

# Laparoscopic Tissue Approximation Technique

*Imagination is more important than knowledge.*  
- Albert Einstein



# Titanium clipping

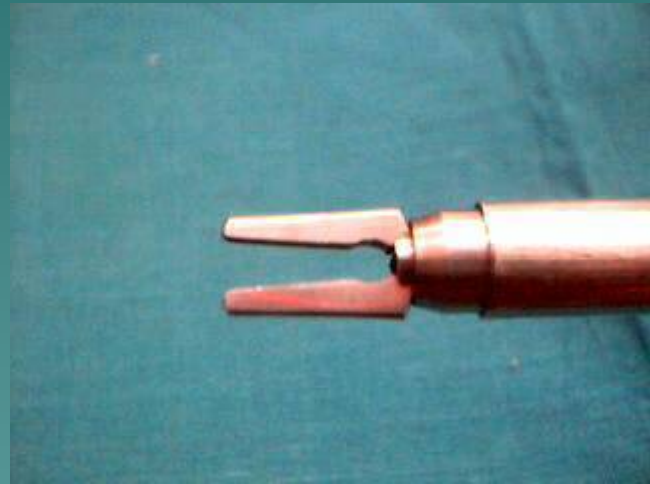


Most widely used approximation technique used by laparoscopic surgeon



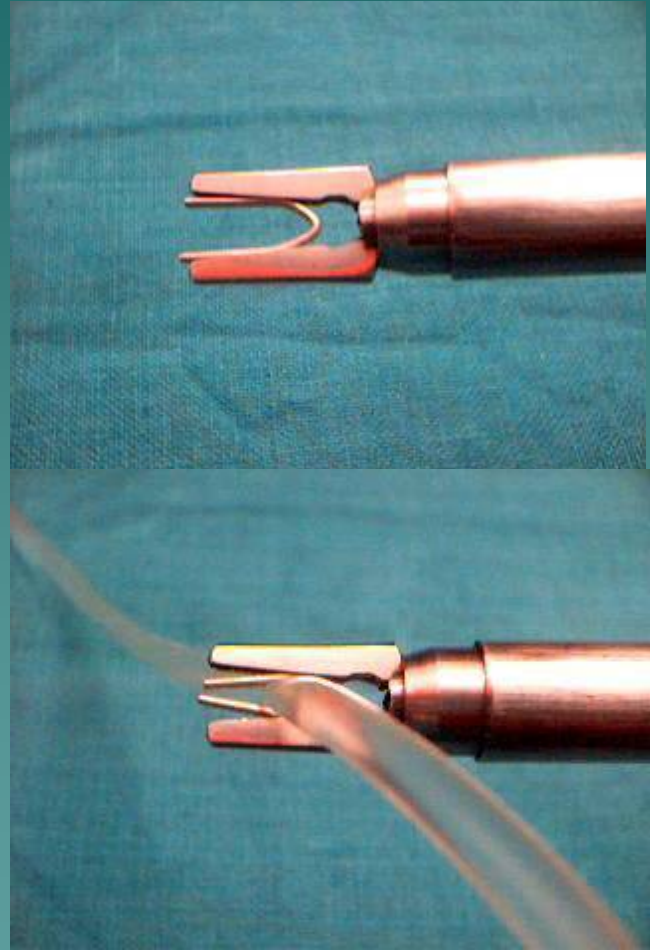
# Clipping

- ◆ The clip-applicator is kept under vision
- ◆ If hit against any organ
  - Damage of organ
  - Loosening or loss of clip
- ◆ Perpendicular to structure
- ◆ Both limb of applicator seen



# Clipping

- ◆ Encircle and relocate the clip before application.
- ◆ The distance between twin clip should be 3mm.
- ◆ The distance between sacrificed clip should be 6 mm.



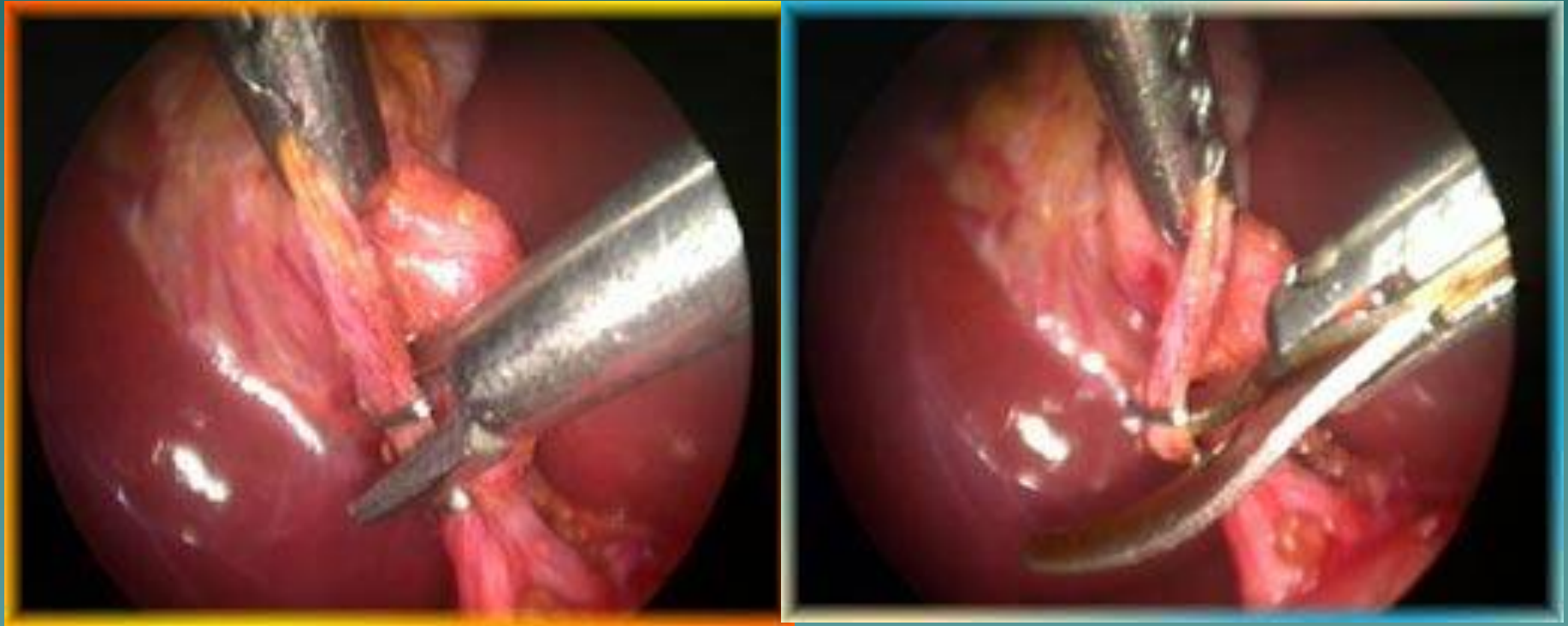
# Clipping

- ◆ Any traction on the structure by any grasper is released.
- ◆ The clip applicator is held closed for 5 seconds before released.
- ◆ The limbs of the applicator are disengaged before pulling it out to prevent inadvertent pulling on the clip.
- ◆ Confirm dumbbell effect after clipping





# Clipping



# Are clip completely safe?

360 cases of cat eye stone reported

?

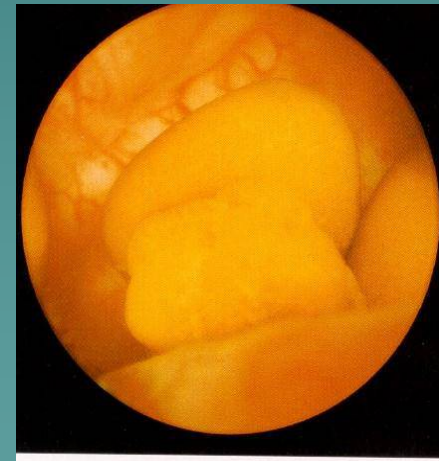


02/03/2004



# Titanium clips are not completely safe

Cat Eye Stone

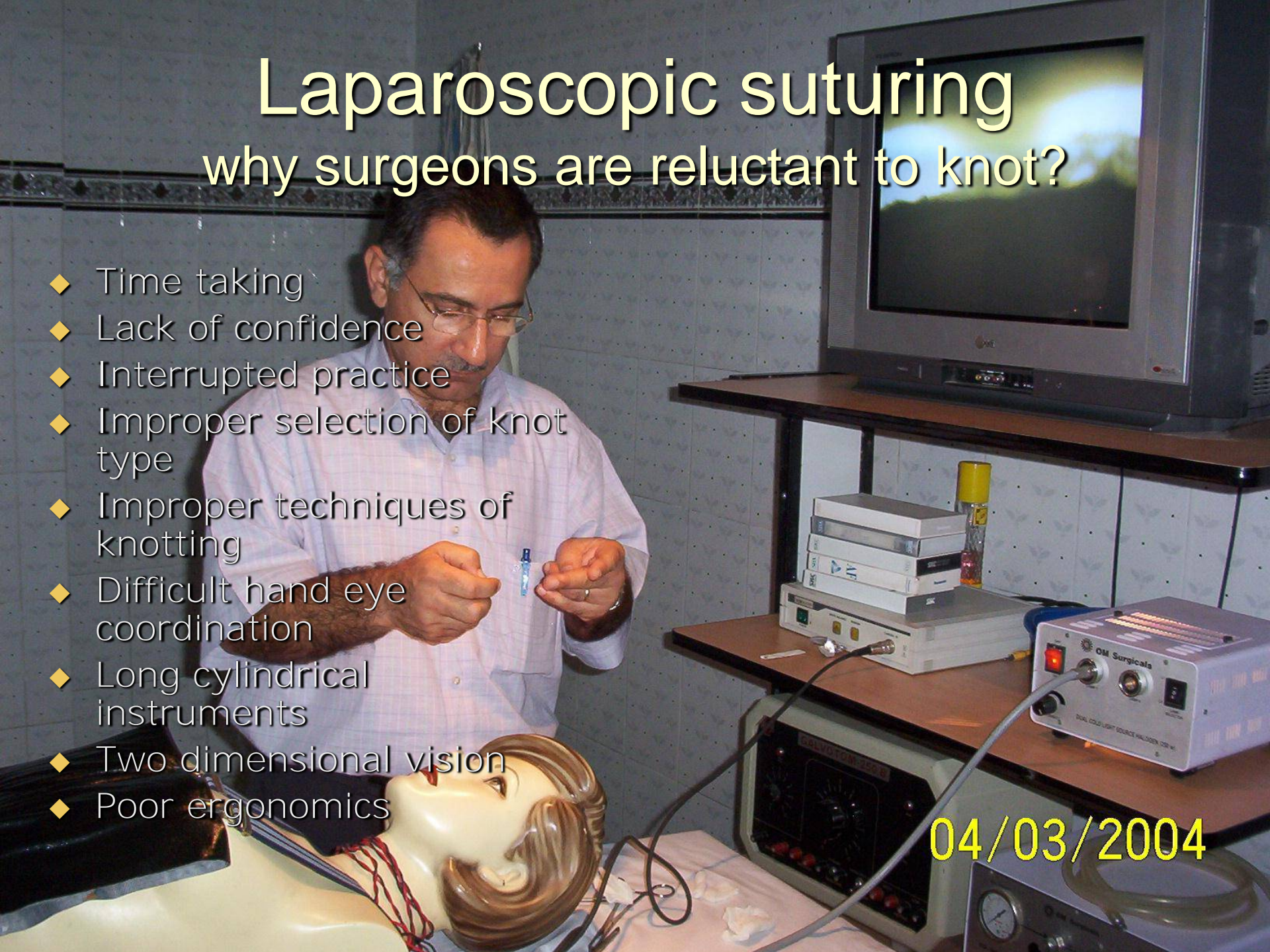




# Laparoscopic suturing

## why surgeons are reluctant to knot?

- ◆ Time taking
- ◆ Lack of confidence
- ◆ Interrupted practice
- ◆ Improper selection of knot type
- ◆ Improper techniques of knotting
- ◆ Difficult hand eye coordination
- ◆ Long cylindrical instruments
- ◆ Two dimensional vision
- ◆ Poor ergonomics

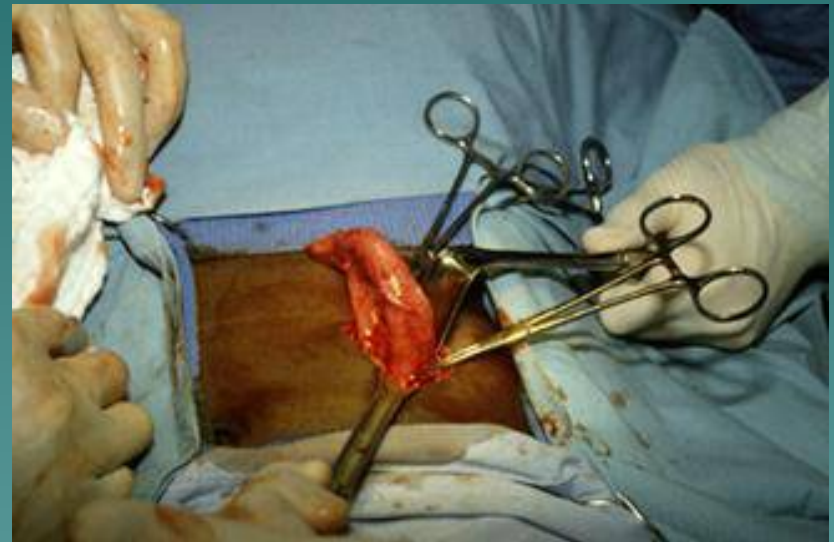


04/03/2004



# Types:

- ◆ Extracorporeal
  - Roeder's knot
  - Meltzer's knot
  - Tayside knot
  - Tumble Square knot
- ◆ Intracorporeal
  - Surgeons knot
  - Square knot
  - Tumble Square Knot
  - Dundee jamming knot
  - Aberdeen termination



# Suture Material

- ◆ For small tubular structure & small blood vessels dry chromic catgut
- ◆ For Intracorporeal continuous or interrupted suturing Vicryl
- ◆ For Interrupted suturing in the repair of hernia, Fundoplication & rectopexy Dacron (polyester) or silk.



# Stages of Knot tying

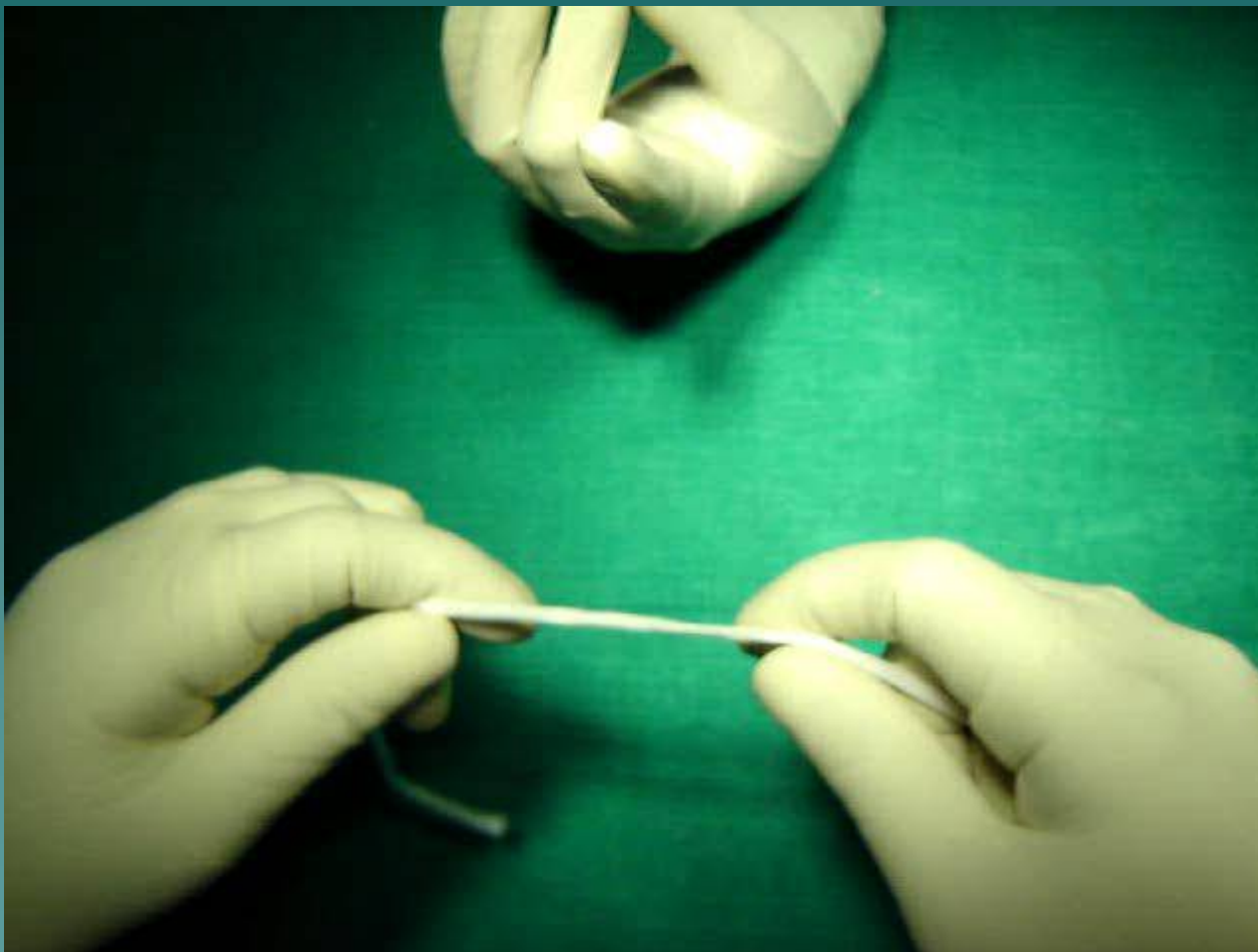
- ◆ Configuration (Tying)
- ◆ Shaping (Drawing)
- ◆ Securing (Locking or snuggling)

*It is important to remember that knot is either exactly right or is hopelessly wrong, It is never nearly right.*

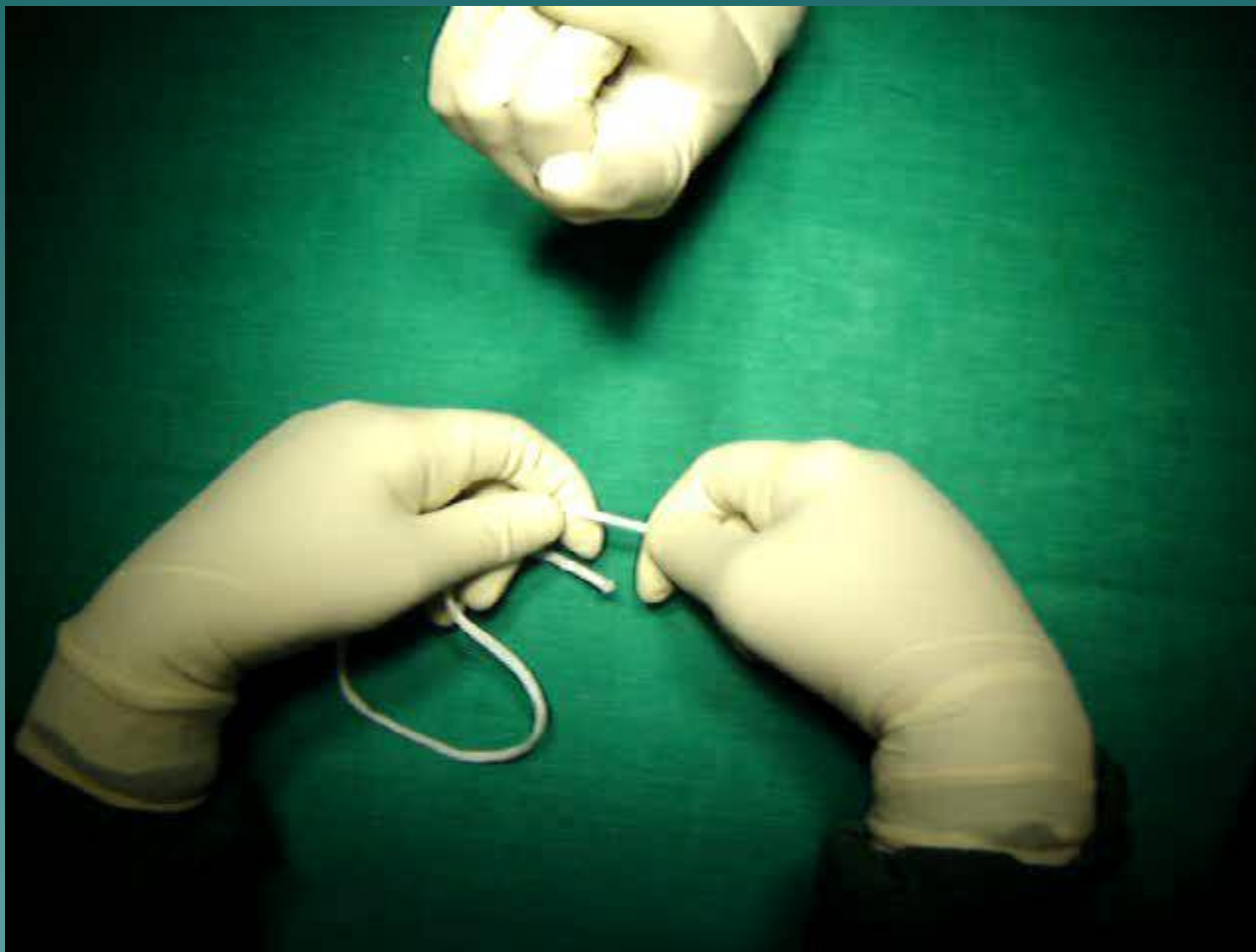




# Roeder's knot



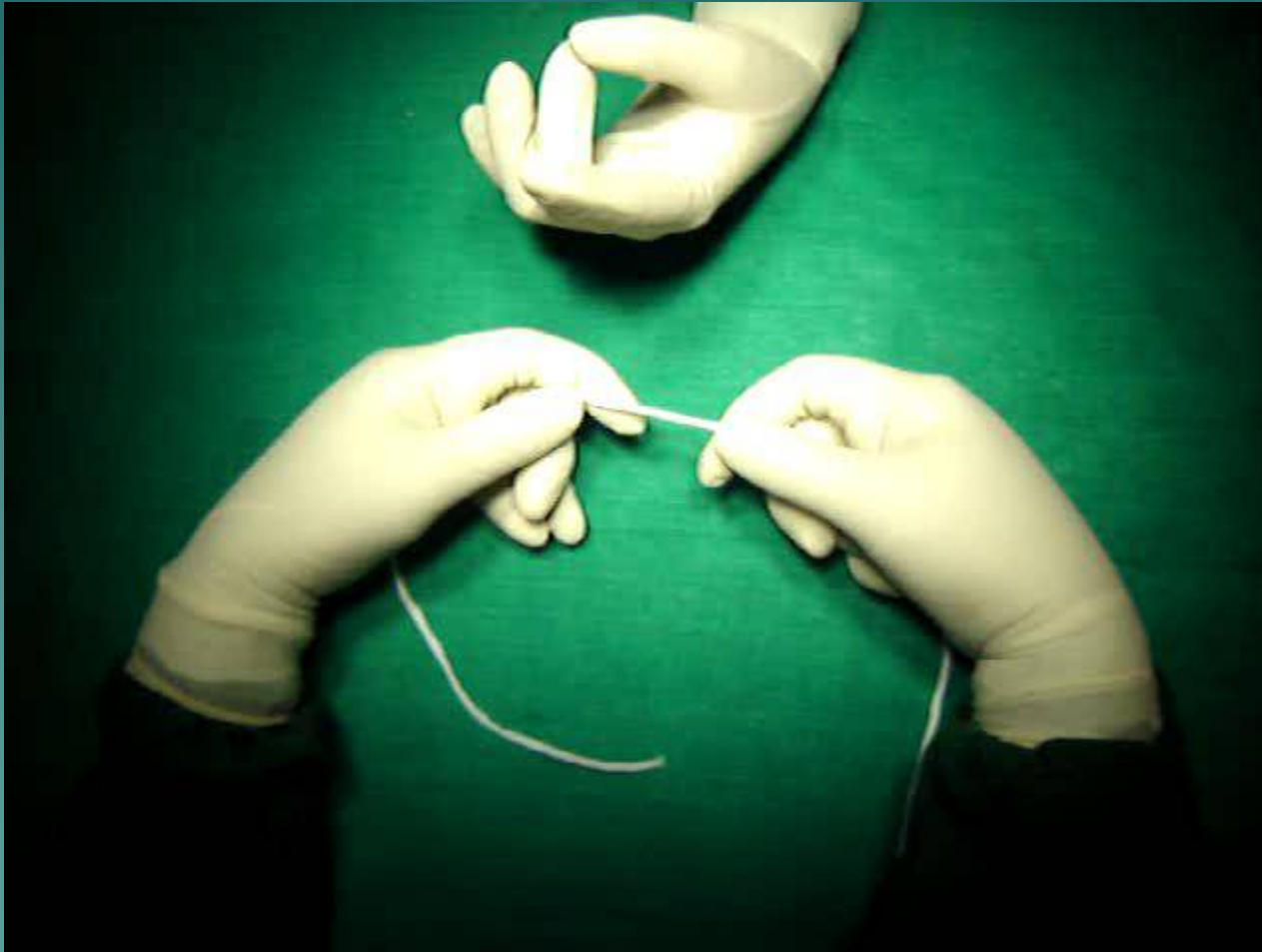
# Meltzer's knot



# Tayside Knot

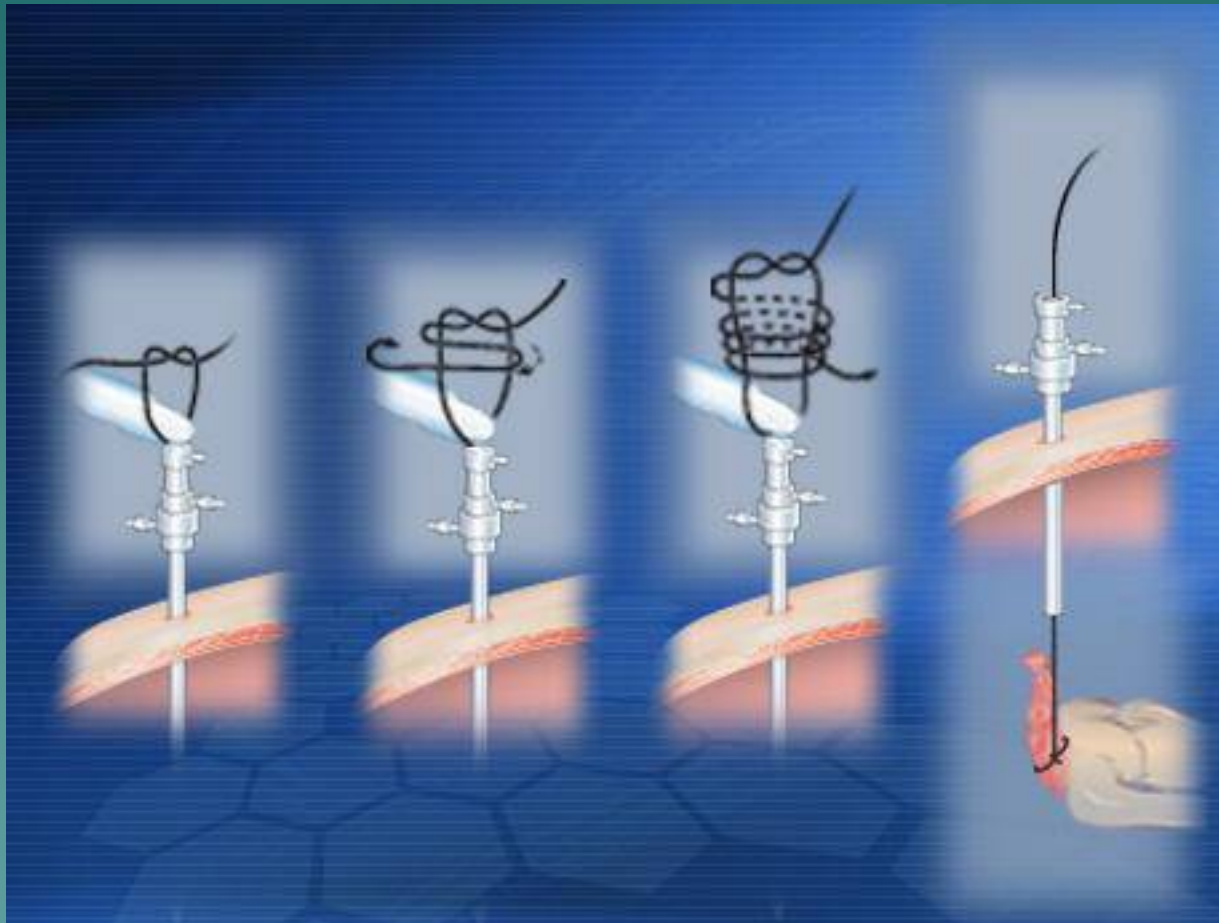


# Tumble Square Knot



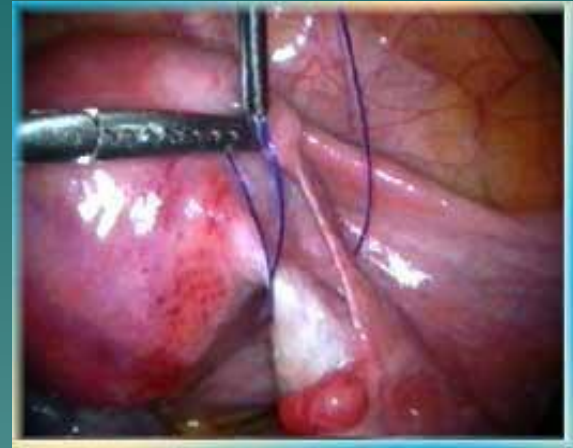


# Roeder's knot

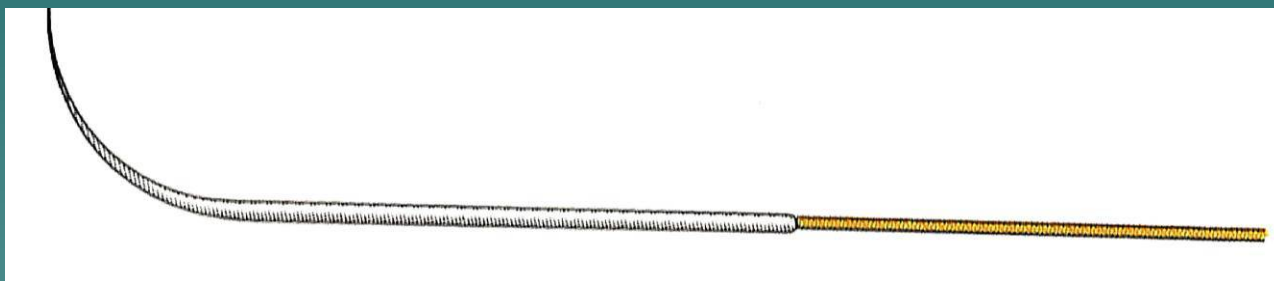


# Introduction of needle

The thread introducer, “ Cobbler’s needle ”



# Laparoscopic needle



Endoski Needle

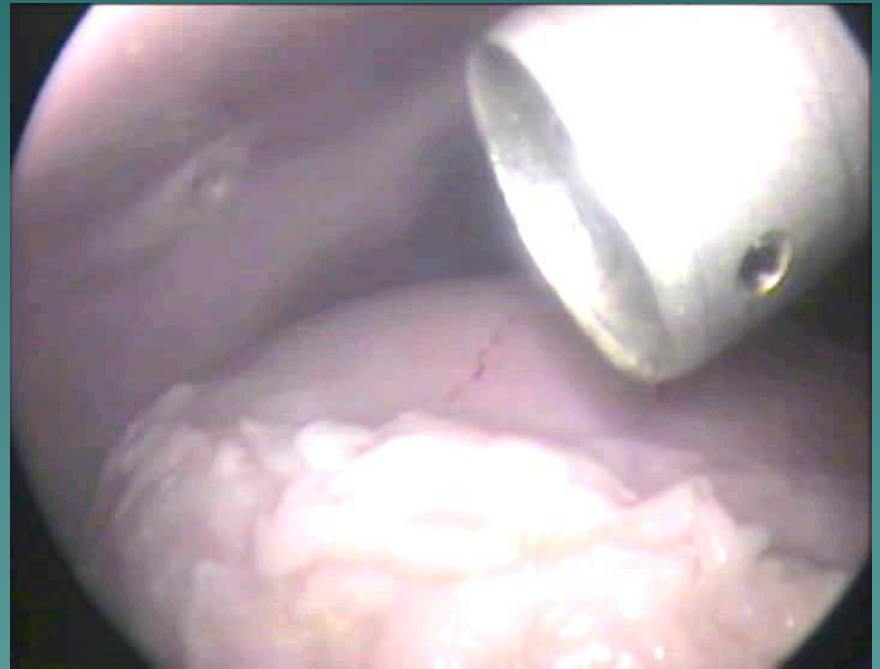
The distal end is tapered half circle & proximal shaft of the needle is straight. The shaft of the needle is 1.5 times the length of curved portion of endoski needle.



# Introduction of needle

Direct insertion, “ Endo ski needle ”

- ◆ Suture size 8 – 12 cm
- ◆ Endo-ski needle
- ◆ Hold suture at middle of thread
- ◆ Hide in reducer
- ◆ Insert inside with reducer
- ◆ Take it out under vision





# How to handle needle inside?

In order to hold the needle in the needle holder the needle may be placed over the serosal surface of viscera, especially stomach.

Gentle pressure of open upper jaw of the needle holder aligns the needle in correct position for suturing



# Surgeons Knot



# Tumble Square Knot

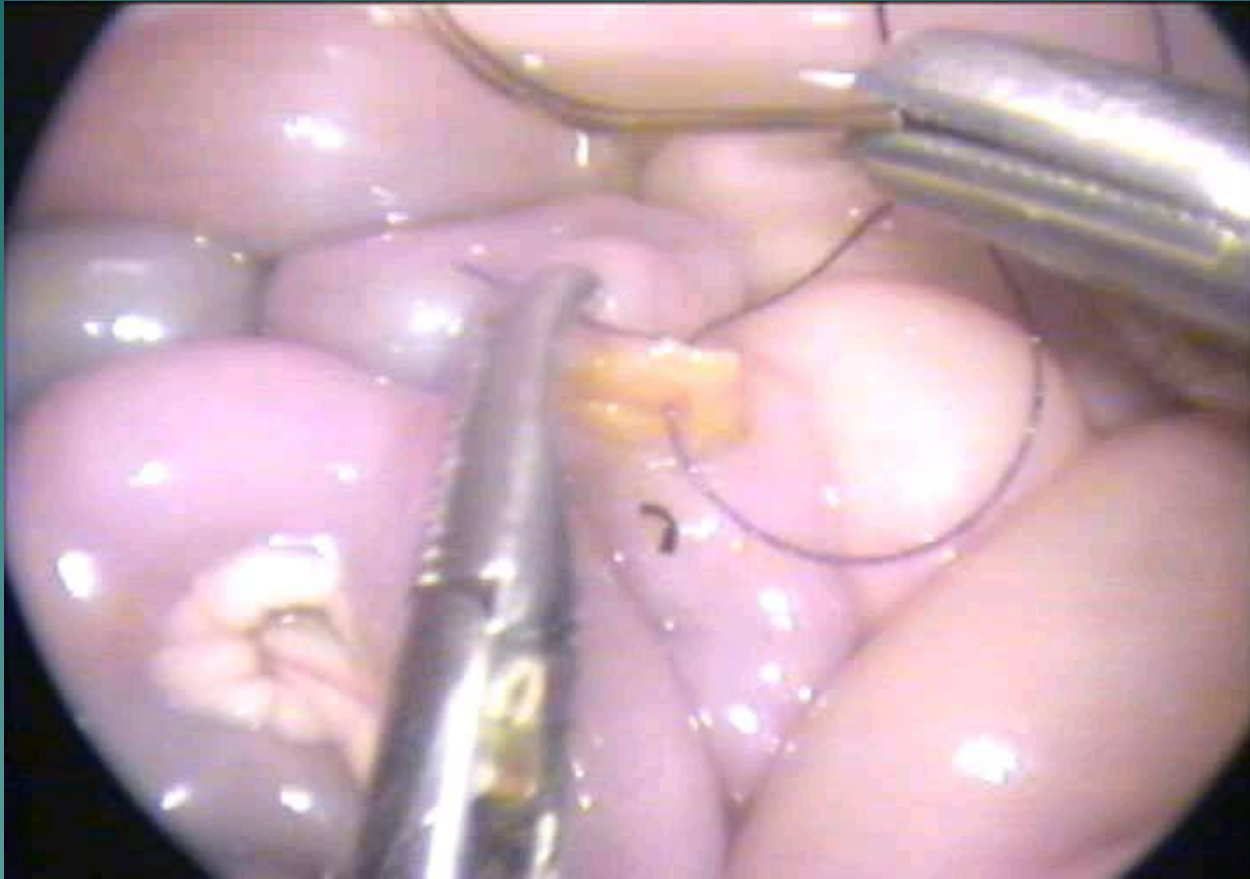


# Intracorporeal Continuous Suturing with Aberdeen Termination





# Intracorporeal suturing



Incorrect Surgeons Knot



# Missed needle



Needle Should be Avoided to handle Carelessly otherwise  
it can be missed into bowel or omentum





Laparoscopic Knotting and  
Suturing need to be learn on  
Simulator or Animal only



**Skilled Surgeon Safer Surgery**

# Thank You



Professor Berci and Dr. Mishra at Ninewells Hospital, United Kingdom

