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Review Article

Challenges & controversies in robotic myomectomy

Shakti Bhan Khanna [a,*], Kiranabala Dash [b]

[a] Senior Consultant Obstetric & Gynaecology & Gynae. Oncology, Minimal Access & Robotic Surgeon, Institute of Obstetric and Gynaecology, Indraprastha Apollo Hospital, Sarita Vihar, New Delhi 110076, India

[b] Attending Consultant, Minimal Access Surgeon, Institute of Obstetric and Gynaecology, Indraprastha Apollo Hospital, Sarita Vihar, New Delhi 110076, India

ARTICLE INFO

Article history:
Received 23 April 2015
Accepted 1 May 2015

Keywords:
Fibroids
Robotic myomectomy
Morcellation leiomyosarcoma

ABSTRACT

Robotic surgery for gynecology is being performed since 2005. For myomectomy, it is a better technology since suturing of myoma bed is better with lower incidence of scar rupture. However, the morcellation for the myoma retrieval has to be done carefully in a bag, and pre-operative investigation should be done to exclude occult leiomyosarcoma.

1. Introduction

Uterine fibroids are the most common indication for hysterectomy in most parts of the world. Incidence varies from 5% to 21% between the ages of 35 and 49 years.[1] In African-American women, the incidence is higher, increasing to >80% by age 50, whereas Caucasian woman have an incidence of 40% by age 35 and about 70% by age 50.[2] Majority of women with uterine fibroids are asymptomatic. Abnormal uterine bleeding, dysmenorrhea, pelvic pain, infertility, and prevalence of a mass in lower abdomen or recurrent miscarriages are the common symptoms in some cases. The treatment done traditionally was to remove fibroids by an operation abdominally or vaginally. Since the last few decades, laparoscopy evolved as a minimal access surgery with its inherent benefits of short hospital stay, less post-operative pain, better cosmetic result, and faster return to normal activities.

In 2005, the da Vinci® Surgical System (Intuitive Surgical, Inc., Sunnyvale, CA) was the first robot approved by US FDA for gynecological surgeries. The largest body of experience in robotic surgery in gynecology exists with supracervical TLH, myomectomy, tubal anastomosis, sacrocolpopexy, and cancer staging and its treatment. The advantages of robotic surgery over laparoscopy are a 3-dimensional image, superior instrument articulation, and comfort for surgeon. The multilayer suturing is easier by a robot than by laparoscopy, and a further advantage is that the tremor of the surgeon is totally absent.

* *Corresponding author at*: 304, Hauz Khas Apartment, Aurobindo Marg, New Delhi 110016, India.
E-mail address: shaktibhankhanna@gmail.com (S.B. Khanna).

http://dx.doi.org/10.1016/j.apme.2015.05.003

Table 1 – Distribution of robotic gynecological procedures.

Hysterectomy	38
Hysterectomy + BSO	10
Myomectomy	26
Ovarian cystectomy	16
Endometriosis	5
Radical hysterectomy for Ca endometrium	1
Tuboplasty	1
Sacral colpopexy	1
Total	98

2. Patients

At Indraprastha Apollo Hospital, Delhi, India, in the last 2 years and 8 months, a total number of 98 gynecological procedures were done by robotic surgery, which includes 26 robotic myomectomies (Table 1).

The clinical profile of patients who underwent robotic myomectomy includes:

- Grossly obese (Fig. 1)
- Nullipara
- Unmarried
- Women working in corporate institutes
- Height of fundus uteri up to or just above umbilicus
- Mostly a big posterior wall fibroid (Fig. 2)

3. Method

The patient is put in low dorsal lithotomy position with arms tucked by the side of the body. A Foley's catheter is inserted into the bladder, and uterine manipulator is put into the uterus. A 12 mm camera port is placed 10 cm above the upper border of uterus in the midline above umbilicus. Two 8 mm telerobotic ports are inserted 8 cm lateral and 2 cm below the camera port. A third telerobotic side port is used on the left side at least one hand's breadth below and lateral to the left upper port, in some patients. A 12 mm assistant port is placed on the right side above and lateral to anterior superior iliac spine, a hand's breadth below the upper right side port. This port is left undocked for assistance to use for suction and morcellation. The robot docking is done on the left side and a 30° scope is used for the procedure.

The myomectomy is done like the open myomectomy, i.e., injecting dilute vasopressin (20 units in 100–200 ml of saline), enucleating the fibroid, and multilayer suturing of myoma bed by No. 1 V-lock suture. The myoma is morcellated through assistant port by power morcellator. Complete hemostasis is ensured at the myomectomy site. Anti-adhesive is put on this place to prevent future scar tissue formation and adhesion. We have not used the hybrid technique for myomectomy in any case. After de-docking of robotic cart, the port areas are sutured.

Average time taken for surgery was 3–4 h with an average blood loss of about 150–200 ml. Average blood transfusion of one unit each was given in ten patients. There was hardly any post-operative complication and patients were discharged after 24–48 h. Two patients have already delivered full-term babies in this group.

Fig. 1 – Grossly obese.