

Video Article

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Robotically Assisted Laparoscopic High Uterosacral Vault Suspension (RALHUVS) For Treating Apical Defect During Hysterectomy for Uterine Prolapse

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Abstract

High uterosacral ligament suspension is a well-accepted method to treat apical prolapse. It has been initially described during vaginal approach of apical defects during POP repair surgery, and later on during laparoscopy. Vaginal approach is associated with a higher risk of ureteral injury than the laparoscopic approach. When uterine prolapse coexists with uterine pathology, such as symptomatic myomas, and hysterectomy is mandatory due to uterine pathology, it is important to perform an apical compartment repair at the time of surgery. Robotic assistance, with 3-dimension vision and 6 degrees of freedom of robotic arms, is very useful to perform this procedure safely. This case report and didactic video describes and illustrates this procedure.

Keywords: Apical Defect; Hysterectomy; Pelvic Organ Prolapse; Robotic; Robotically Assisted Laparoscopy; Uterine Prolapse

Abbreviations

POP : Pelvic Organ Prolapse
 RALHUVS : Robotically Assisted Laparoscopic High Uterosacral Vault Suspension
 HULS : High Uterosacral Ligament Suspension
 POP-Q : Pelvic Organ Prolapse Quantification System
 SCP : Sacrocolpopexy

Manuscript

Introduction and Aim of the video

Uterovaginal prolapse is a common disabling condition affecting up to 50 percent of women of varying age [1]. Uterine pathology such as myomas is very common affecting up to 70 % of women at the age of 50 and may cause abnormal uterine bleeding, pain, and discomfort [2,3]. The two pathologies may

coexist in the same patient and require treatment. Hysterectomy alone may therefore not be sufficient, and treatment of associated prolapse is mandatory. There are many procedures to treat apical defect in Pelvic Organ Prolapse (POP) with or without associated hysterectomy. This condition may be treated laparoscopically with mesh, or vaginally without mesh with High Uterosacral Ligament Suspension (HULS) or Sacrospinous Ligament Fixation (SSLF). During HULS, fixing vaginal vault to the proximal uterosacral ligaments can restore the native apical support structures [4].

One concern however, is the risk of injury of structures close to the uterosacral ligaments such as the ureters and the rectum. One study demonstrated a ureteral compromise in 11% of cases during vaginal uterosacral ligament suspension [5]. Uterosacral ligament suspension using a laparoscopic approach may be associated with no ureteral compromise and higher success rate compared to vaginal approach [6]. Sacrocolpopexy is considered the gold standard for the treatment of apical vaginal and uterine prolapses. It was the first technique described to treat Pelvic Organ Prolapse (POP) by laparoscopy. However, total hysterectomy is a risk factor for mesh erosion during Sacrocolpopexy (SCP) [7]. Therefore, HULS may treat efficiently apical defect during hysterectomy without

the risk of mesh erosion. Robotic assistance during laparoscopy may further help the surgeon with 3 dimensions vision, and six degrees of freedom with robotic arms may facilitate suturing. In this case report and video, we present a case of robotically assisted hysterectomy with treatment of apical defect by high uterosacral ligaments vault suspension.

Case Report

Our video presents the case of a 51 years old patient, gravida 3- para 2, with history of ectopic pregnancy and laparoscopic myomectomy ten years ago. She was referred to our clinic for POP stage 3 and myomatous uterus. She was symptomatic with pelvic tenderness, discomfort during sport activities and abnormal uterine bleeding during menstruation. On clinical examination, there was an apical POP with an enlarged uterine cervix overpassing the hymen by 3 cm due to pericervical fascial defect (POP-Q stage 3). Ultrasonography showed an enlarged uterus with two FIGO 6 myomas of 4 and 2 centimeters. Endometrial biopsy and cervical cytology were normal. Preoperative urodynamics did not show any occult urinary incontinence.

Results

The patient had preoperative antibiotics (Cefazolin 2 g IV (Kefzol®)) at anesthetic induction. We performed insufflations of CO₂ with a Veress needle introduced at Palmer point (left hypochondrium). We used the Da Vinci Xi robot (Intuitive surgical, Sunnyvale California USA) with an 8 mm umbilical port for a 0° optique and two 8 mm lateral ports for the instruments (three ports in all). The Hohl uterine manipulator (Karl Storz Company Tuttlingen Germany) was used to expose the uterus. We performed a standard robotically assisted hysterectomy and closed the vaginal vault with four figure-of-eight 0 Polyglactin sutures (Vicryl® 0, Ethicon Endo Surgery, Inc., Cincinnati, OH, USA) on a CT-2 needle. Sutures were introduced through one of the 8-mm trocars by the assistant on the surgical field. We then suspended the vaginal vault bilaterally to the proximal and middle part of the uterosacral ligaments with two simple Polyglactin sutures. Both ureters were clearly identified during the procedure. At the end of the procedure, cystoscopy confirmed bilateral integrity of the ureters. The postoperative period was uneventful. During postoperative control 3 months later, anatomical result was good with no recurrence of prolapse.

Discussion

Our video demonstrates that in the case of apical defect combined with uterine pathology, robotically assisted laparoscopic high uterosacral vaginal vault suspension is easy to perform. With direct vision of both ureters and rectum, it may be a safer alternative treatment to the traditional vaginal route, lowering the risk of ureteral and rectal injury. It may also replace the use of mesh during laparoscopic treatment for uterine prolapse, thereby avoiding the high risk of mesh erosion associated with hysterectomy during POP repair. Robotic assistance is not mandatory, but from our point of view, it offers a better view with 3-dimensional imaging and is very easy suturing.

Financial Disclaimer/Conflict of Interest: none

Consent

Written informed consent was obtained from the patients for publication of this video article and any accompanying images.

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