REVIEWS

Deep Venous Thrombosis as a Complication of Reservoir Placement in Post-Prostatectomy Erectile Dysfunction and Urinary Incontinence Prosthetic Surgery

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ABSTRACT

Introduction: In 2014, most radical surgery for carcinoma of the prostate, and often the bladder, is done with the robotic-assisted laparoscopic approach. While proponents argue that nerve sparing, blood loss, and recovery times are improved with the robotic-assisted approach, changes in postoperative pelvic anatomy have made subsequent placement of inflatable devices for erectile dysfunction and incontinence more difficult. Because of the obliteration of the space of Retzius and opening of the peritoneum, the classic placement of the reservoirs of these devices is compromised.
Aim: Ectopic reservoir placement has attempted to alleviate these problems, but reservoir migration and problematic locations of these reservoirs persist.
Method: We report two cases of deep venous thrombosis after reservoir placement for inflatable prosthetic devices.
Main Outcome Measure and Results: Patients may manifest these placement problems with symptoms of vascular compromise postoperatively.
Conclusion: Early identification and reservoir relocation can eliminate the vascular issues and maintain inflatable device function. **Selph JP, McKim SE, Langston JP, and Carson CC. Deep venous thrombosis as a complication of reservoir placement in post-prostatectomy erectile dysfunction and urinary incontinence prosthetic surgery. Sex Med Rev 2014;2:59–63.**

Key Words: Erectile Dysfunction; Deep Venous Thrombosis; Urinary Incontinence Prosthetic Surgery

Introduction

Despite controversy in the United States about the role of prostate cancer screening, prostate cancer remains the most common non-skin solid organ malignancy in males. Various treatment options exist, but radical prostatectomy remains the pillar of surgical treatment for curative intent. While the anatomic radical retropubic prostatectomy (RRP) was first described by Walsh and Donker in 1982 [1], technological advancements have made robotic-assisted laparoscopic prostatectomy (RALP), the most common surgical treatment for prostate cancer in the United States [2]. Regardless of the technique, erectile dysfunction and urinary incontinence remain the most common and bothersome side effects of surgical treatment. For many years, inflatable penile prostheses (IPPs) and artificial urinary sphincters (AUSs) have provided improved quality of life for patients suffering from these side effects. Patient satisfaction after IPP placement is high, with 84–97% of patients recommending the surgery to others [3]. Recent population-based studies have shown that up to 4.8% of patients undergo surgery for post-prostatectomy incontinence [4,5], and AUS placement has shown success rates up to 90% [6].

While the traditional RRP is an extraperitoneal procedure, RALP is most commonly intra-

peritoneal, and obliteration of the space of Retzius can make reservoir placement during prosthetic surgery more difficult. Erosion into visceral structures, such as bowel and bladder, or vascular injury has been reported. A recent review of the published literature in the last 25 years by Levine and Hoeh revealed 18 reported cases of erosion into visceral structures, of which 12 patients had had either RRP, RALP, or cystoprostatectomy [7]. Vascular injury was noted in five patients, one of whom had previously undergone RRP.

We report two cases of venous thrombosis after prosthetic surgery: deep venous thrombosis (DVT) and pulmonary embolus after AUS placement, and a DVT after IPP placement.

Case 1

Patient 1 was a 59-year-old African American male who underwent an RRP for Gleason 7 prostate cancer in 2003. Postoperatively, he developed stress urinary incontinence (SUI) and erectile dysfunction. The patient elected to undergo AUS placement for his SUI. Intraoperatively, the pressure regulating balloon (PRB) was placed in the left paravesical space after puncturing the posterior wall of the inguinal canal through the external ring with a Kelly clamp. The device was left deactivated postoperatively per the standard routine. There was no indication of any complications during the procedure. On the morning of postoperative day 1, the patient complained of left lower extremity swelling. He was noted to have edema in his left leg from his inguinal ligament down to his mid-calf. Because of clinical concern for a DVT, he underwent lower extremity Doppler ultrasound that revealed an acute occlusion from his left common femoral vein down to the mid-popliteal vein. He was started on a heparin drip after these findings were noted. Shortly thereafter, he experienced an acute episode of hypoxia and tachycardia, and a computed tomography (CT) scan revealed bilateral pulmonary emboli. He quickly recovered from this event, and he was discharged 2 days later on a Lovenox bridge with plans to transition to Coumadin; however, 1 day after discharge, the patient experienced worsening swelling and pain in his scrotum that were felt to be consistent with a hematoma. He was readmitted for pain control and serial hemoglobins. His hemoglobin was noted to down trend from 14.4 g/dL immediately postoperative to 9.0 g/dL over several days. Because of concerns for persistent bleeding in the setting of his anticoagulation, he underwent a CT scan that showed not only a large scrotal hematoma but also compression of the left femoral vein by the PRB (Figure 1). The patient's anticoagulation was held and an inferior vena cava (IVC) filter was placed, and he was then taken to the operating room where his reservoir was repositioned in a midline subfascial location. Three days after surgery, his anticoagulation was restarted, and once his hemoglobin was stable and hematoma showed improvement, he was discharged to home. At last follow-up, he continues to take his Coumadin and his lower extremity swelling is resolving. His device was activated in clinic and is functioning normally.

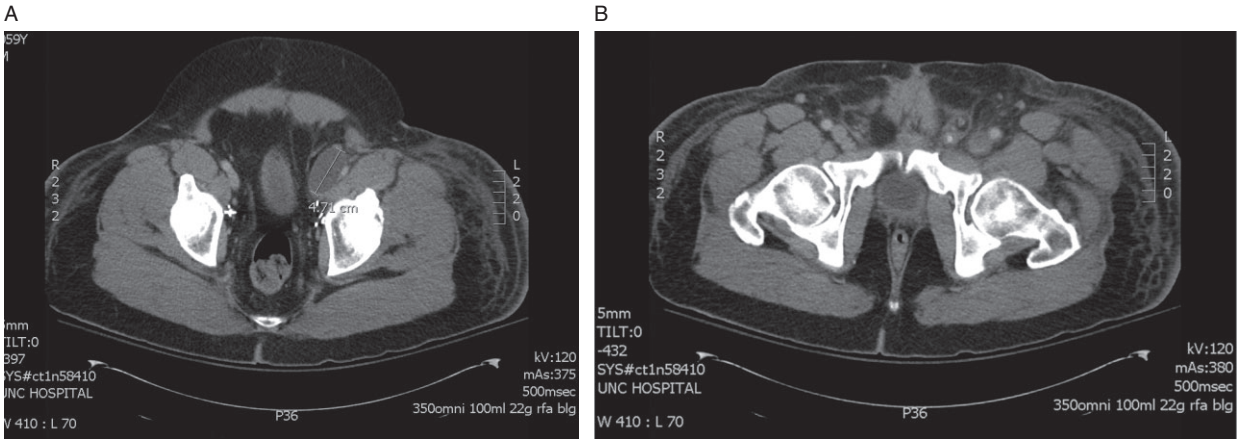

Figure 1 (A) The pressure regulating balloon is seen compressing the left femoral vein. (B) Note the dilation of and hypodense clot within the left femoral vein.