CASE REPORT

An unusual cause of retention of urine after intravesical Bacillus Calmette-Guérin therapy for superficial bladder cancer

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We report an unusual complication of intravesical Bacillus Calmette-Guérin therapy for superficial bladder cancer, namely, retention of urine secondary to prostatic Bacillus Calmette-Guérin infection and abscess. A summary of the literature together with a review of its management is discussed.

Introduction

With the increasing utilisation of intravesical Bacillus Calmette-Guérin (BCG) for superficial bladder cancer, the incidence of related complications is expected to be rise. We report an uncommon complication of the procedure, namely a prostatic abscess, which gave rise to retention of urine. We briefly review the literature and management of this condition.

Case report

A 71-year-old man with good past health presented with few weeks' history of painless gross haematuria, and was diagnosed to have multiple bladder cancers with maximum size of about 4 cm. Subsequent work-up revealed no upper urinary tract lesion or distant metastasis. A complete transurethral resection of the bladder tumour (TURBT) was performed. Pathology confirmed non-muscle invasive, grade-III transitional cell carcinoma. A second-look possible TURBT performed 1 month later showed no evidence of residual tumour in the scar tissue. In view of high risk of tumour recurrence, intravesical BCG (81 mg Connaught) therapy was given. The regimen included 6-weekly induction courses, followed by 10-monthly maintenance doses, which was a regimen used at our institute for over 20 years.[1] The first induction dose was given 4 weeks after the second-look TURBT, following which there were no major complaints. No tumour recurrence was detected at the 3-month and 6-month surveillance cystoscopy.

However, the patient was admitted to the hospital 1 week after the sixth-month maintenance dose of intravesical BCG, owing to acute retention of urine (AUR) with a residual urine volume of 1400 mL. Except for the mild irritative lower urinary tract symptoms encountered after every BCG instillation, there was no other increase in voiding symptoms. He was afebrile, and abdominal and neurological examination yielded nil abnormal.

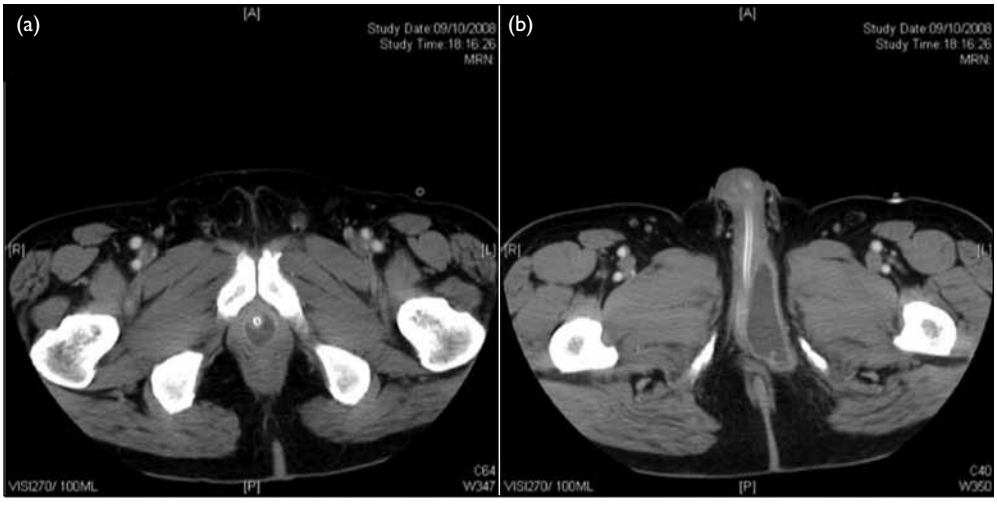

FIG. (a) Prostatic abscess at the apical region of prostate surrounding the urethral catheter and (b) abscess extended into the perineum

Key words
Administration, intravesical; BCG vaccine; Prostatic diseases; Urinary bladder neoplasms

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Digital rectal examination revealed a moderately enlarged prostate with no abnormal consistency or tenderness. Urine culture was negative. Clinically he was diagnosed to have AUR secondary to benign prostate hyperplasia. Alfuzosin 10 mg once daily was prescribed after which he could void successfully when the catheter was removed 2 days later.

He developed AUR again 2 days after discharge. In view of repeated failed trials of catheter removal, he was managed with a temporary urethral catheterization and planned for transurethral resection of the prostate. Five days after the second AUR however, he complained of increasing perineal discomfort and also a swelling over the perineum and urethra. He was afebrile, but a fluctuating mass was found over the posterior part of scrotum and perineal region. Digital rectal examination revealed mild tenderness over the prostate. Computed tomography of pelvis showed a rim-enhancing fluid collection, measuring 6.3 x 2.1 x 4.3 cm, deep in the left perineal region, which extended into the infero-posterior aspect of prostate and surrounded the prostatic part of urethra (Fig). There was no evidence of infection at other sites. Ultrasound-guided transperineal aspiration was performed and 25 mL of pus was aspirated. Microbiological examination of the aspirate revealed acid alcohol fast bacilli on Ziehl-Neelsen stain and acid-fast bacilli culture. The patient was then placed on a four-drug anti-mycobacterial therapy with rifampicin, isoniazid, pyrazinamide, and ethambutol. Repeated ultrasound assessments and aspirations were performed weekly thereafter. The collection had largely subsided after four sessions of weekly aspirations. He could resume usual voiding 8 weeks after the initial aspiration, without the use of alpha-blocker. Besides the BCG prostatic abscess, there was no evidence of other BCG- or mycobacteria-related symptoms or complications, such as chest discomfort, chest X-ray changes, and upper urinary tract abnormality. The patient has no significant past medical condition or possible underlying abnormality, such as diabetes or other immuno-compromising disorder, which may have predisposed to the development of this condition.

Subsequently, he completed a 1-year course of anti-mycobacterial therapy. Intravesical BCG therapy was withheld. Follow-up 24 months after initial TURBT revealed no tumour recurrence. There was also no urethral stricture detected during surveillance cystoscopies and his voiding remains satisfactory without using an alpha-blocker.

因淺表型膀胱腫瘤而接受膀胱內灌注卡介苗後出現罕見的尿瀦留

本文報告一宗膀胱內灌注卡介苗的罕見併發症。病人有淺表型膀胱腫瘤，接受膀胱內灌注卡介苗後，出現前列腺卡介苗感染及膿腫，繼發尿瀦留。本文進行文獻回顧，並探討關於此病的醫治方法。

Discussion

We report an uncommon complication of intravesical BCG therapy, namely: prostatic abscess formation (Table).[2-4] The presentation of our patient differed from these cases, as he developed recurrent AUR and then perineal swelling. We postulate that the initial AUR might be due to BCG-related prostatitis (granulomatous prostatitis), causing prostatic swelling and hence retention of urine.[5] The condition was then complicated by abscess formation, which extended into the perineum. The presence of an indwelling urethral catheter may have facilitated abscess formation by blocking the prostatic ducts. In patients who have received intravesical BCG therapy, this unusual cause of AUR should be considered. The avoidance of prolonged urethral catheterization may decrease the risk of abscess formation. Making

TABLE. Characteristics of some of the reported cases of prostatic abscess after intravesical Bacillus Calmette-Guérin (BCG) therapy[2-4] and our case*

Authors	Age at presentation (years)	Sex	Tumour grading	BCG strain and dosage	Timing	Clinical presentation
Matlaga et al[2]	47	M	Grade-3 TCC with CIS	81 mg Connaught strain	During the 6-monthly maintenance course in the 4th year after initial transurethral resection	Initially perineal pain and then developed sign of sepsis
Aust and Massey[3]	63	M	Grade-3 TCC	81 mg BCG-Medac (RIVM) strain	After the 5th dose of weekly induction course	Initially perineal pain and then abscess formation
Caulier et al[4]	57	M	CIS	Information not available	After the 6th dose of weekly induction course	Presented with perineal pain and diagnosed to have prostatic abscess by CT scan
Present case	71	M	Grade 3 TCC	81 mg Connaught strain	After 6-weekly induction and 6-monthly maintenance doses	Repeated retention of urine and then perineal swelling and discomfort

* TCC denotes transitional cell carcinoma, CIS carcinoma in situ, and CT computed tomography

a diagnosis of granulomatous prostatitis is always a challenge. In patients with signs of sepsis, and a tender and irregular prostate on digital rectal examination, the diagnosis of prostatitis may become more obvious. For asymptomatic patients, transrectal ultrasound-guided biopsy may be necessary to confirm the diagnosis.[6]

In previously reported cases, the prostatic abscesses were managed surgically either by an open[2] or transurethral approach.[3] However, Barozzi et al[7] reported the feasibility of percutaneous aspiration for tuberculous prostatic abscess, which is associated with less morbidity. We adopted a similar approach, as our systemic symptoms were relatively lacking in our patient. Despite the need for repeated aspirations, the clinical condition remained under control without evidence of deterioration, and the procedures were well-tolerated.

One of the initial concerns during our management was the risk of urethral stricture, as mycobacterial infection may lead to scar formation. After following up for more than 2 years however, cystoscopic surveillance yielded no evidence of urethral stricture formation in the prostatic and bulbar urethral region.

Intravesical BCG therapy is now one of the most commonly used adjuvant regimens for patients suffering from superficial bladder cancers.[8] However, its complication rate is much higher than that of intravesical chemotherapy, and very few patients can complete the proposed 3-year maintenance course.[5,8] Suggested solutions to minimise the complications include the use of low-dose BCG which provides similar efficacy in preventing tumour recurrence with fewer complications.[8] Age is another consideration, as Heiner and Terris[9] reported the risk of complications with intravesical BCG therapy to be much higher in patients age 70 years or older, being 49% versus only 18% in younger patients. They went on to suggest that maintenance BCG therapy be given with caution in patients older than 70 years and avoided altogether in those older than 80 years.[9] Our patient was 71 years old when he started the intravesical BCG therapy, whilst the other two reported cases in the literature were younger than 70 years. Nevertheless, intravesical BCG therapy should be used with caution in the elderly and bearing in mind a high index of suspicion for BCG therapy–related complications when confronted by any clinical problem. As in our patient, early prostate imaging (by ultrasound or computed tomography), together with prostatic biopsy, may allow earlier diagnosis of granulomatous prostatitis and avoid formation of an abscess.

Bacillus Calmette-Guérin prostatic abscess is an uncommon complication related to intravesical BCG therapy for treating superficial bladder cancers. Its increasing utilisation as adjuvant therapy for bladder cancer may lead to an increased incidence of this condition. Early recognition and repeated imaging-guided percutaneous drainage may facilitate satisfactory outcomes.

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