

Ovarian suspension loop: an assembled device for ovarian lifting and immobilization during laparoscopic cystectomy

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Abstract

The mobility and smooth surface of the ovaries can pose a challenge during laparoscopic cystectomy, with difficulties in manipulation and visualization. We describe assembling a device for ovarian lifting and immobilization that utilizes a nylon suture and a “scalp vein set” to create a loop. The loop can be passed into the pelvic cavity and then slid beneath the ovary, elevating and stabilizing it during surgery without the need to puncture the ovarian tissue or grabbing and damage the utero-ovarian infundibulopelvic ligaments. This device is inexpensive, and its components are easily accessible. This assembled device prevents repetitive falling of the ovary into the pelvic cavity, facilitates laparoscopic ovarian cystectomy, and saves operative time. (J Turk Ger Gynecol Assoc 2022; 23: 126-9)

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Introduction

It is widely recognized that laparoscopic surgery for gynecologic disorders confers many benefits (1), but sometimes there are difficulties in manipulating the ovaries during minimally invasive surgery (2), especially in robotic surgery (1). Problems arise from the fact that ovaries can be very mobile due to their slightly flexible attachments to the utero-ovarian and infundibulopelvic ligaments. Also, the convex and smooth surface of the ovary often makes them slippery, preventing them from being grasped easily with laparoscopic instruments. Meanwhile,

gripping the utero-ovarian and infundibulopelvic ligaments with a grasper can cause damage to these relatively delicate structures. Therefore, laparoscopic handling of the ovaries can represent a challenge for many gynecologists. At times it can take an excessive amount of time during a laparoscopic cystectomy to keep the ovary relatively immobilized in order to open the cortex (2,3).

One approach utilized by some surgeons is to place a laparoscopic device, such as a grasper, under the ovary, in order to raise it and prevent it from falling back to the pelvic floor.



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Some surgeons grasp the utero-ovarian or infundibulopelvic ligament to lift or immobilize the ovary. However, if this is not done cautiously, the grasper can damage these structures. Furthermore, using an instrument in this manner occupies one of the ports (2,3). Ovarian suspension with adjustable sutures with penetration of the cyst or ovarian parenchyma is another solution that has been used (4,5).

Material and Methods

This study aims to describe assembling a device for ovarian lifting and immobilization that utilizes a nylon suture and a “scalp vein set” to create a loop that can be passed into the pelvic cavity. The only required equipment for assembling a loop is a nylon suture 0 or 1, and a “scalp vein set”; any size can be used. The scalp vein catheter tube diameter is

smaller than the intravenous line tube and it is easier to pass through the port (Figure 1a). Dependent on the thickness of the abdominal wall, a length of about 25-35 centimeters (cm) of the nylon thread is cut. Also, depending on the length of the mesovarium, about 8-12 cm of the catheter tube of the scalp vein set is cut (Figure 1b). The nylon thread then passed through the catheter tube, and the two ends are tied to make a loop. The knot can be pushed into the catheter tube to be hidden (Figure 1c). The assembled device is now sent into the pelvic cavity through one of the laparoscopic ports (Figure 2a). The abdominopelvic wall is checked for a suitable location to insert a fascial closure device for suspending the ovary. The nylon-string end is then grasped and withdrawn by the fascial closure device and secured to the skin surface by a Kelly clamp (Figure 2b-d). The two ends of the catheter tube are held by two grasping forceps to slide the loop beneath the ovary and

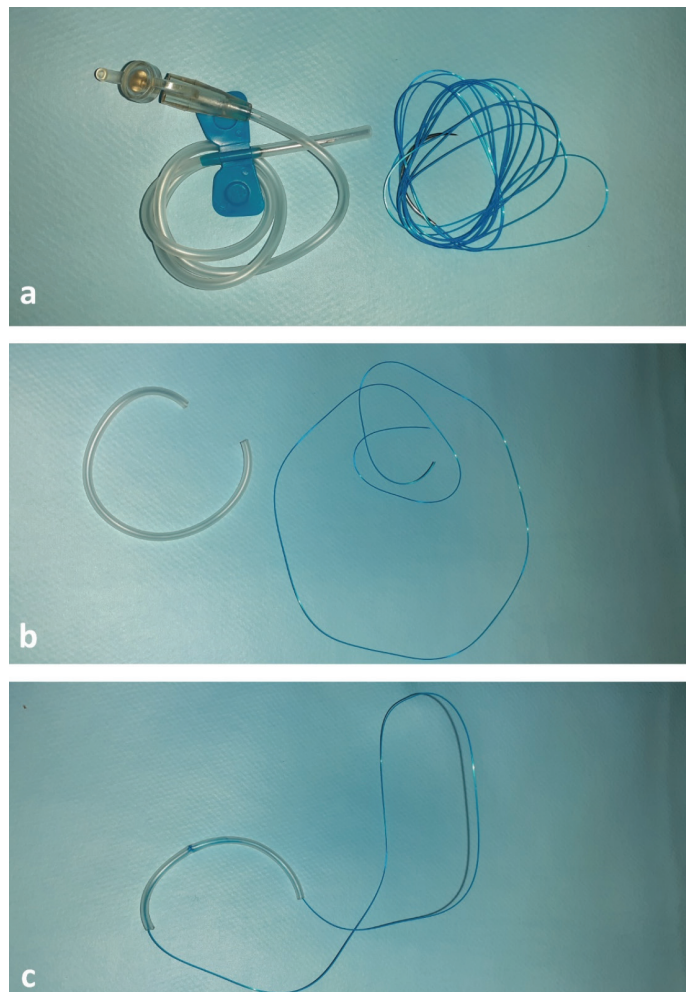


Figure 1. (a) The required materials for preparing the loop, including a nylon suture and a scalp angiocath (scalp vein catheter), (b) Nylon thread and the catheter tube are cut and separated as needed depending on the pelvic dimensions, size of the cyst, length of the mesovarium and the thickness of the abdominal wall and (c) the nylon thread passed through the catheter tube, and its two ends are tied. By holding the catheter tube and pulling the thread, the knot can be directed into the catheter tube to be hidden

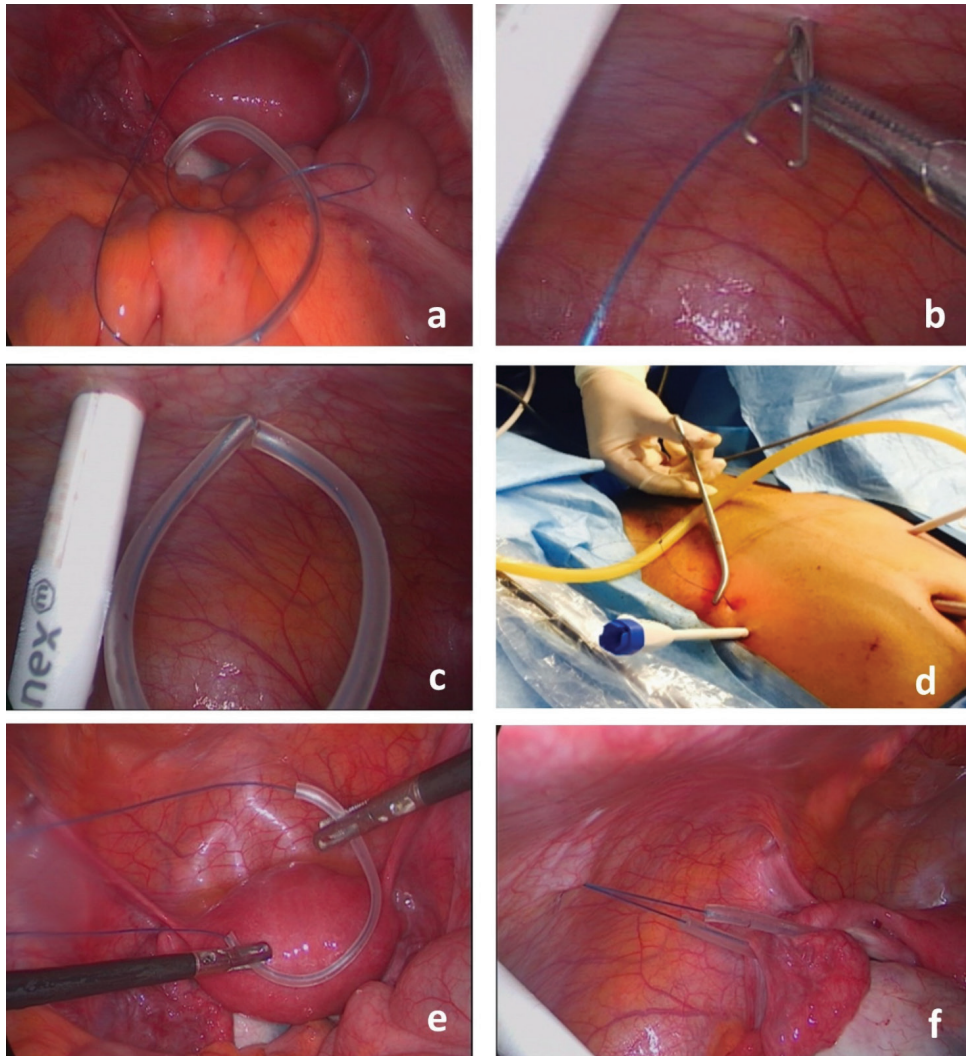


Figure 2. (a) The loop entered through the umbilical port; (b-d) the best site on the abdomen in line with the suspension location identified through appropriate mapping where the facial closure device inserted to retrieve the nylon thread and hold it with a clamp, and (e, f) the catheter tube, with its two ends held by two graspers is directed beneath the adnexa. Tension is applied from outside to provide a relatively fixed position for the adnexa

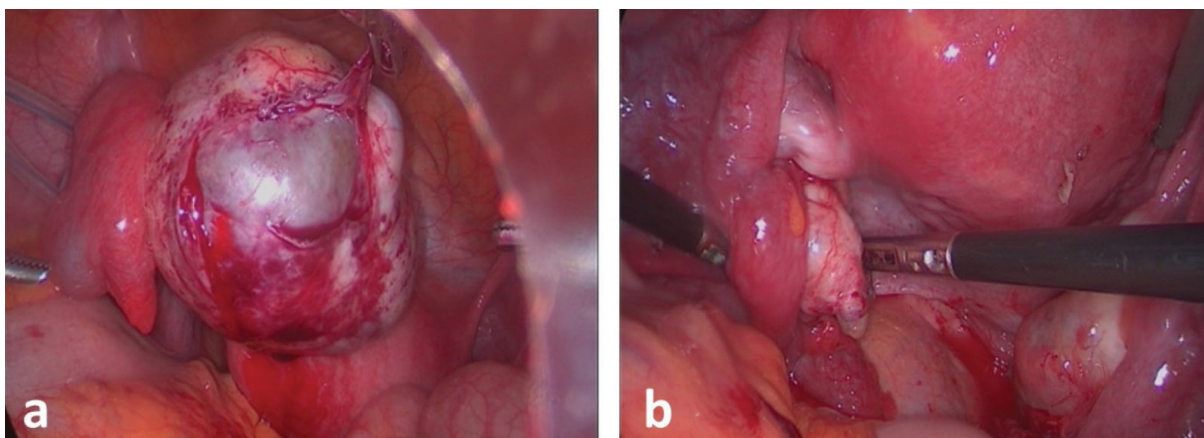


Figure 3. (a) During cystectomy when the ovary has a stable orientation and (b) after cystectomy when the adnexa is in an appropriate position

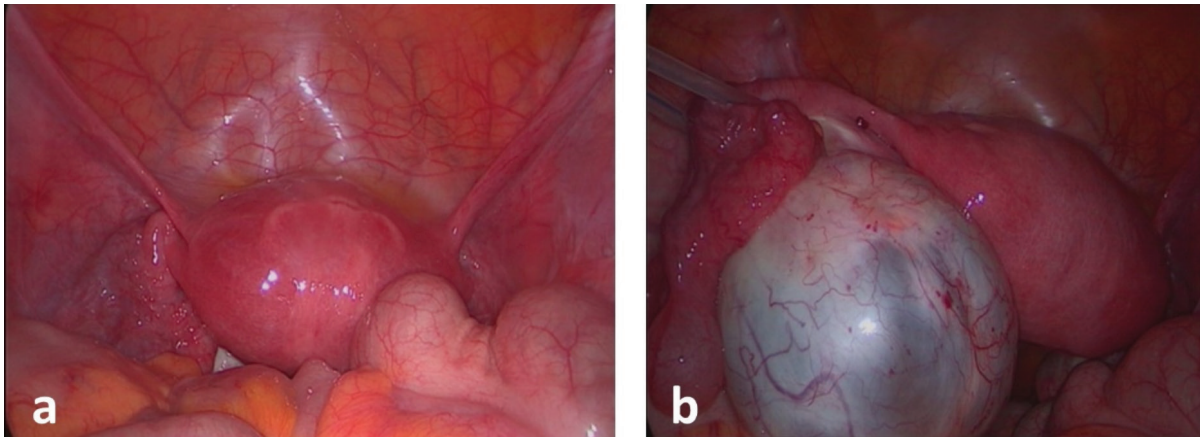


Figure 4. (a) Position of ovary and cyst (before), and (b) after suspension by loop

elevate it (Figure 2e, f). The tension on the string, and therefore the ovary, can be adjusted as needed. It is, of course, essential to avoid excessive traction of the adnexa so as not to interfere with the ovary's blood supply. Later, the ovary is released after surgery accomplishment, and then one of two strands of the nylon thread is cut above the skin, and the other one pulls out. Then, the catheter tip is grasped and taken out from the port (Figure 3a, b). The video shows how the surgeon lifts and immobilizes the ovary during cystectomy surgery using an assembling device (Video 1).

Video file: Thirty one year-old female, gravida 1, para 1 with previous history of cesarean section who was referred with the complaint of left lower pelvic pain for two months. Sonography revealed a 5-6 cm dermoid cyst in the left ovary. During laparoscopic cystectomy, the ovarian suspension loop effectively prevented repetitive falling of the ovary into the pelvic cavity and provided relative stability of the ovary during manipulation.

Conclusion

The ovarian suspension loop effectively prevents repetitive falling of the ovary into the pelvic cavity. It provides relative stability of the ovary during manipulation without any penetration of the cyst or ovarian parenchyma (Figure 4a, b). This device is inexpensive, and its components are easily accessible. By using this assembled device, laparoscopic ovarian cystectomy facilitates and saves operative time.

Video 1. This shows how the surgeon lifts and immobilizes the ovary during cystectomy surgery using an assembling device



<https://www.doi.org/10.4274/jtgga.galenos.2022.2021.10-12.video1>

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