

Intravesical BCG Causing Bilateral Panuveitis and Optic Neuritis

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Abstract

We are reporting an interesting case of bilateral panuveitis with optic neuritis, after intravesical instillation of BCG. A 70 years old female developed eye changes post maintenance BCG for her Bladder cancer (Carcinoma in situ). After discussion with pulmonary team, it was decided not to start anti-TB medications and to treat her with oral steroids and topical steroids. There was a dramatic improvement in her vision six weeks after the treatment. These patients may have a good visual outcome, as long as the diagnosis and treatment are not delayed.

Keywords: Bladder cancer, intravesical BCG treatment, extra-renal tract complications

Introduction

Superficial bladder cancer has been successfully treated with intravesical Bacillus Calmette-Guerin (BCG). In particular carcinoma in Situ (CIS) which is a non-invasive subtype has shown a higher response rate and therefore prompted a more conservative approach to management.^{1?}

We are reporting a case of bilateral panuveitis with optic neuritis, after intravesical instillation of BCG. These patients may have a good visual outcome, as long as the diagnosis and treatment are not delayed.

Case report

A 70-year-old female was diagnosed with bladder CIS and completed a 6 weeks induction course of BCG intravesically. While she was on maintenance BCG, treatment had to be stopped due to bladder pain. One week after stopping the BCG, she also developed painful eyes for which she was referred to Ophthalmology.

On examination, her visual acuity was 6/18 in left and 6/9 in right. This has deteriorated in both eyes and dropped to 6/24 in the follow up visit. The conjunctiva was injected, and the cornea was swollen. Fundoscopy shows swelling of both optic nerve heads and there was left Vitreous haemorrhage. A diagnosis of bilateral panuveitis with optic neuritis was made.

Routine investigations included normal FBC, U&Es, LFTs and ESR. Her autoimmune and vasculitis screen was normal except for positive HLA B27 without symptoms and signs of arthritis. Total body CT showed no obvious malignancy. Repeat cystoscopy and biopsy showed post-inflammatory changes only.

After discussion with pulmonary team, it was decided not to start anti-TB medications and to treat her with oral steroids and topical steroids. There was a dramatic improvement in her vision six weeks after the treatment.

Discussion

BCG is a vaccine, prepared from live attenuated bovine tuberculosis bacillus. For intra-vesical use, it is injected via a catheter in the bladder, where it causes inflammation and increases natural killer cells via cell mediated immunity (T lymphocytes). These then recognise and destroy invading cells such as tumour cells in the bladder [Seal.JE].

Intravesical BCG complications include painful or difficult micturition, frequency, abdominal cramps and pains, with or without haematuria. Less serious side effects include mild nausea, stomach pain and loss of appetite, diarrhoea, constipation, pneumonia, hepatitis, renal masses, mild skin rash and dizziness.

In animal experiments [Rutgard J], there were cases of ocular melanoma, ocular squamous cell carcinoma and of ocular equine sarcoid. However intravesical BCG usage in humans is not commonly associated with ocular complications.

In a review of 1278 patients treated with intravesical BCG for bladder cancer, 95% had no serious complications and no reported ocular complications [Lamm DL]. There are reported cases of BCG induced enophthalmitis, and chorioretinitis developing between 6 months and 2 years post instillation [Hann DP]. Bilateral uveitis with optic nerve involvement secondary to BCG bladder instillations is very uncommon in the literature. [Hedge V]

It is impossible to definitively prove that intravesicular BCG has caused our patient's bilateral panuveitis and optic neuritis. However, the patient's HLA B27 positivity in the absence of arthritis makes the diagnosis in favour of BCG induced ocular changes. Unfortunately, little evidence is available on the intravitreal pharmacokinetics. Nevertheless, the patient was diagnosed and treated successfully without any delay.

Conclusion

Patients who present with bilateral panuveitis post intravesicular BCG will have a good visual outcome, as long as diagnosis and treatment are not delayed.

Medical practitioners and Urologists need to be aware of the potential for ocular complications of BCG intravesicular treatments and they should include this possibility in their procedural informed consent.

References

1. D.P.Han, Simons KB, C.N.Tarkanian, S.T.Moretti. Endophthalmitis from Mycobacterium bovis-bacille Calmette-Guerin after intravesicular bacilli Calmette-Guerin injections for bladder carcinoma. American journal of ophthalmology.1999 Nov; 128(5):648-50
2. D.L.Lamm. Carcinoma in situ. West Virginia University. Health Science sent Morgantown.Urol Clin North Am 1992 Aug; 19(3):499-508
3. D.L.Lamm, V.D.Stodgill, B.Stodgill.Complications of bacillus Calmette-Guerin immunotherapy in 1,278 patients with bladder cancer Urol 1986; 135:272-4.
4. J.E. Seal, C.W Aungst, T.Han. Effect of BCG on delayed hypersensitivity responses of patients with neoplastic disease. International J Cancer 1973; 12:242-9.
5. J.Rutgard, G.A.Peyman, M.Frenkel. Calmette-Guerin bacillus treatment of experimental conjunctival malignant melanoma. Arch Ophthalmology 1977; 95; 2214-2217.
6. V.Hegde, F.Dean.Bilateral panuveitis and optic neuritis following Bacillus Calmette-Guerin (BCG) vaccination. Acta Paediatrica volume 94(5) May 2005 , pages 635 – 636.

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