Robotic Hysterectomy in Renal Recipient Lady with Very Large Fibroid Uterus

Ankita Chandna[1*], H S Chauhan[2], Shailesh Sahay[2], Manoj Arora[2], Puneet Sharma[3]

[1]Department Of Obstetrics and Gynaecology, Max Hospital Shalimar Bagh, New Delhi
[2]Department Of Renal Sciences, Max Hospital Shalimar Bagh, New Delhi
[3]Department Of Anaesthesia, Max Hospital Shalimar Bagh, New Delhi

Correspondence:

Ankita Chandna

E-mail: ankita.chandna@maxhealthcare.com

DOI: xxxxxxxxxxxxxxxxxxx

Abstract:

With time, proficiency in minimally invasive surgeries has been increasing, especially with the advent of robotic surgery. In this study, we present the case of a renal transplant recipient with a large uterine fibroid. She underwent a robotic hysterectomy with a multidisciplinary peri-operative management, considering her immunocompromised status.

Key words: Renal Recipient, Robotic Hysterectomy, Fibroid Uterus.

Introduction

Since the advent of the da Vinci Surgical System, robotic surgery has made major advances in all surgical arenas. It has major advantages in reducing morbidity, including infections, blood loss, and the need for narcotics. We present a case of robotic hysterectomy, which was challenging due to the location of the transplanted kidney, adhesions, and space constraints for placement of ports. Planning was done with the involvement of nephrology, urology, and anaesthesia teams, resulting in good surgical outcomes.

Case Report

We present the case of a 44-year-old woman with a history of one previous normal vaginal delivery who presented to the outpatient department (OPD) with complaints of heavy menstrual bleeding and abdominal pain for the past few months. Her ultrasonography (USG) revealed a very large fibroid of about 10cm and she had come for further management of the same. She had a history of renal transplant (mother was the donor) in 2015, performed via open surgery for chronic renal disease. She was currently on immunosuppressants and anti-hypertensive medications. There was presence of arteriovenous (AV) fistula in her right arm due to a history of dialysis.

Currently, her menstrual cycles lasted 7-10 days with very heavy flow and passage of clots. She had one vaginal delivery 12 years ago, which was uneventful. Further investigations revealed a haemoglobin level of 10 g/dL and a serum creatinine level of 0.89 mg/dL, with other findings within normal limits. Her USG showed a large heterogenous fibroid of about 9.5x9.6cm, abutting the endometrial cavity and displacing it anteriorly. The endometrial cavity was distorted, and posterior endometrial interface was indistinct. The cervix was bulky, and both ovaries were obscured. The transplanted kidney was seen in the right iliac fossa.

Magnetic resonance imaging (MRI) pelvis was done, which revealed a large fibroid (Figure 1) of about 89 x 92 x 89mm in the posterior wall with cystic changes. The transplanted kidney was seen in right iliac fossa with mild hilar fat proliferation. Her examination revealed a big scar on the abdomen from right lumbar region extending to mons pubis and the uterus with fibroid palpable above umbilicus. (Figure 2) Thorough counselling was done regarding these findings and the need for further definitive surgical management. A decision was taken for multidisciplinary approach involving urologist, nephrologist, and anaesthesia team.

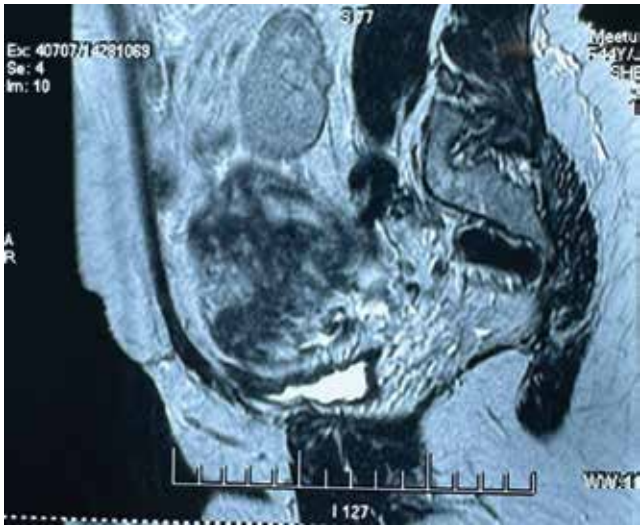

Figure 1: Magnetic resonance imaging (MRI) film Film of fibroid.

Figure 2: Pre-operative abdominal examination.

Surgical approach planned was a minimally invasive surgery, as the patient was already on immunosuppressants, to prevent wound related complications and infection. Approach planned was robotic-assisted surgery due to the added advantage of precision and fewer complications, and less chances of conversion to open surgery.

All consents were sought and fitness for surgery was obtained. Her Pap test was done and was reported normal.

Robotic surgery was the preferred mode here due to the surgical challenges in this case:

1. Previous surgery related adhesions (history of open transplant surgery with big scar on abdomen)
2. Presence of transplant kidney and new ureter course in right iliac fossa
3. Very large myoma occupying whole pelvis and present till umbilicus
4. Port placement issues due to space constraints
5. Retrieval of large specimen
6. Presence of AV fistula in right hand limiting access to intravenous fluids and medications
7. On immunosuppressants prone to infections and anaemic, so avoidance of open surgery and reducing need for blood transfusions

Once prepared for surgery in the operation theatre, port placement was done above the umbilicus, 7-8cm apart, using one endoscopy, 3 other arms port, and one infracostal port for assistant use. Instruments used were a 30-degree endoscope, force bipolar, Maryland curved scissors, and ProGrasp.

Intraoperatively

The uterus was enlarged diffusely with a large myoma with vascularity, occupying the entire pelvis. The transplanted kidney was identified in the right iliac fossa, with the neoureter and its course. Hysterectomy proceeded meticulously and bleeding was controlled effectively with use of robotic instruments and proper care was taken to safeguard the ureter and the kidney (the transplanted kidney was in the extraperitoneal portion in right iliac fossa).

Once hysterectomy was done, the next concern was retrieval of specimen, which was huge. The uterus was bisected, and a myomectomy was done to facilitate removal of the uterus and myoma enbloc (without the use of morcellation) through vagina, and no incision extension was done on abdomen.

After retrieval of specimen, thorough pelvis wash was given, and the vault was closed using V-Loc 3-0 with robotic instruments. Patient tolerated the surgery very well and her urine output was clear and adequate at the end of her surgery. Both the ovaries were normal and conserved.

She was observed carefully in post-operative period along with the nephrology and urology team, given good antibiotic cover, and ambulated early. Medications during the post-operative period included cefoperazone and sulbactam, prednisolone 10 mg, amlodipine 2.5 mg, metoprolol 50 mg, prazosin sustained release 5 mg.

\Her blood pressure was also controlled with medications. She was discharged on day 3 with oral medications and called for a follow up in OPD in 7 days.

Her final dressing was done on day 8 in OPD. Histopathological biopsy revealed uterine leiomyoma without atypia or mitosis. All her robotic port sites were well healed, and her complete blood count (CBC), and kidney function tests (KFT) were in normal range.

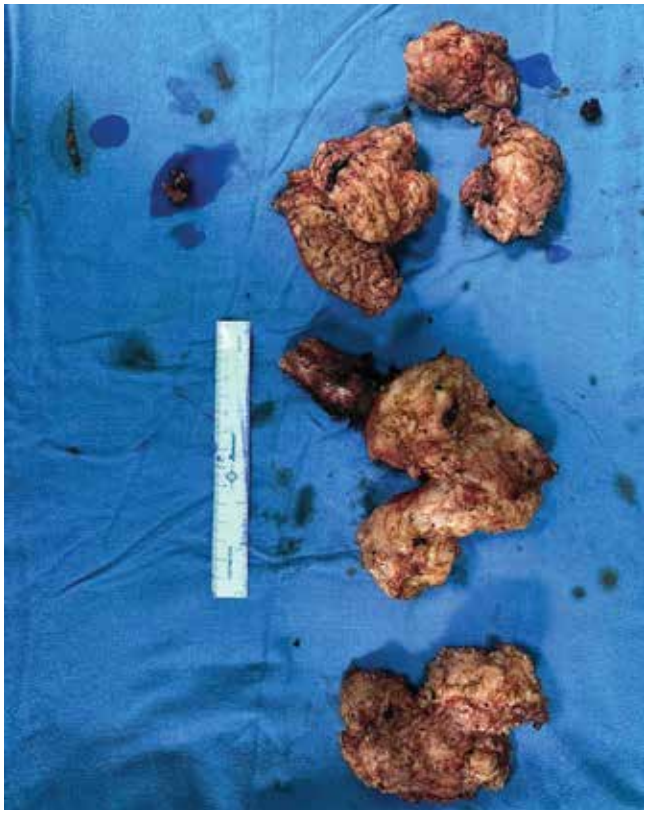

Figure 3: Resected fibroid specimen

Discussion

Significant advances in surgical techniques, along with induction and maintenance immunosuppression regimens, have improved allograft outcomes. Nonetheless, infections remain a leading cause of complications after kidney transplant. Other causes of morbidity include hypertension (75%-85% recipient), hyperlipidaemia (60%), cardiovascular disease (15%-23%), diabetes mellitus (16%-20%), and osteoporosis (60%).[1]

The Food and Drug Administration (FDA) approved the Da Vinci Surgical System in 2005 for gynaecological surgery based on preliminary evidence of safety and efficacy from their early experience with myomectomy and hysterectomy at the University of Michigan.[2] It has been rapidly adopted and it has already assumed an important position at various centres where this is available. It comprises of three components: a surgeon's console, a patient-side cart with four robotic arms and a high-definition three-dimensional (3D) vision system. Robotics does give an edge in more complex surgeries. The conversion rate to open surgery is lesser with robotic assistance when compared to laparoscopy.

The EndoWrist movement of robotic instrument allows better and precise suturing than conventional straight-stick laparoscopy. Most publications emphasise that the main benefit of precise and articulated movements while using robotic arms comes in handy for adhesiolysis, when surgeons encounter dense adhesions or manipulation of large uteri during hysterectomy. Our patient was selected for robotic hysterectomy for various reasons as discussed above, the main factor being her renal transplant status.

Patients in the robotics cohort experienced a shorter length of stay and less estimated blood loss. These women also indirectly had cost savings when compared to non-robotic approaches.[3]

Most authors report a significantly diminished incidence in laparotomy conversions as well as complications in robotic-assisted surgery.[4,5,6]

Studies that evaluated narcotic usage have found that the robotic procedures required fewer units of narcotic usage. Robotics is the future of gynaecologic surgery and has distinct advantage over conventional surgical techniques.

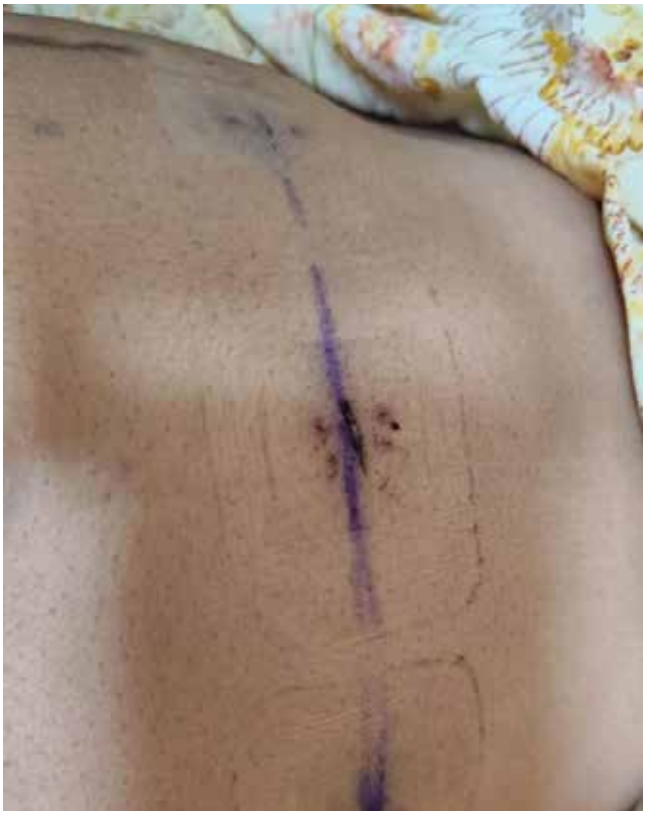

Figure 4: Post-Operative port sites

Ankita Chandna, H S Chauhan, Shailesh Sahay, Manoj Arora, Puneet Sharma. Robotic Hysterectomy in Renal Recipient Lady with Very Large Fibroid Uterus. MMJ. 2024, Dec. Vol 1 (4).
DOI: XXXXX

References

1. Weiner DE, Park M, Tighiouart H, *et al*. Albuminuria and allograft failure, cardiovascular disease events, and all-cause death in stable kidney transplant recipients: A cohort analysis of the FAVORIT Trial. *Am J Kidney Dis*. 2019;73(1):51-61.
2. Reynolds RK, Advincula AP. Robot-assisted laparoscopic hysterectomy: Technique and initial experience. *Am J Surg*. 2006;191:555-60.
3. Lee SJ, Calderon B, Gardner GJ, *et al*. The feasibility and safety of same day discharge after robotic assisted hysterectomy alone or with other procedures for benign and malignant indications. *Gynecol Oncol*. 2014;133:552-5.
4. Soto E, Lo Y, Friedman K, *et al*. Total laparoscopic hysterectomy versus da Vinci hysterectomy: Is using the robot benefical? *J Gynecol Oncol*. 2011;22:253-9.
5. Steege JF, Einarsson JI. Robotics in benign gynecologic surgery: Where should we go? *Obstet Gynecol*. 2014;123:1-2.
6. Ayala-Yáñez R, Olaya-Guzmán EJ, Haghenbeck-Altamirano J. Robotics in Gynecology: Why is this Technology Worth Pursuing? *Clin Med Insights Reprod Health*. 2013;7:71-7.