Prostate cancer • High-intensity focused ultrasound • Salvage therapy

Abstract
High-intensity focused ultrasound can be used for the primary treatment of prostate cancer and biochemical recurrence after radical prostatectomy or radiation. Complications of high-intensity focused ultrasound include urinary retention, urethral stenosis, stress incontinence, urinary tract infections, dysuria, impotence, and rarely, rectourethral or rectovesicular fistula. We describe a patient presenting with urinary retention, urinary tract infections and intermittent stress incontinence, later found to be associated with pubic bone osteomyelitis stemming from a prostatopubic fistula.

Case Report
A 72-year-old Caucasian male with Gleason 6 prostate cancer underwent intensity-modulated radiation therapy (IMRT) as primary treatment in June 2005. The patient responded successfully to IMRT arriving at a prostate specific antigen nadir of 0.40 ng/ml by December 2007.

During routine post-IMRT surveillance, our patient developed biochemical recurrence as defined by the Phoenix criteria in November 2009. The patient elected to undergo HIFU therapy as a salvage procedure for his recurrent prostate cancer in January of 2010. The procedure was well tolerated, however, once the suprapubic catheter was discontinued the patient experienced urinary retention, requiring intermittent catheterization. Cystoscopy revealed a significant amount of sloughed prostatic tissue invading the lumen of the prostatic urethra. The patient elected to under-
Discussion

HIFU is a treatment modality that is implemented in salvage therapy for recurrent localized prostate cancer. Strong ultrasound waves are generated by a transducer that focuses this energy into a discrete focal point. The tissue absorbs this energy with temperatures exceeding 80°C [4]. HIFU leads to destruction of the focused area of prostatic tissue through coagulative necrosis with minimal damage to adjacent tissue. HIFU is also used for complete prostate ablation. Currently, there are 2 different HIFU device models on the market; The Ablatherm® produced by EDAP TMS and the Sonoblade 500 by Focus Surgery.

The documented complications of HIFU, according to the European Multicentre Study (Thuroff et al. 2003), include impotence (of patients potent preoperatively, 35%), mild-moderate incontinence (14%), UTIs (13.8%), prolonged retention (9%), urethral stenosis (3.6%), severe incontinence (1.5%) and rarely rectourethral fistula (1.2%) [2, 5, 6]. Our patient experienced several of these complications including urinary retention from prostatic slough, urethral stricture, severe stress incontinence and multiple UTIs. Previously unknown in contemporary literature, we describe development of a prostatopubic fistula resulting in pubic osteomyelitis after salvage HIFU.

Initially the patient presented with multiple UTIs, urinary retention mixed with severe stress incontinence and occasional suprapubic discomfort. Infectious disease concluded that the prostatic bed remained infected months after salvage HIFU. Prostatopubic fistula formation can be attributed directly to the inflammatory nature of HIFU leading to infection. The endoscopic and open manipulation of the genitourinary tract the patient underwent due to HIFU complications could have also been a nidus for fistula formation. Debridement of the infected pubis led to the discovery of the prostatic roof articulating with the pubic bone and subsequent fistula formation between the structures. With the patient’s history of chronic UTIs, stress incontinence, and culture positive pubic bone osteomyelitis, a bladder neck closure with omental flap interposition was performed.

Osteomyelitis of the pubic bone was our top differential diagnosis for our patient’s occasional complaints of suprapubic discomfort and groin pain. Current literature states that osteomyelitis can be transmitted through exogenous routes such as infected local tissue comparable our patient’s prostatic fossa [7]. Diagnosis is often delayed in osteomyelitis of the pubic bone because of its rare occurrence and similarity to osteitis pubis which is solely an inflammatory disease [8]. This case report identifies osteomyelitis of the pubic bone as a rare, but potentially significant, complication of salvage HIFU therapy for prostate cancer.
References


