Bleomycin-based electrochemotherapy for the treatment of a Buschke-Löwenstein tumor (perianal giant condyloma) in an HIV-positive kidney transplant recipient: A case report

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Abstract. The Buschke-Löwenstein tumor (BLT), also known as giant condyloma acuminatum, is a rare sexually transmitted disease often associated with human papillomavirus types 6 and 11. There are no specific guidelines for treating BLT. Surgery is the preferred treatment, although it can have profound consequences on a patient's quality of life. A 41-year old male, who was HIV-positive and a kidney transplant recipient treated with cyclosporine, was referred to the Veneto Institute of Oncology (Soft-Tissue, Peritoneum and Melanoma Surgical Oncology Unit) after a two-year history of perianal warts that always relapsed after surgical treatment. A multidisciplinary evaluation was conducted to assess an individually tailored treatment plan. Tailored bleomycin-based electrochemotherapy (ECT) was proposed in order to achieve local disease control and preserve kidney function. A total of three cycles of ECT with a 25%-reduced dose of intravenous bleomycin (11,250 IU/m^2) were administered, and a complete response was achieved 20 months after the final ECT session.

Introduction

The Buschke-Löwenstein tumor (BLT), also known as giant condyloma acuminatum, is a rare sexually transmitted disease often associated with human papillomavirus (HPV) types 6 and 11 (1,2). Immunosuppression seems to play a significant role in the development of the disease (3). It is clinically characterized by a cauliflower-like mass in the anogenital region. Although BLT is regarded as a benign lesion, it may present locally destructive behavior and an elevated risk of malignant transformation towards squamous cell carcinoma (4). The treatment of BLT is still under debate: surgical resection with wide margins remains the gold standard because it significantly decreases the risk of disease recurrence. However, surgery can sometimes result in extensive resection, such as a penectomy or an abdominoperineal amputation, which can have a negative impact on the patient's quality of life. Other treatments include cryotherapy, laser vaporization, electrocautery, chemotherapy (podophyllin, 5 fluorouracil, bleomycin, and methotrexate), radiotherapy, and immunotherapy (intralesional injections of interferon and topical imiquimod) (5,6).

Case report

We present the case of a 41-year old immunocompromised male patient (HIV-positive and cyclosporine-treated kidney transplant recipient) who was referred to our institute after a two-year history (the patient was monitored every 50 days by the proctologist from August 2018 until January 2020) of perianal warts that always relapsed after surgical treatment. Clinical examination revealed a vegetating, non-ulcerated cauliflower-like mass with a cranio-caudal extension of 9 cm confined to the right gluteal region and no associated regional lymphadenopathy (Fig. 1A). Histologic findings were consistent with condyloma. Polymerase-chain-reaction assay for HPV DNA revealed the presence of both HPV types 6 and 11. Since wide surgical resection and the use of imiquimod were contraindicated by the patient's immunocompromised status, a multidisciplinary evaluation was conducted to assess an individually tailored treatment plan. In order to preserve kidney function (7), a tailored bleomycin-based electrochemotherapy (ECT) (IGEA Cliniporator®) was proposed to achieve local disease control. A first cycle of ECT using a 25%-reduced dose of intravenous bleomycin (11,250 IU/m^2) produced a partial response (clinical remission of 70% of skin lesions). After 30 days, the patient underwent a second ECT cycle with a 30%-reduced dose of intravenous bleomycin (10,500 IU/m^2), achieving an almost complete

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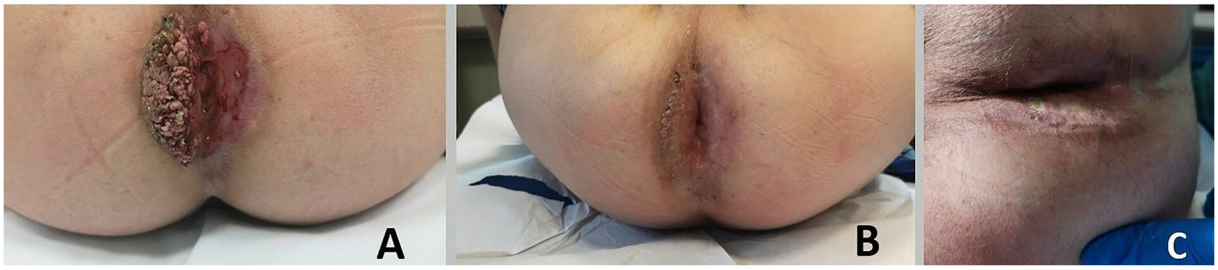

Figure 1. (A) Pre-treatment Condyloma. (B) Post-treatment Condyloma after 30 days from first ECT. (C) Post-treatment Condyloma after third ECT. ECT, electrochemotherapy.

response (Fig. 1B). A third session of ECT was administered after 10 months to consolidate the response (Fig. 1C). Periodic hematology tests and blood chemistries (complete blood count and differential, platelet count, electrolytes, and kidney and liver function tests) were performed in order to check for bleomycin toxicities. The patient is in complete response 20 months after the final ECT session.

Discussion

Due to its low incidence, there are no specific treatment guidelines for BLT. Surgery is the preferred treatment, although it can sometimes have profound consequences on a patient's quality of life. Imiquimod has been proposed as a potential effective treatment for BLT (8) and is also used to treat anal warts in HIV-positive patients. However, the safety and efficacy of immunomodulators, such as imiquimod, in immunocompromised patients have not yet been fully investigated. Furthermore, in Italy, immunomodulators are not approved for those patients, particularly organ transplant patients, receiving treatment with immunosuppressive drugs. ECT is a well-established treatment for many types of skin lesions. It consists of a combination of electroporation and chemotherapy. Electroporation enhances the cell membrane's permeability and facilitates the transport of generally poorly permeant chemotherapeutic agents, such as bleomycin, into cells. Intralesional injection of bleomycin has been reported as an effective and safe treatment method for warts (especially for palmoplantar and periungual warts) (9). Although the intralesional use of bleomycin associated with electroporation has been successfully used for the treatment of ungual warts (10), bleomycin-based ECT has never before been utilized to treat BLT. Furthermore, few reports describe the use of ECT in immunocompromised patients (11). ECT appears to be a safe and effective alternative treatment for BLT, which can be tailored to the patient's clinical and immune status. However, more studies are needed to assess the safety and efficacy of ECT in immunocompromised patients.

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Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Authors' contributions

FR, PDF, IR and CDP made substantial contributions to conception, design, acquisition/analysis of data and writing the manuscript. PDF revised the manuscript and provided general supervision. SM and MA acquired data, confirmed the authenticity of all the raw data and gave final approval for publication. All authors contributed to the review of the manuscript and have read and approved the final manuscript.

Ethics approval and consent to participate

The research was conducted ethically in conformity with the World Medical Association Declaration of Helsinki. Ethical approval for this case report is waived because the patient provided consent and the report contains nothing that may be considered a risk to patient privacy and integrity.

Patient consent for publication

The patient gave his written informed consent for the publication of this report and any accompanying images.

Competing interests

The authors declare that they have no competing interests.

References

1. Rimtebaye K, Danki Sillong F, Zarif Agah Tashkand A, Kaboro M, Niang L and Gueye SM: Buschke-Löwenstein tumor: A report on eight cases and review of literature. Afr J Urol 22: 319-324, 2016.
2. Braga JC, Nadal SR, Stiepcich M, Framil VM and Muller H: Buschke-Loewenstein tumor: Identification of HPV type 6 and 11. An Bras Dermatol 87: 131-134, 2012.
3. Atkinson AL, Pursell N and Sisay A: The giant condyloma (Buschke-Löwenstein tumor) in the immunocompromised patient. Case Rep Obstet Gynecol 2014: 793534, 2014.
4. Chu QD, Vezeridis MP, Libbey NP and Wanebo HJ: Giant condyloma acuminatum (Buschke-Lowenstein tumor) of the anorectal and perianal regions. Analysis of 42 cases. Dis Colon Rectum 37: 950-957, 1994.
5. Gholam P, Enk A and Hartschuh W: Successful surgical management of giant condyloma acuminatum (Buschke-Löwenstein tumor) in the genitoanal region: A case report and evaluation of current therapies. Dermatology 218: 56-59, 2009.

6. Jorgaqi E and Jafferany M: Giant condyloma acuminatum (Buschke-Lowenstein tumor): Combined treatment with surgery and chemotherapy. Dermatol Ther 33: e13193, 2020.
7. Rotunno R, Campana LG, Quaglino P, de Terlizzi F, Kunte C, Odili J, Gehl J, Ribero S, Liew SH, Marconato R, *et al*: Electrochemotherapy of unresectable cutaneous tumours with reduced dosages of intravenous bleomycin: analysis of 57 patients from the international network for sharing practices of electrochemotherapy registry. J Eur Acad Dermatol Venereol 32: 1147-1154, 2018.
8. Combaud V, Verhaeghe C, El Hachem H, Legendre G, Descamps P, Martin L and Bouet PE: Giant condyloma acuminatum of the vulva: Successful management with imiquimod. JAAD Case Rep 4: 692-694, 2018.
9. Marahatta S, Khadka DK, Agrawal S and Rijal A: Intralesional bleomycin for the treatment of resistant palmoplantar and periungual warts. Dermatol Res Pract: Oct 18, 2021 (Epub ahead of print).
10. Di Chiacchio NG, Di Chiacchio N, Criado PR, Brunner CHM, Suaréz MVR and Belda Junior W: Ungual warts: Comparison of treatment with intralesional bleomycin and electroporation in terms of efficacy and safety. J Eur Acad Dermatol Venereol 33: 2349-2354, 2019.
11. Colafigli M, Ciccullo A, Borghetti A, Fanti I, Melis F, Modica S, Uccella I, Bonadies A, Ferraresi V, Anzalone E, *et al*: Impact of antiretroviral therapy on the risk of recurrence in HIV-1 infected patients with kaposi sarcoma: A multicenter cohort experience. J Clin Med 8: 2062, 2019.