2024 19-21 GIUGNO ROMA
UNIVERSITA' CATTOLICA DEL SACRO CUORE CENTRO CONGRESSI EUROPA
Promosso da SIMIT
RESEARCH and CARE: FROM BENCH, TO BEDSIDE, TO COMMUNITY
16° CONGRESSO NAZIONALE ICAR Italian Conference on AIDS and Antiviral Research
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POSTER 4 YOU ICAR 2024

Periaortic BCGite in HIV

L.Abbate 1, T.Tibidò 1, M.Casarini 1, D.Marzolla 1, G.Martelli 2, A.Rubin 2, E.Magistrelli 2, G.La Martire 2, F.Cristini 2, L.L.Van Duffel 2

Background

Infection with Bacillus Calmette-Guérin (BCG, a live attenuated strain of Mycobacterium bovis) is a rare complication of intravescical administration of BCG, applied as treatment for non-muscle invasive bladder cancer.

The adverse effects of intravesical BCG therapy are classified as local (anywhere in the genitourinary tract because of the presence of BCG in the urine, 60 %) or systemic. Systemic effects (30%) manifest when BCG disseminates to other sites by the bloodstream, most commonly manifestations are: pulmonary tract, musculoskeletal, hepatic, vascular.

A definitive diagnosis of BCG-itis is based on evidence of active infection with positive culture of bodily fluids and/or tissue from involved sites.

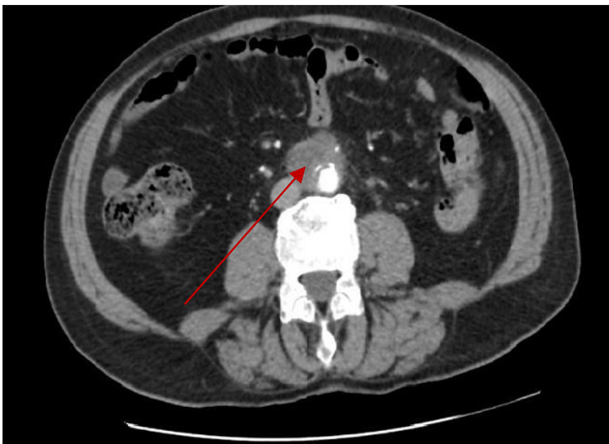
Site	Complication
Local	
Bladder	Cystitis (chemical or bacterial)
	Bladder contracture
Prostate	GP*
	Prostate abscess
Scrotum	Granulomatous epididymo-orchitis
	Testicular abscess
Upper urinary tract	Pyelonephritis or renal abscess
	Renal granuloma
	Ureteral stricture
Penis	Balanitis
Systemic	
Musculoskeletal	Spondylodiscitis
	Intramuscular abscess
	Infected hardware
Vascular	Mycotic pseudoaneurysm
Pulmonary	Pneumonitis
Hepatic	Granulomatous hepatitis
Lymphatic	Granulomatous lymphadenitis
Peritoneal	Peritonitis
Ophthalmic	Choroiditis
Salivary	Parotitis
Multisystem	Sepsis

*GP = granulomatous prostatitis.

Case Report

A 70 year old man, with a history of HIV on ART with optimal immunological status and steady viral suppression.

After being diagnosed of non invasive papillary high grade urothelial carcinoma, he underwent a cycle of bladder instillations of BCG, completed in September 2023.



Since August 2023, he complained of remittent fever non responsive to broad spectrum antibiotics. Due to onset of abdominal pain, the patient was admitted in Infectious Diseases ward of Forlì Hospital (Emilia Romagna).

Abdomen CT scan: periaortic lesion, at the level of the fourth lumbar vertebra.

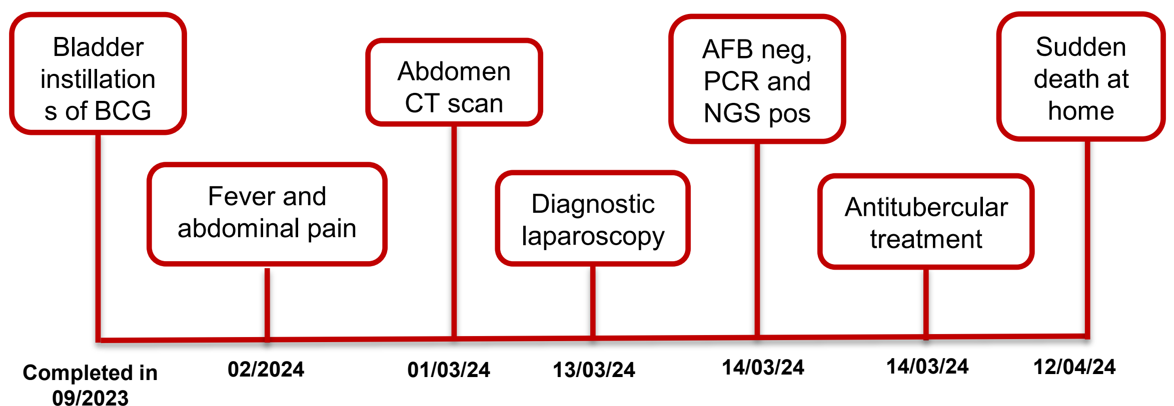
Acid fast bacilli (AFB) urine microscopy and Xpert MTB/RIF Ultra of urine were both negative.

Diagnostic laparoscopy: presence of colliquated lymph nodes. Performed standard culture and AFB were negative, but Xpert MTB/RIF Ultra turned out positive detecting a rifampin-sensitve strain. Furthermore, a next generation sequencing (NGS) also confirmed the presence of Mycobacterium tubercolosis complex.

Antitubercular treatment with rifampin, isoniazid and ethambutol was promptly started.

In a few days the patient showed clinical response to fever and abdominal pain. The patient is currently follow up in outpatient clinic with no complains and good tolerance of the treatment.

In April 2024 sudden death at home.



Conclusions

This case report shows:

- Aorta and in general vessels are very rarely described as sites of BCG-itis. A literature review (from 2012 to 2022) reported only 49 cases, with the typical presentation of abdominal and lumbar pain. Chronic fever after an history of BCG instillations must alert clinicians about mycobacteria infections, even when diagnosis is not immediately straightforward.
- The relevance of a target diagnostic surgery, that together with new microbiological rapid amplification techniques allowed a fast and prompt diagnosis. NGS is a new technology used for DNA and RNA sequencing and variant/mutation detection. NGS can sequence hundreds and thousands of genes or whole genome in a short period of time.
- It is hard to say if HIV infection played a role in our case, since immunological status was very good.

References

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2. Raíces Francisco N, Suárez Gil R BCGitis with aortoiliac aneurysm involvement: Report of two cases and review of the literature. Enferm Infecc Microbiol Clin (Engl Ed). 2024 Mar;