Evolution of Cataract Surgery
For Cases with Weak Zonules

- Development of Phaco machine allows efficient fragmentation and stable AC
- Capsule devises make placement of IOL in the bag easier,
- but increase the frequency of postoperative IOL dislocation

Visco Trap technique and Small Incision Extraction for Subluxated IOL

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Problems encountered in extracting Subluxated IOLs:

- Many cases have good visual acuity before the IOL subluxation
- significant hurdle to overcome to avoid decrease in patient’s QOV

Methods used to avoid decrease in QOV in the management of subluxated IOLs:

1. Small incision IOL extraction+ new IOL fixation
2. IOL re-fixation without IOL extraction

Techniques to lead the subluxated IOL to AC

- use of viscoelastic materials (PAL, ViscoTrap)
- suction
- forceps
- PFCL
- thread

The purpose of use of viscoelastic materials

- space formation
- mass transfer (PAL)
- protection
- trap (ViscoTrap)
Usage of viscoelastic materials in extracting the subluxated IOL

1. Levitation of the subluxated IOL to the AC (PAL) by the viscoelastic material
   - PAL technique (posterior assisted levitation) Originally described by Charles Kelman, M.D. in 1994
   - The use of visco described by Richard Packer in 2000
   - Hanemoto reported the use of Viscoadaptive materials in 2003

2. IOL capture into the viscoelastic material, thus avoiding luxation (Visco Trap)
   - Filling the AC with viscoadaptive
   - IOL was trapped into viscoadaptive
   - Visco trap technique

Filling the AC with viscoadaptive, IOL was trapped into viscoadaptive after PAL. (Visco trap technique)

Techniques for much smaller incision IOL extraction II:
- Reed-shaped cutting of the IOL
- Allows small incision extraction

Comparison of viscoelastic materials in extracting the IOL

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<thead>
<tr>
<th></th>
<th>Viscoat™</th>
<th>Healon5™</th>
<th>High molecular OVD</th>
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<tbody>
<tr>
<td>Space formation</td>
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<td>protection</td>
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<td>Vitreous control</td>
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PAL TECHNIQUE + VISCO TRAP

Techniques for small incision IOL extraction I
- Half-cut
- Half-cut
- Remain hinge