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Novel Approach to Laparoscopic Hysterectomy Using 2 Ports

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ABSTRACT

A hysterectomy (removal of uterus, with or without tubal/ovarian removal) remains one of the most common surgeries performed worldwide. Various approaches exist (open, laparoscopic, vaginal), with generally improved patient outcomes with minimally invasive approaches. Here we present the first case, to our knowledge, of a total laparoscopic hysterectomy being performed in Trinidad & Tobago with only 2 laparoscopic ports, for a case of recurrent post-menopausal bleeding secondary to benign leiomyomata (fibroids). This case confirms that a laparoscopic approach can be safely undertaken in a local setting, even for enlarged uteri and in patients with heavy bleeding.

Keywords: Minimally invasive surgery, Laparoscopic hysterectomy

INTRODUCTION

Over 500,000 hysterectomies are performed yearly in the United States of America [1], which makes it one of the most common surgical procedures performed.

Hysterectomies can be performed via open, laparoscopic or vaginal routes, with the American College of Obstetrics & Gynecology (ACOG) recommending minimally invasive and vaginal approaches be used as first line, wherever possible, due to increased benefits from enhanced recovery for the patient [2]. Vaginal approaches may not be suitable for patients with limited dissensus, uterine pathology (such as large fibroids or adenomyosis) and concern for malignancy. In addition, the vaginal approach may limit the surgeon's ability to inspect the pelvic cavity and, in some cases, may limit access to the adnexa for removal. A laparoscopic approach ameliorates these issues, and allows for reduced pain [3], reduced adhesion formation [4], faster recovery and return to function, shorter hospital stay, and improved patient satisfaction [5]. It stands to reason that with fewer incisions needed, the better for the patient.

CASE PRESENTATION

The patient is a 53-year-old Para-2 female who presented to our clinic with severe recurrent post-menopausal bleeding. She had no contributory past medical history, and had a history of 2 prior vaginal deliveries. Over the two (2) years prior, the patient presented multiple times with heavy uterine bleeding, which had steadily worsened over time. Pelvic ultrasound demonstrated a 10-week sized globular uterus, with mildly thickened endometrium, suspicious for adenomyosis. No adnexal pathology was noted. Medical management failed to control her symptoms, and she required admission for blood transfusion on prior occasions, with an acute on chronic anemia. On her most recent admission, approximately 3 months prior to her surgery, her hemoglobin dropped to a low of 3g/dL. She underwent two hysteroscopies with dilation and curettage procedures, with benign endometrium reported on each occasion. Due to the severity of bleeding and the failure of medical management, a shared decision was made to proceed with a total laparoscopic hysterectomy, with bilateral salpingo-oophorectomy (removal of uterus, cervix, fallopian tubes and ovaries) after medical optimization.

On the day of surgery, patient was prepped and draped in normal sterile fashion. A uterine manipulator with colpotomy cuff was placed and abdominal access was obtained via Veress needle insufflation through the umbilicus. A 12mm port was placed through the umbilicus, the laparoscope was introduced and the pelvis inspected. Intraoperative findings were notable for a mobile globular uterus with normal ovaries bilaterally. At this time, the decision was made to place a single 5mm suprapubic port

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for the hysterectomy. Bipolar coagulation was used to ligate and transect the round ligaments bilaterally. A bladder flap was then developed and the bladder displaced caudad. The infundibulo-pelvic ligaments were identified, ligated and transected. The ureters were identified bilaterally and care taken to avoid injury. At this time, the uterine vessels were identified laterally, skeletonized, and ligated using bipolar energy. Again, care was taken at this point to avoid injury to the ureters **(Figure 1)**.

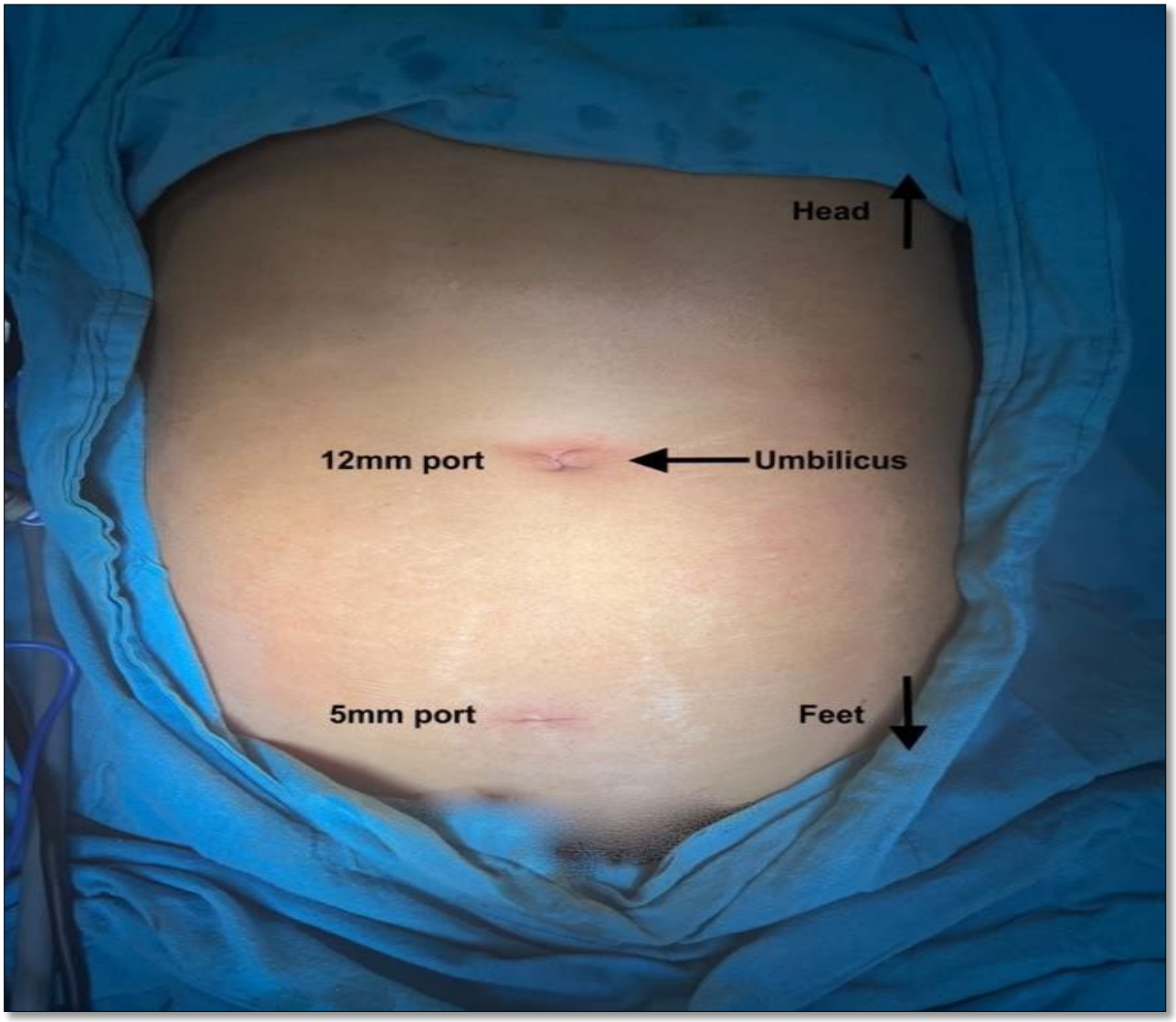

Figure 1. A post-operative view of the abdomen, showing port placement sites for this procedure. A 12mm umbilical port was used for a 10mm laparoscope, and a 5mm suprapubic instrument port.

Once these steps were accomplished, a colpotomy was created vaginally. The uterosacral ligaments and cardinal ligaments were clamped, transected, and suture ligated vaginally. The uterus, cervix, tubes and ovaries were then delivered intact vaginally. The vaginal cuff was closed with a running suture, and fixed to the uterosacral ligaments in a modified McCall's culdoplasty procedure, to provide vaginal apical support. At this time, the pelvis was irrigated and suctioned, hemostasis confirmed and all instruments were removed from the abdomen. Cystoscopy was performed and bilateral ureteral jets were noted. The ports were removed and closure was accomplished in routine fashion. Estimated blood loss for the procedure was approximately 10ml. Post-operatively, the patient reported minimal pain, met all post-operative milestones, and was discharged from hospital after 6 hours of monitoring. Final pathology significant for an enlarged, benign fibroid uterus, with dimensions 8cm x 7.5cm x 6 cm and a weight of 240 grams.

DISCUSSION

Worldwide, there is an increasing trend towards minimally invasive surgical approaches, as there are significant benefits

to the patient in terms of pain control and decreased postoperative opioid use, faster return to function, improved cosmesis, shorter hospital stays and decreased blood loss and adhesion formation. In our setting, the majority of hysterectomies continue to be performed via the abdominal route. Though a commonly cited contraindication to minimally invasive approaches is an enlarged uterus, this case demonstrates the feasibility of a laparoscopic hysterectomy performed, with just two (2) ports, for an enlarged fibroid uterus. There are many techniques to extract the specimen, either via the abdominal incisions or vaginally. Our preferred approach, when necessary, is to perform intracorporeal morcellation within a specimen bag. This reduces the risk of bowel injury during the morcellation process, and prevents potential spread of tissue in the abdomen in cases of undiagnosed malignancy [6].

While the application of laparoscopic techniques for hysterectomy are medically safe, and feasible within our setting, there is the drawback of increased operative cost. This has been shown to be offset by the decreased length of stay within the hospital [7]. However, these comparisons are often generated in the US and other first world systems - local studies would be needed to assess the cost differences and feasibility within our local setting. One significant barrier to widespread implementation of laparoscopic approaches locally is lack of exposure for local trainees in gynecology. Implementation of a minimally invasive surgical curriculum at the trainee level can help improve access for women to these beneficial approaches.

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