Simultaneous Extraperitoneal Laparoscopic Radical Prostatectomy and Intraperitoneal Inguinal Hernia Repair With Mesh

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ABSTRACT

Objective: This report depicts the feasibility of the concomitant repair of a large direct inguinal hernia with mesh by using the intraperitoneal onlay approach after extraperitoneal laparoscopic radical prostatectomy.

Methods: A 66-year-old man with localized adenocarcinoma of the prostate was referred for laparoscopic radical prostatectomy. The patient also had a 4-cm right, direct inguinal hernia, found on physical examination. To minimize the risk of infection of the mesh, an extraperitoneal laparoscopic prostatectomy was performed in the standard fashion after which transperitoneal access was obtained for the hernia repair. The hernia repair was completed by reduction of the hernia sac, followed by prosthetic mesh onlay. In this fashion, the peritoneum separated the prostatectomy space from the mesh. A single preoperative and postoperative dose of cefazolin was administered.

Results: The procedure was completed with no difficulty. Total operative time was 4.5 hours with an estimated blood loss of 450 mL. The final pathology revealed pT2cN0M0 prostate cancer with negative margins. No infectious or bowel complications occurred. At 10-month follow-up, no evidence existed of recurrence of prostate cancer or the hernia.

Conclusion: Concomitant intraperitoneal laparoscopic mesh hernia repair and extraperitoneal laparoscopic prostatectomy are feasible. This can decrease the risk of potential infectious complications by separating the mesh from the space of Retzius where the prostatectomy is performed and the lower urinary tract is opened.

Key Words: Prostate, Laparoscopy, Inguinal hernia, Prostate cancer.

INTRODUCTION

It is estimated that 5% to 10% of patients who are candidates for radical retropubic prostatectomy have a concomitant inguinal hernia. The anatomic view and simultaneous repair of inguinal hernias during radical retropubic prostatectomy has been well described.1,2 Laparoscopic repair of inguinal hernias with mesh is also well described and can be performed safely and with a low recurrence rate.3,4 Both laparoscopic inguinal hernia and laparoscopic radical prostatectomy (LRP) can be performed in an extraperitoneal or transperitoneal fashion. Although rare, the possibility of exposure of the mesh to urinary extravasation and subsequent infection is a concern. Herein, we describe the technique of concomitant repair of a large inguinal hernia defect with mesh utilizing the intraperitoneal onlay approach (IPOM) in the same setting and immediately after extraperitoneal laparoscopic radical prostatectomy (EP-LRP).

CASE REPORT

A 66-year-old man with Gleason 7 (3+4) adenocarcinoma of the prostate was referred for laparoscopic radical prostatectomy. He had no major co-morbidities but complained of a bulge in his groin, which had been present for 5 years. The prostate specific antigen (PSA) was 9ng/dL, and digital rectal examination revealed an enlarged prostate with no nodules (clinical stage T1c.) The patient also had a 4-cm right direct inguinal hernia, found on physical examination. He was 6 feet tall and weighed 240 lbs. An extraperitoneal nerve-sparing laparoscopic prostatectomy and a bilateral pelvic lymphadenectomy were performed in the standard fashion with a 5-trocar approach. The space was developed with the Oval-Preperitoneal Distention Balloon (United States Surgical, Norwalk, CT). After 5 minutes, the balloon was removed, and the Blunt Tip Trocar with cuff (United States Surgical, Norwalk, CT) was introduced. Insufflation was carried out to 15 mm Hg under direct vision. A large hernia defect could be seen and contents could be easily reduced while the extraperitoneal insufflation pressure was maintained at 15 mm Hg (Figure 1). Large amounts of preperitoneal fat were encountered. The prostate was enlarged with a prominent median lobe, necessitating a wide bladder neck resection.

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and laparoscopic bladder neck reconstruction. Bilateral pelvic lymph node dissection was performed in the standard fashion. The specimen was extracted through an extension of the umbilical port. To minimize the risk of mesh infection, we elected to perform the hernia repair intraperitoneally. The blunt tip trocar with cuff was inserted and secured in the peritoneal space by dividing the posterior rectus sheet and peritoneum under direct vision. All other trocars were reinserted through the same skin incisions into the peritoneal cavity under direct vision. The hernia defect was visualized intraperitoneally (Figure 2).

The hernia sac was reduced. A 5-cm × 10-cm Gore-Tex mesh was laid on the defect to cover it completely. The mesh onlay was secured with the laparoscopic tack device Protac (United States Surgical, Norwalk, CT) to Cooper’s ligament, the rectus sheath, and laterally to the iliopubic tract (Figure 3). In this fashion, the posterior rectus sheet and peritoneum separated the space of Retzius from the mesh. A single preoperative and postoperative dose of cefazolin was administered.

Total operative time was 270 minutes. This included 225 minutes for the prostatectomy and 45 minutes for the hernioplasty. Estimated blood loss was 450 mL. The pelvic drain was removed on postoperative day 1, and the patient was discharged on postoperative day 3. The catheter was removed on postoperative day 10, as was routine for all our LRP patients at the time. The final pathology revealed pT2cN0M0 prostate cancer (Gleason score 4+4=8) with negative margins. Total urinary control was regained at 4 months postoperatively. At 10 months postoperatively, the PSA remained undetectable at <0.04 ng/dL, and the patient had no evidence of hernia recurrence, infection, or bowel obstruction.

**DISCUSSION**

The presence of inguinal hernias at the time of planned, radical retropubic prostatectomy is not uncommon. Choi et al. have described the technique of preperitoneal prosthetic mesh hernioplasty during radical retropubic prostatectomy and found it to be superior to the nonmesh technique with no significant complications. Recently, the laparoscopic approach to inguinal hernia repair has emerged as an acceptable alternative to the open ap-
Various techniques have been developed for the prevention of postoperative complications in laparoscopic procedures. Coupled with faster recovery and significantly lower recurrence rates, these techniques have become the procedure of choice for inguinal hernia repairs and prostatectomy. As with hernia repairs, laparoscopic prostatectomy can be performed in a transperitoneal or extraperitoneal approach. Stolzenburg et al., who have described their technique of extraperitoneal radical prostatectomy, recently reported their technique of simultaneous extraperitoneal laparoscopic hernia repair with mesh in 10 patients. No infectious complications occurred in this group. Allaf et al. have reported on a case where both operations were performed transperitoneally with no complications. Although reassuring, the theoretical risk of mesh infection resulting from a urine leak from the urethro-vesical anastomosis does exist. In addition, an external drain is routinely placed in the proximity of the anastomosis after a radical prostatectomy. Even after a watertight anastomosis is ensured, the possibility of prolonged drainage due to lymphorrhea, resulting from pelvic lymph node dissection always exits. The possible prolonged presence of an external drain, in the same space where a synthetic mesh is used can raise the stakes for foreign body colonization and infection.

The TAPP procedure is generally regarded as the laparoscopic procedure of choice for inguinal hernia repairs and is associated with minimal morbidity and low recurrence rates. In this operation, the parietal peritoneum and preperitoneal contents are dissected to expose the myopectineal orifice. After placement of the appropriate size mesh prosthesis, the peritoneal defect is re-approximated over the mesh. However, during transperitoneal LRP and pelvic lymph node dissection, there is wide dissection of the parietal peritoneum to mobilize the bladder. Attempts to retroperitonealize the mesh onlay are futile and not possible. This can leave the mesh in close proximity to the anastomosis and the pelvic drain.

We elected to perform the laparoscopic intraperitoneal mesh onlay inguinal hernia repair (IPOM) with Gore-Tex after an EP-LRP and lymphadenectomy in our patient. The IPOM method is easy to perform and is a viable alternative in this clinical scenario that ensures the separation of the prostatectomy space (space of Retzius) and the mesh by the posterior rectus sheet and peritoneum. No contact occurred between the mesh and the anastomosis or pelvic drain. The IPOM method is a simple procedure that can be used to cover large defects and to treat both direct and indirect hernias successfully. The downside of an intraperitoneal mesh onlayinguinal hernioplasty has been suggested to be bowel adhesions to the mesh, resulting in bowel obstruction or fistula formation. These complications are rare and decrease with surgical experience. We elected to use Gore-Tex, because the rate of adhesions has been found to be significantly less with its use while providing equivalent tensile strength compared with the strength of Marlex (polypropylene). Furthermore, intraperitoneal mesh onlay techniques are routinely used in laparoscopic ventral or umbilical hernia repairs. The larger risk for mesh hernioplasties is not bowel obstruction or fistula formation but potential infection in the setting of a clean contaminated case where the urinary tract is entered. Complications such as hematoma and seroma have been reported after open and laparoscopic inguinal hernia repairs. Coupled with lymphatic drainage and possibly urinary extravasation in the same space, infection of the prosthetic mesh can occur that can necessitate removal of the mesh.

Simultaneous EP-LRP and IPOM hernioplasty is a unique combination in the surgeon’s armamentarium to treat localized prostate cancer patients with concomitant inguinal hernias. As such, both surgical objectives can be attained efficiently in the appropriate patient with minimal morbidity.

**CONCLUSION**

Simultaneous EP-LRP and IPOM hernioplasty is a unique combination in the surgeon’s armamentarium to treat localized prostate cancer patients with concomitant inguinal hernias. As such, both surgical objectives can be attained efficiently in the appropriate patient with minimal morbidity.

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