Urology Case Reports 26 (2019) 100925

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Oncology

BCG orchitis

Joseph Cutrone[a,*], James J. Siegert[a,b,c]

[a] Midwestern University, Downers Grove, IL, USA
[b] Franciscan St. James Health, Olympia Fields, IL, USA
[c] Specialty Physicians of Illinois, Olympia Fields, IL, USA

A B S T R A C T

Intravesical immunotherapy with Bacillus Calmette-Guerin has been shown to decrease tumor recurrence and progression in urothelial carcinoma of the bladder. Its ubiquitous use is further substantiated by its low rates of complications. Our patient is a 63 year old male with a circuitous medical course who presents with epididymoorchitis and scrotal abscess after his second three week cycle of maintenance BCG prompting scrotal exploration which revealed a non-viable testicle and large scrotal induration with abscess. Pathological analysis and initial cultures were negative for mycobacterium but acid-fast cultures eventually demonstrated mycobacterium three months later.

Introduction

The American Cancer Society estimates that in the United States there will be 81,190 new cases of bladder cancer with an estimated 17,240 deaths in 2018. Intravesical BCG is FDA approved and part of the American Urological Association and National Cancer Comprehensive Network's guidelines for the treatment of intermediate and high-risk non-muscle invasive bladder cancer with well-established decreases in recurrence and progression. The attenuated virus activates the Th-1 immune system leading to T-cell attack of abnormal urothelium with a direct inhibitory effect on tumor cell invasion through increases interferon-γ and IL-2 which up-regulate natural killer cells.[1–5]

Side effects are categorized as local, inflammatory, or infectious. Local is the most common and is described as cystitis-like irritative voiding symptoms. These symptoms usually occur after the third instillation due to a proposed maximal lymphokine release after the third dose of BCG. Inflammatory side effects are described as flu-like symptoms with low-grade fever. The likelihood of inflammatory toxicity may increase with increasing exposure. Infectious side effects is described as high fevers or shaking chills consistent with systemic absorption and is attributed to a type-IV delayed hypersensitivity reaction. BCG sepsis has a mortality rate of one death for every 12,500 patients treated with intravesical BCG.[1–5]

Local side effects are more common and present in approximately 35% of patients with more serious major adverse reactions occurring in less than 5%. The reported rate of granulomatous prostatitis is approximately 14%. This may be an underreported side effect due to its frequently asymptomatic course. Its more infrequent counter-part is granulomatous orchitis with a reported rate of 0.4%.[1–5]

Case report

A 63 year old male presented to the emergency department with left scrotal swelling, drainage, and pain for one week. He has a past medical history of paroxysmal atrial fibrillation, hypertension, and multiple bilateral stable pulmonary nodules. He has a 40pack year smoking history.

He has a history of intermediate risk urothelial bladder cancer and numerous bilateral renal cysts. He completed six weeks of induction therapy and follow-up cystoscopy was negative for recurrence. Three weeks later he underwent a left laparoscopic renal cyst decortication. Following surgery, maintenance therapy was initiated. He completed two weeks of his first cycle of maintenance BCG before suffering a myocardial infarction requiring bare metal stent placement. Three months later, follow up cystoscopy was negative, but he complained of a dull right testicular pain consistent with epididymitis. He was treated with ciprofloxacin and a Medrol dose back with improvement in symptoms. One month later he was started on his second cycle of maintenance BCG therapy and completed the full three week regimen. Three weeks after completing his second course of maintenance therapy he began to complain of left scrotal pain and swelling. He was started on ciprofloxacin but his symptoms did not improve and a week later he presented to the emergency department.

Scrotal ultrasound demonstrated “a complex heterogenous collection in the soft tissues of the left hemiscrotum with significant hyperemia and internal reflectors within the collection suggesting foci of gas consistent with scrotal abscess as well as a large left reactive hydrocele” shown in Fig. 1. He was brought to the operating room for left scrotal exploration. Intraoperatively the large phlegmon in the left scrotum

* Corresponding author.
E-mail address: jcutrone35@midwestern.edu (J. Cutrone).

https://doi.org/10.1016/j.eucr.2019.100925
Received 19 April 2019; Accepted 28 May 2019
Available online 29 May 2019

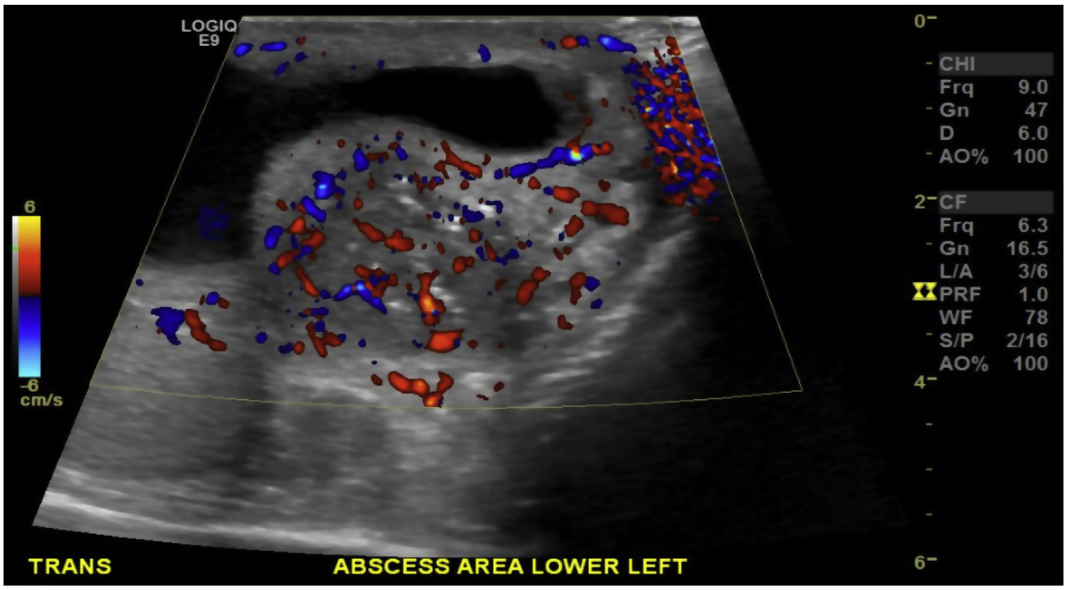

Fig. 1. Doppler ultrasound of scrotum, left testicle.

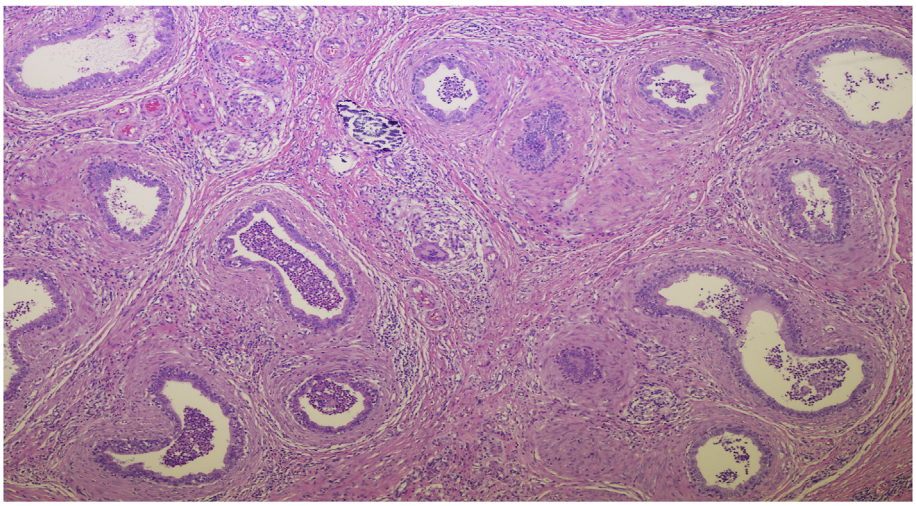

Fig. 2. Histologic evaluation of pathologic specimen (left testicle).

was incised and grossly purulent drainage followed. The large left hydrocele was incised and ~300ml of straw-colored fluid was drained. The testicle was markedly atrophic and hyperemic with a non-viable epididymis and a simple orchiectomy was performed and sent for pathological analysis. Meticulous hemostasis was obtained and a penrose drain was placed. He was discharged the next day on Bactrim after his penrose drain was removed with minimal recorded output. On follow-up two weeks later the patient complained of persistent left scrotal drainage and swelling with moderate discomfort that was consistent with a hematoma. Blood and abscess cultures were negative to date. Pathological analysis of the left testis demonstrated marked inflammation with multinucleated giant cells consistent with granulomatous inflammation with foci of necrosis with abscess formation shown in Fig. 2. Specimen was negative for mycobacteria. The patient was told to continue Bactrim with one week follow up. Four days later he presented to the emergency department with purulent, malodorous drainage from the left scrotum. Scrotal ultrasound demonstrated a left scrotal abscess. A bedside incision and drainage was performed. He followed up in clinic one month later for a surveillance cystoscopy that was negative.

Discussion

The use of intravesical BCG has invariably upheld its utility since it was first used for urothelial cell carcinoma of the bladder in 1972 due to its efficacy and tolerability. Granulomatous epididymoorchitis is a rare adverse reaction to intravesical BCG.[1–5] Our patient initially had bacterial epididymoorchitis of the right testicle following his NSTEMI and bare metal stent placement that resolved with Ciprofloxacin. Two weeks later his second course of maintenance therapy was initiated and it was completed without a reported problem. A month later he developed left scrotal tenderness that also appeared bacterial in origin but required surgical resolution with orchiectomy due to abscess formation. Our patient has persistently smoked during this course and it may have potentiated his risk for an adverse event. His infected hematoma on post-operative day 16 is likely related to the patient's dual anti-platelet therapy and resolved with bedside incision and drainage. The patient may have also been at increased susceptibility for side effects due to major laparoscopic surgery and an NSTEMI complicating his maintenance BCG course. These events may have altered the patient's immune system due to a somewhat persistent systemic stress lending to increased local side effects which may explain the reason for this

patient's rare presentation of BCG orchitis.

Conclusion

Epididymo-orchitis secondary to BCG is remarkably rare but should be part of the differential of scrotal pain in any patient who has received intravesical BCG as the presentation is often delayed. Although the patient's initial scrotal pain was right sided and resolved with empiric treatment, initiation of anti-tuberculosis therapy may have protected the patient's left testicle from ensuing infection.

References

1. Colomba C, Carlo PD, Guadagnino G, et al. A Case of Epididymo-orchitis after intravesical bacille Calmette-Guérin therapy for superficial bladder carcinoma in a patient with latent tuberculosis infection. *Infect Agents Cancer.* 2016;11(1) https://doi.org/10.1186/s13027-016-0072-y.
2. Demers V, Pelsser V. "BCGitis": a rare case of tuberculous epididymo-orchitis following intravesical Bacillus Calmette-Guérin therapy. *J Radiol Case Rep.* 2012;6(11) https://doi.org/10.3941/jrcr.v6i11.1100.
3. Klebanov N, Raghavan A. Tuberculous orchitis following intravesical bacille calmette-guérin (BCG) therapy. *Cureus.* 2018. https://doi.org/10.7759/cureus.2703.
4. Menke JJ, Heins JR. Epididymo-orchitis following intravesical Bacillus calmette–guérin therapy. *Ann Pharmacother.* 2000;34:479–482 doi:10.1345/1542-6270(2000)034 < 0479:eofibc > 2.3.co;2.
5. Parker S, Kommu S. Post-intravesical BCG epididymo-orchitis: case report and a review of the literature. *Int J Surg Case Rep.* 2013;4(9):768–770. https://doi.org/10.1016/j.ijscr.2013.05.017.