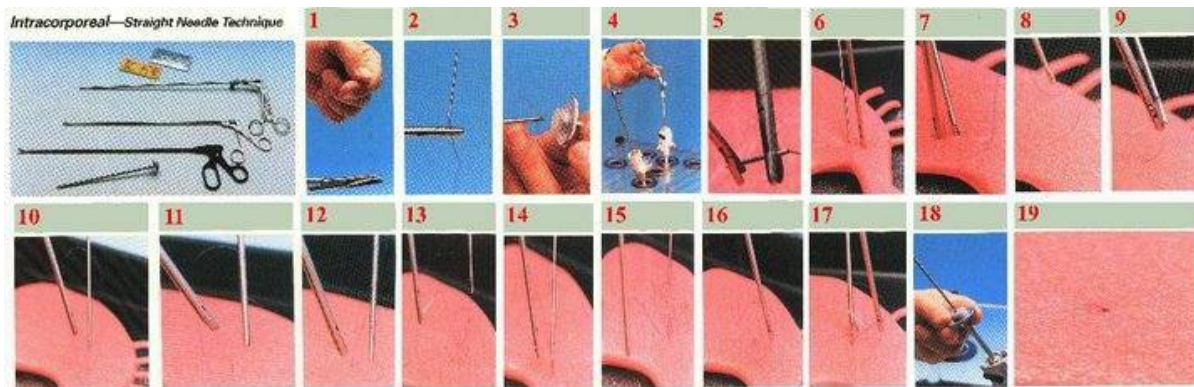


# The Nobel Laparoscopic Knotting and Suturing device

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The automating knotting and suturing device has always fascinated the surgeon and gynaecologist but at present there is no such good device exists. To eliminate cumbersome extracorporeal knotting, a new automatic endoscopic suturing device has been designed and its clinical trial has been conducted at World Laparoscopy Hospital. The efficacy of the new device was tested on the animal model followed by selected patient and was compared with the initial extracorporeal knotting version exist in the market.



**The current procedures of suturing and knot-tying needs extensive training and practice that includes using non-specific instruments that takes many steps and very long time .**

- \* 19 steps in 10-15 minutes in best hands .
- \* One package of suture material for one suture and one knot .
- \* Drawing the needle and suture is difficult .
- \* The serrated jaws of needleholder crimps the suture .
- \* Wrapping two loops around the needleholder shaft twice in opposit directions is cumbersome .
- \* Tightening the knot by pulling on suture may result in a loose knot and tear tissues .

## **Nagieb and Mishra's Auto Knotting and Suturing device**

- Needleholders which is expensive and traumatic to suture .
- Introducers of needles and sutures which need time for loading and disinflate pneumoperotenum .
- Sutures swaged to needles which is costly and one package for one knot .
- Pushers which crimp the suture matrial and injure the tissues .

The **Nagieb and Mishra's** invention of endoscopic automatic suturing and knot tying instrument creates new opportunities for performing advanced endoscopic surgery without any hassle. The present prototype represents significant improvements in the ease of operation and the security of the suture, bringing the technique closer to clinical use for a variety of applications.

The development of **Nagieb and Mishra's Automatic Knotting and suturing device** is a revolutionary product which will start a new era of laparoscopic suturing and knotting. This instrument increases the dexterity and helps even a novice surgeon and gynaecologists to build up surgical competence.

**5 Steps in 60 sec.**

**1** Suturing by built-in needle

**2** First Knot in 30 SEC.

**3** Tightening the knot

**4** The second knot

**5** Ending the knot in 60 SEC.

**Nagieb and Mishra's Automatic Knotting and suturing Device**  
 - Passed through 5 mm. trocar .  
 - One application for many knots .

Nagieb and Mishra's Automatic Knotting and suturing

- Faster : 60 sec. to accomplish a knot .
- Safer : than electro - cautery .
- Competent and secure than staplers .
- Cheaper : use traditional suture material .
- Needn't training : mechanical surgical knot .
- Re-useable and autoclavable .
- Respect delicate tissues .
- No tension or breaking of suture material .

Nagieb and Mishra's Automatic Knotting and suturing

- Ligate blood vessels .
- Ligate cysts and pedicles .
- Reconstruct organs .
- Approximate tissue surfaces
- Anastomosis .

Nagieb and Mishra's Automatic Knotting and suturing

- Firm and not slippery .
- Secure and haemostatic .
- No friction of strands .
- No crimp of suture by needle driver .
- No tension and tear of tissues .

Dr. Nagieb M. Sh. Soliman and Prof. R.K. Mishra has worked hard together to develop this automatic laparoscopic knotting and suturing device so that even the surgeon who even don't know this highly skilled surgical task can apply knot during laparoscopic surgery within minutes and will add the advantages of reducing the operation time and cost. This device is only one instrument which can be used through a single port and can do multiple sutures and knots in one application.

No clips or loops, and no requirement for instrument triangulation, the versatile 5mm instrument allows surgeon and gynaecologists to set and adjust the surgeons knot forward for desired security through a single port during tissue approximation, ligation and fixation. The thread is hooked on the projected hinge of the instrument, which resembles the just conventional knot passer. By using this instrument, the laparoscopic knot tying becomes easier for not only well experienced but also less experienced surgeons.

# 5 Steps in 60 sec.



1  
Suturing by built-in  
needle



2  
First Knot in  
30 SEC.



3  
Tightening the knot



4  
The second knot



5  
Ending the knot  
in 60 SEC.

This automatic surgical knot pusher device comprises a thick-walled cannula or tube having a bevelled tip and a central channel for slidably receiving one end of a suture and the other end of the suture is outside through port and is inserted in longitudinal grooves formed on the

outer surface of the cannula which intersect the elliptical face at the opposite ends of its major axis. One of the longitudinal grooves extends along the longest portion of the cannula and the other longitudinal groove extends along the shortest portion of the cannula. As the knot pusher device is inserted into a surgical port, a knot formed in the suture is engaged by the bevelled face and advanced toward a surgical site. A notch is formed at the proximal end of the cannula for receiving the end of the suture threaded into the central channel. A threading element comprising an elongated rod with a deformable loop is provided to thread the suture into the central channel of the cannula. This automatic endoscopic suturing device is provided for manipulating a suture to form a stitch through a tissue within a body cavity.