

Total Laparoscopic Hysterectomy : An achievable reality throughout Sri Lanka?

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INTRODUCTION

Total Hysterectomy is a complete surgical removal of uterus either vaginally or abdominally, along with closure of the vaginal cuff, which can be performed as a vaginal, open abdominal or a laparoscopic procedure. Laparoscopic surgery have the added benefits of reduced hospitalization and recovery times, reduced pain associated with incision sites, less need for analgesic medications and smaller incisions provide an excellent cosmetic outcome with a lower risk of infection. Vaginal hysterectomy is the preferred approach whenever possible and laparoscopic hysterectomy is preferred over open abdominal hysterectomy when vaginal hysterectomy is not feasible.¹

Laparoscopic hysterectomy is a well-established procedure in many countries and is preferred over abdominal hysterectomy. The situation in Sri Lanka shows a marked regional variation while the majority of the hysterectomies are performed abdominally.


Limitation of resources, high workload, absence of trainers and lack of expertise to perform minimally invasive hysterectomies have contributed to the non-popularity of laparoscopic hysterectomies in Sri Lanka. However, a few centres in Sri Lanka are performing total laparoscopic hysterectomies (TLH) with outcomes similar to developed countries.

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Sri Lanka is rapidly approaching impressive healthcare statistics in the region but the development of minimal access surgery on an island wide basis is still lagging.

According to a Cochrane review of 2015, there is no significant cost difference between open abdominal and laparoscopic hysterectomies. However, vaginal hysterectomies were shown to cost less.¹

The technique we use to perform total laparoscopic hysterectomy is more suitable for units with minimal resources.

The aim of this article is to analyze the resources available in Sri Lanka for total laparoscopic hysterectomy, discuss a surgical technique which is feasible in most peripheral hospitals, share our experience accumulated during the last 7 years using the same technique and to discuss methods to disseminate the use of laparoscopy for hysterectomy.

MATERIALS AND METHOD

We retrospectively reviewed all TLHs performed due to benign Gynaecological conditions at the Professorial Unit in Obstetrics and Gynaecology, University of Sri Jayewardenepura, Colombo South Teaching Hospital between August 2015 and August 2017. All these were performed with the surgical technique described below. Data were collected from patient records of the hospital. 73 patients were analyzed and the same surgeon operated all patients. Patients' age, indication for surgery, blood transfusion requirement, intraoperative and postoperative complications were analyzed.

SURGICAL TECHNIQUE

The procedure described below is a safe, cost effective technique for hysterectomy indicated for benign Gynaecological conditions. Equipment needed are four ports (one 10 mm and three 5 mm), bipolar diathermy forceps, monopolar diathermy

hook, cold scissors, locally made myoma screw, balled gauze swab at the end of a Rampleys sponge holder and Polyglactin for suturing.

Prior informed written consent was obtained from patients after counselling. Pre-operative preparation involved anaesthetic referral and reserving group-matched blood. Routine bowel preparation was not done. Patients were kept fasting for 6 hours.

All surgeries were performed with the patient under general anesthesia in a modified lithotomy position. Bladder was catheterized. The surgeon was always on the left side of the patient. The Veress needle was inserted supra-umbilically, for all patients. Palmer's point entry was made in patients with suspected adhesions due to previous abdominal surgery.

An intra-abdominal pressure of 25mmHg was achieved by insufflation of Carbon Dioxide and 10 mm primary trocar was inserted supra-umbilically. The distance from the umbilicus varied with the size of the uterus. After insertion of a 10 mm telescope, the abdomen was inspected for injuries at entry. Three secondary 5 mm ports were introduced, two ports on left lateral side while the third port was on right side. (Picture 1) All secondary ports were introduced under direct vision. Myoma screw attached to fundus was used to manipulate the uterus. (Picture 2)

The pelvis and abdomen were inspected to identify adhesions, endometriotic deposits, size and mobility of the uterus, tubal and ovarian pathology. If adhesions were present, they were released with bipolar diathermy and cold scissors.

The energy sources used were bipolar diathermy and monopolar hook. If oophorectomy was planned, the infundibulopelvic ligament was cauterized and cut. For patients not undergoing oophorectomy, the uterine-



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ovarian ligaments were cauterized and cut medial to the ovaries. Fallopian tubes were removed in all patients. The broad ligament was opened into by excising the round ligament. The anterior and the posterior leaves of the broad ligament was separated along avascular planes, making it possible to identify the uterine vessels in between. Bladder dissection was started from the left lateral window by excising and cutting along the uterovesical fold. The bladder was dissected down along the avascular plane between the bladder and cervix until the vault was identified. Following this, uterine vessel complex was skeletonized. These vessels were cauterized and cut until the lateral uterine wall was reached. Then, dissection with cautery and cut was carried down hugging the lateral wall of the uterus until the vault was reached. Posteriorly the dissection was carried across the uterosacral ligament complex until a complete circumferential excision of the vault could be achieved. This enabled us to avoid ureteric injury as the excision was alongside the uterus and cervix. A balled gauze swab at the end of Rampleys sponge forceps (Picture 3) was introduced into the vagina, which clearly demarcated the cervico-vaginal junction. A circular incision starting at the anterior surface of the vault was made by the monopolar hook, thereby separating the uterus from the vault. Specimen was retrieved via the vagina. Cold knife vaginal morcellation was used for larger uteruses. (over 10 cm in diameter) The vault was closed laparoscopically using number 1 Polyglactin suture.

Availability of resources at peripheral hospitals in Sri Lanka was assessed by a structured telephone interview with the Consultant Obstetrician and Gynaecologist of each Hospital.

A pilot project to upgrade training and knowledge of this technique was conducted in two peripheral hospitals in

Table 1 - Indications for hysterectomy.

Indication	Value
Leiomyoma	39 (53.4%)
Adenomyosis	27 (37%)
Endometrial polyp	4 (5.5%)
Tubo-ovarian abscess	1 (1.4%)
Serous cystadenoma	1 (1.4%)
Mucinous cystadenoma	1 (1.4%)

Sabaragamuwa Province. This involved the training of the Consultant and the medical staff as well as the training of the theatre staff to carry out TLH.

RESULTS

Table 1 shows the characteristics of the patients who underwent TLH. Out of 73 total patients, the mean age was 51.7 years with a range of 35 to 72 years. Of the patients, 31% had undergone prior abdominal surgery and the most common operation was Caesarean section. As shown, the most common indications for TLH were uterine leiomyoma (n = 39) and adenomyosis (n = 27). The other indications included endometrial polyps (n = 4), tubo-ovarian abscess (n = 1), serous cystadenoma (n = 1) and mucinous cystadenoma. (n = 1) Total number of complications included 3 of 73 cases (4.1%). Urinary tract injuries were reported in 3 patients (4.1%). Urinary tract injuries included 2 case of bladder injury (2.7%) and 1 case of ureteric injury (1.4%). There were no cases of pulmonary thromboembolism, vaginal stump infection, hematoma, bowel injury or abdominal wound complications.

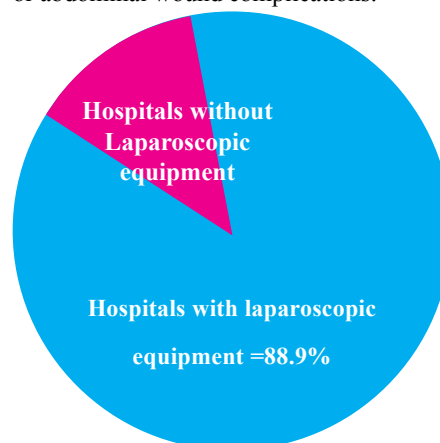


Diagram 1 - Availability of resources in Sri Lanka.

Diagram 1 shows the availability of basic laparoscopic equipment to perform TLHs in Sri Lanka. More than 88% (n = 72/81) of these hospitals are equipped to perform a TLH.

DISCUSSION

Our case series compares favourably with other studies conducted earlier. A recent review article reported the rate of urinary tract injury for TLH was 0.56%

to 1.24%. The rate of bladder injury for TLH was 0.38% to 1.04%, ureteric injury was 0.15% to 0.53%². Our data compares favourably with these outcomes.

The use of the supraumbilical port significantly improves the view of the surgical field as opposed to the traditional intraumbilical entry. This is particularly useful when the uterus is larger than normal. The increased distance between the camera port and the surgical field makes the uterus relatively small and less dominating. It also enables better access to the opposite side of the uterus. It is also useful when a complex adhesiolysis needs to be performed prior to TLH. Use of ipsilateral ports on the left improves ergonomics. Most studies describe the use of left and midline ports. The shifting of the upper left ipsilateral 5 mm port towards the midline increases the angle between the instruments thus contributing towards a better operating angle. (Picture 1) We have found this placement of ports to make the surgery simpler and easier and it increases operator comfort.

The locally made myoma screw costs about SLR 7000 which is far more economical than commercially produced myoma screws. The myoma screw is fixed to the fundus of the uterus from the right ipsilateral 5 mm port and uterine manipulation is conducted by the assistant. This method is simple and facilitates maximum manipulation and stretch of tissues. Reusable bipolar diathermy forceps, cold scissors and monopolar hooks are the only instruments required to perform the surgery. Expensive disposable instruments quoted in other studies³ were not necessary to achieve similar results and therefore the procedure becomes a low cost surgery achievable almost in every hospital in Sri Lanka. There were no recorded lateral thermal injuries in our study and therefore we feel that the use of these instruments is safe with proper training. The balled swab wrapped around the blades of a Rampleys sponge forceps and lubricated with gel provides an excellent air tight seal to the vagina as well as distending the lateral fornices for the identification of the cervico-vaginal junction. Thereafter, the vagina is opened by using the monopolar hook. The gauze swab also prevents conduction burn injuries when using monopolar energy.

Our telephone survey of 81 hospitals with incumbent Consultant Obstetricians and

Gynaecologists, 72 (n = 88.9%) had the basic instruments to perform TLHs. Some of them lacked only a few instruments to complete the set. These hospitals can be upgraded easily and with minimum cost enabling them to perform TLH's.

We have initiated outreach workshops with the aim of training the Consultants to safely perform a TLH. Up to now, two workshops were conducted in Kahawatta and Embilipitiya Hospitals. The consultants and their team were given hands on training in performing total laparoscopic hysterectomy. The Nursing staff of the theatre was educated on handling and cleaning of laparoscopic instruments. The feedback from these pilot workshops indicated that the barriers to perform laparoscopic hysterectomy were mainly lack of expertise and trained nursing staff.

Our plan is to conduct outreach workshops in every hospital in Sri Lanka so that laparoscopic hysterectomy becomes a routine surgery than an exception.

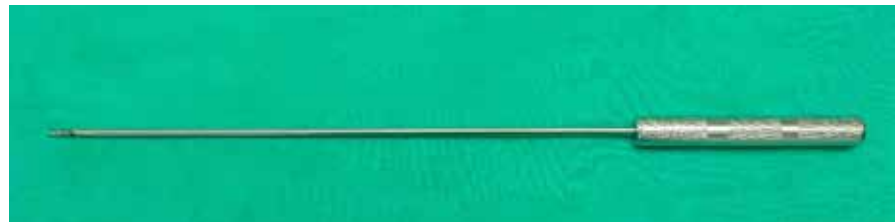
CONCLUSION

It is clear that laparoscopic hysterectomy in every peripheral hospital is a realistic target. To achieve this, training of Consultants and theatre staff is of paramount importance. Equipment to perform TLHs are available in most hospitals and few of them only need a few instruments more. We feel that

training in performing of TLHs will lead to an overall expansion and popularity of Gynaecological laparoscopy with immense benefit to patients in Sri Lanka.

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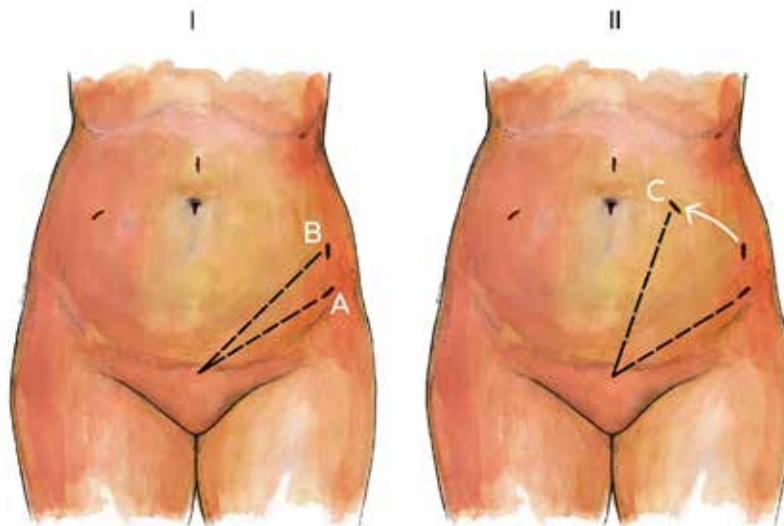


Picture 2 – Locally made myoma screw



Picture 3 – Balled gauze swab at the end of a Rampley's forceps

Picture 1



I - Conventional ipsilateral port placement at points A and B gives a narrow operating angle
 II - Shifting of upper left ipsilateral port from point B to C widens operating angle