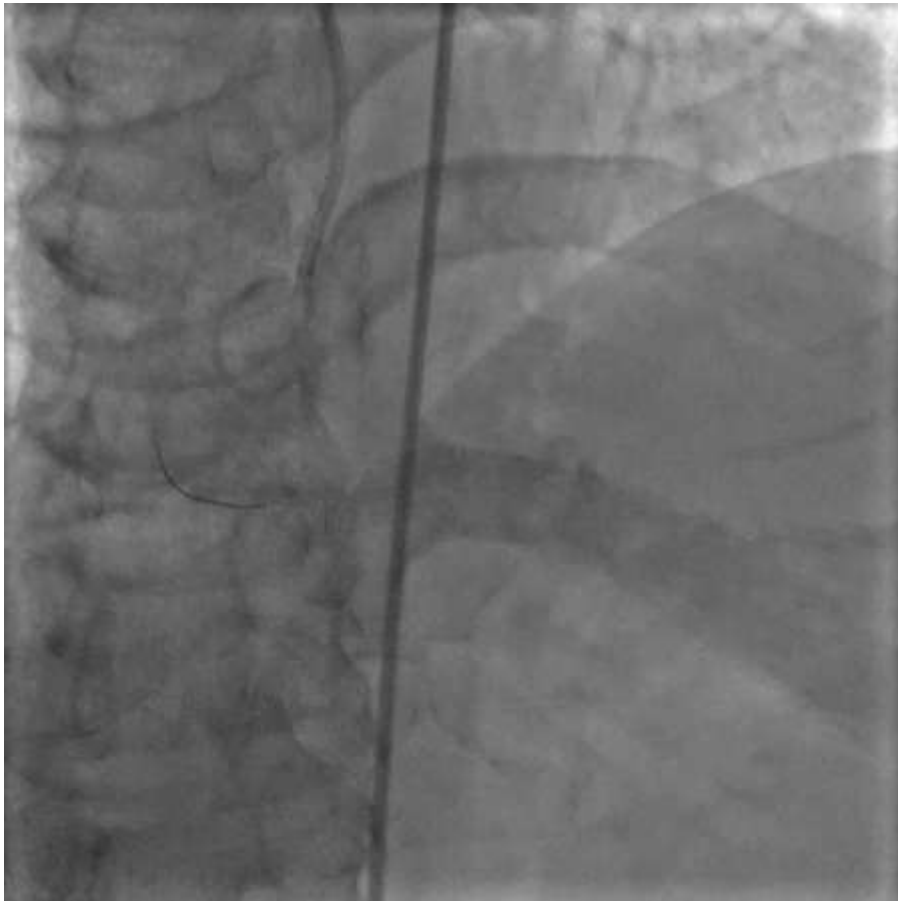


2.5mm\*15 / Finecross, 3mins



# Jam-Balloon technique

Acute result



Chest pain (-), TNT (+)

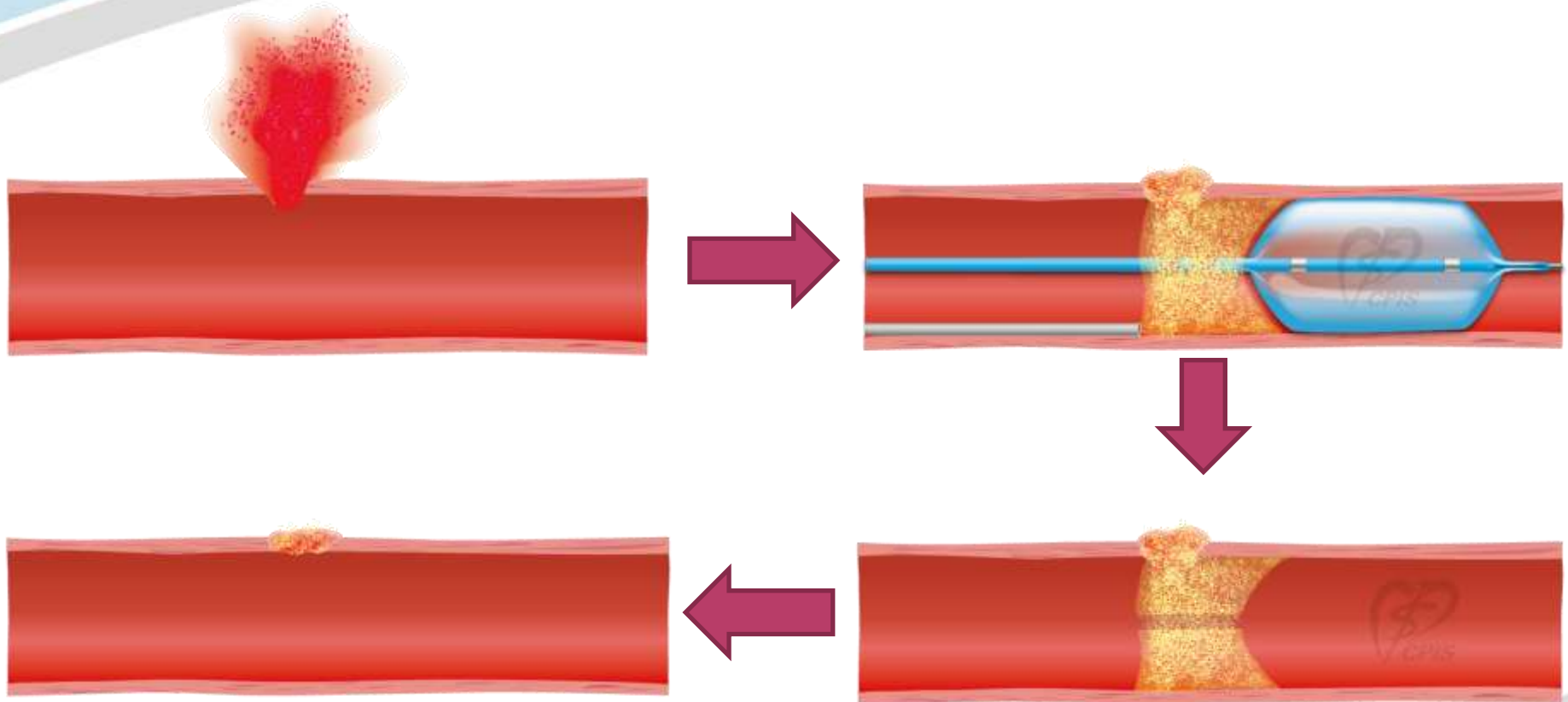
1 mon F/U



Chest pain (-)



# Jam-Balloon technique





# **Gelatin Sponge Particle (GSP) embolic agent**

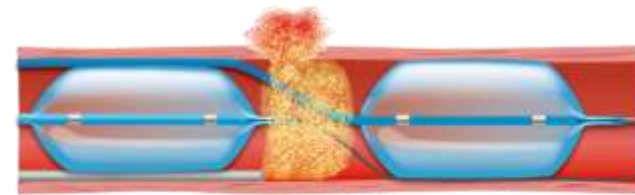
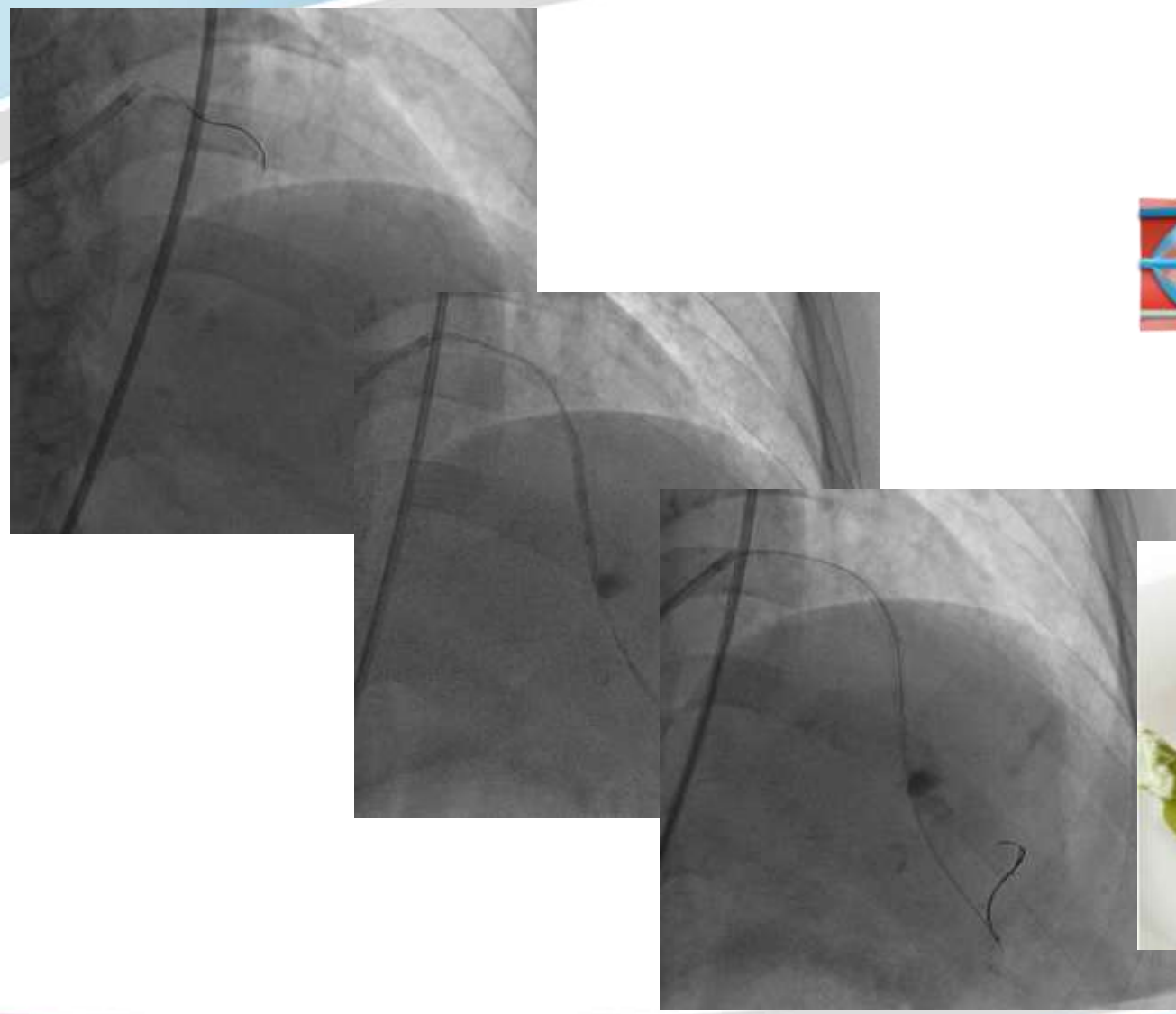
- **Degradable in human body**
- **Main component is gelatin made from pigskin**
- **Indissoluble in water but could be completely absorbed in human body within 14 to 90 days**
- **Induce embolization through mechanically blocking the blood flow**
- **Gelatine sponge particle itself does not have any pharmacological effect**

# Gelatin sponge particle embolic agent

## Technique parameter

- **Diameter ( $\mu\text{m}$ )** : 150-350, 350-560, **560-710**, 710-1000, 1000-1400, 1400-2000
- **Each bottle** contains  $\geq 100$  mg gelatin sponge
- **Appearance**: white or light yellow substance which is light and soft and looks like porous sponge particles
- **Physical properties**: a) indissoluble in water and ethanol, b) Capable to absorb water no less than 10 times of the sample being tested
- **Chemical properties**: a) Every 100 mg contains no more than 50  $\mu\text{g}$  of formaldehyde, b) Heavy metal  $\leq 0.003\%$
- **Biological properties**: a) Sterilized through radiation, b) Bacteria endotoxin less than 0.5 EU/ml, c) Low cytotoxicity (Level 1), d) No allergic reaction, e) Hemolysis  $\leq 5\%$ , f) No acute systemic toxic effect, g) No subchronic toxic effect, h) No irritant intradermal reaction, i) No genotoxic effect

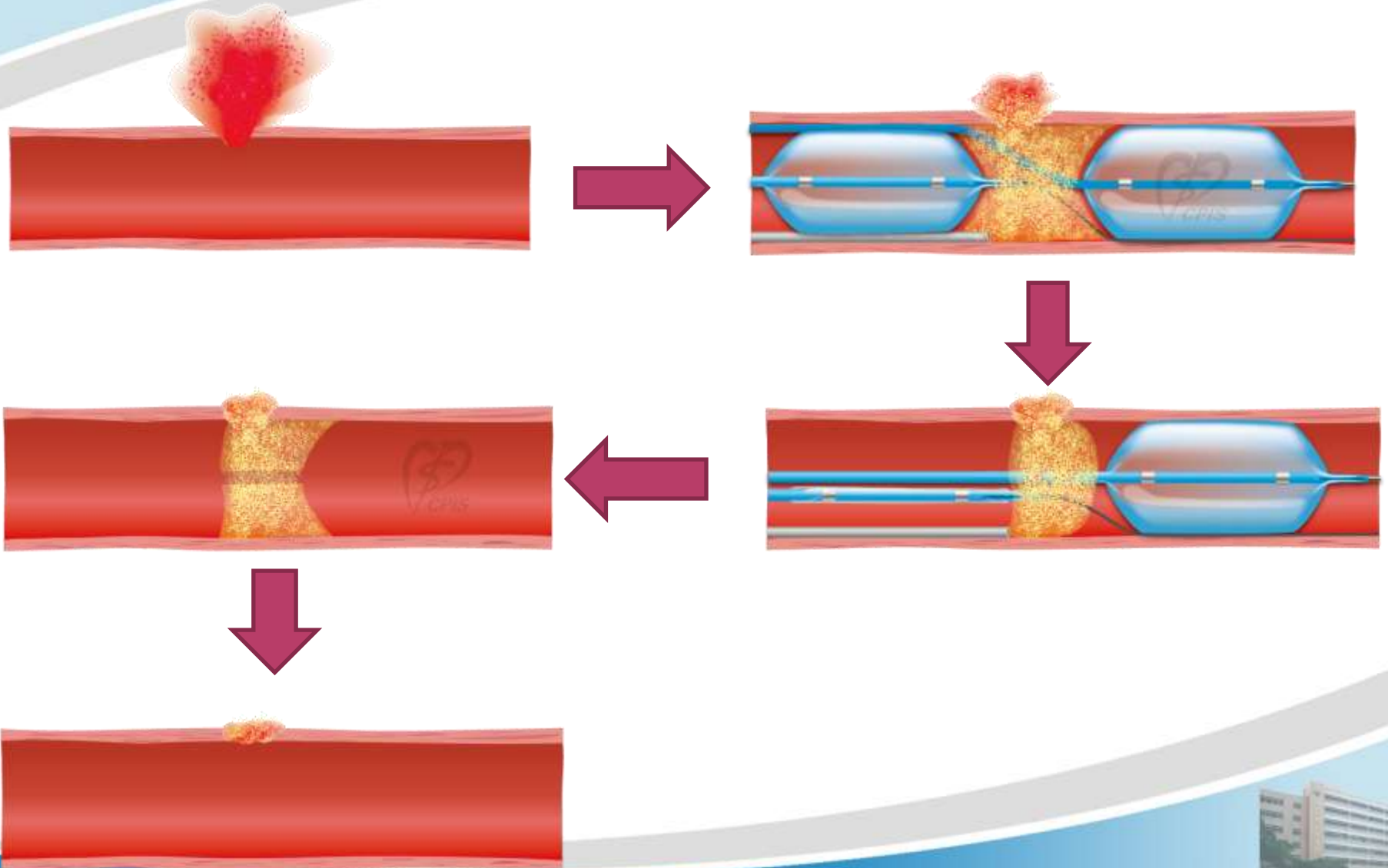
# Sandwich-Balloon technique



7F EBU, 2.0\*20-pro, Finecross-mid, 1.3\*15- Dis



# Sandwich-Balloon technique



# Application of Jam Technique

|            | Direct Injection                 | Jam                            | Sandwich                         |
|------------|----------------------------------|--------------------------------|----------------------------------|
| Indication | Distal                           | Mid/distal Stem                | Mid / distal stem<br>Ellis III ? |
| GC         | 6F                               | 6F                             | 7F / 6F*2                        |
| Device     | 1 Micro Catheter<br>(±1 Balloon) | 1 Micro Catheter<br>+1 Balloon | 1 Micro Catheter<br>+2 Balloon   |





# Take home message

- **Gelatine sponge particles could be considered as an embolization agent to manage coronary perforation**
- **Some specific technique(Jam-Balloon technique, etc.) is needed for better effect and lower risk of intact vessel compromise**
- **Gelatine sponge particles are expected to be completely absorbed within months, restoration of blood flow could be beneficial in some particular cases**

