

superior to placebo and etanercept in reducing the PASI and improving the quality of life, while being a safe modality of treatment. Notably, the most common adverse events have been nasopharyngitis, headache, upper respiratory tract infection and diarrhea. Mild and transient neutropenia without associated infections has also been noted. Serious adverse effects observed were stroke and myocardial infarction.³

Secukinumab is a fully human monoclonal antibody that binds and neutralizes IL-17A. Failure of therapy with secukinumab has been reported and many such patients have been shifted to ixekizumab with good response, like in our case.⁴ Ixekizumab, like secukinumab, targets IL-17A with a difference that it is humanized rather than being fully human. This difference may account for its higher immunogenicity. Besides, ixekizumab shows higher affinity and stability to IL-17A than secukinumab.⁴ It has also been proposed that the two antagonists may be targeting different epitopes of IL-17, thus leading to variation in response.⁵ This might explain the response to ixekizumab in our patient who failed secondarily on secukinumab and for the faster onset of action with the former.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal the identity but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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Successful combined treatment of Buschke–Lowenstein tumor in anal canal with electroresection, photodynamic therapy and topical 5% imiquimod

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Sir,

Buschke–Lowenstein tumor was first described as an invasive and exophytic lesion on the penis in 1925.¹ During the past decades, Buschke–Lowenstein tumor on perineum, anus, and rectum have been reported. However, Buschke–Lowenstein tumor in anal canal has rarely been described. Herein we report a case of Buschke–Lowenstein tumor in anal canal treated with combination of electroresection, laser-mediated

photodynamic therapy, and topical 5% imiquimod cream. The lesions had resolved within 4 months of treatment. During the next 8-year follow-up, the patient remained symptom-free without any other complications.

A 24-year-old female visited our out-patient clinic 8 years ago, with a complaint of newly emerging giant warts located in anal canal and recurrent perianal lesions for 6 months. She

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had a history of anal sex with a male who had multiple sex partners. She had undergone 4 sessions of laser resection previously for her recurrent anogenital warts. Anal speculum examination revealed a bulky cauliflower-like condylomatous mass blocking the anal canal. Complete blood counts, liver and renal function tests were normal. Cellular immunity, assessed by the percentages of CD4+ and CD8+ T cells, CD19+ B cells and natural killer cells in blood, was normal.

Based on the history and clinical features, patient was diagnosed to have Buschke-Lowenstein tumor in anal canal. We resected the giant cauliflower-like lesion by electroresection under epidural anesthesia. The lesion was about 5 cm in diameter and was resected with a 5 mm healthy margin. [Figure 1].

Histopathological examination of the mass in the anal canal showed papillary proliferation with extensive acanthosis, parakeratosis, and vacuolization [Figure 2a]. With the positive immunohistochemical staining by *in situ* hybridization of human papillomavirus antigen (HPV-Ag), the giant lesion was confirmed to be infected by HPV [Figure 2b]. The lesion had no apparent features of malignant tumor or transformation.

The wound healed 3 weeks postoperatively. However, during the following weekly visits, 4 times of recurrences were recorded on week 4.5, 5.5, 8.5, and 12.6 in the anal canal.



Figure 1: Bulky condylomatous lesion about 5 cm in diameter

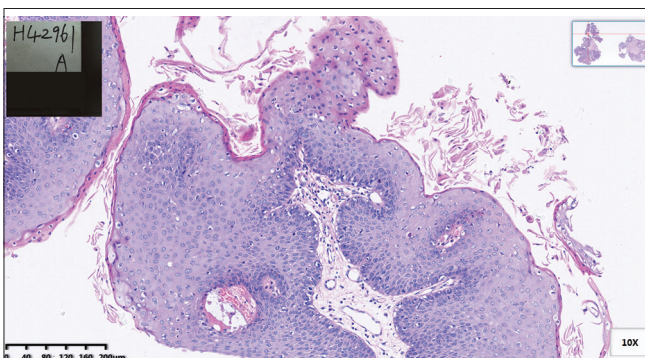


Figure 2a: Papillary proliferation with obvious vacuolization (H and E, ×100)

We performed electroresection followed by laser-mediated photodynamic therapy once the recurrent lesion was identified. The process involved application of topical 16% 5-aminolevulinic acid gel and suppository in the anal canal by a sterile cotton piece left for 3 hours. Subsequently, the lesion was irradiated for 20 min via an anal speculum using a 635nm laser beam at 120 J/cm² intensity (FD-400-B, linyun photoelectronic system co. Ltd, China).

From week 6.5, the patient received topical 5% imiquimod cream application into the anal canal every week for 9 weeks. On week 16, we confirmed that her previous lesions have resolved based on physical examination and a negative acetowhite test [Figure 3]. There were no recurrent lesions during the subsequent 8-year follow-up. The patient only reported intense burning sensation during laser application, and no other complications were observed. The course of the treatment is presented in Table 1.

Buschke-Lowenstein tumor in anal canal is a rare disease, with a high recurrence rate.² The surgical treatment represents the first-line therapy.³ However, complications such as anal reconstruction or stenosis are quite common postoperatively. There is limited literature on anal condyloma acuminatum cases being treated with photodynamic therapy.⁴ Recurrences in our case was probably caused by incomplete resection of the condyloma lesion inside the anal canal. Laser-mediated photodynamic therapy with 5-aminolevulinic acid is an emerging approach for treating genital HPV infection.⁵ Several studies have suggested the administration of topical aminolevulinic acid along with photodynamic therapy is an effective, safe, and well-tolerated treatment for condyloma acuminatum, and more importantly, associated with low recurrence rate.⁶ In our case, laser-mediated photodynamic therapy was beneficial in ablating the residual tiny and latent lesions. With our previous experiences in treating and preventing the recurrence of cervical condyloma acuminatum, we prescribed topical 5% imiquimod cream on both perianal skin and anal canal for the patient weekly for latent lesions.⁷ Since week 16, no recurrences have been observed involving both external and internal anal region.

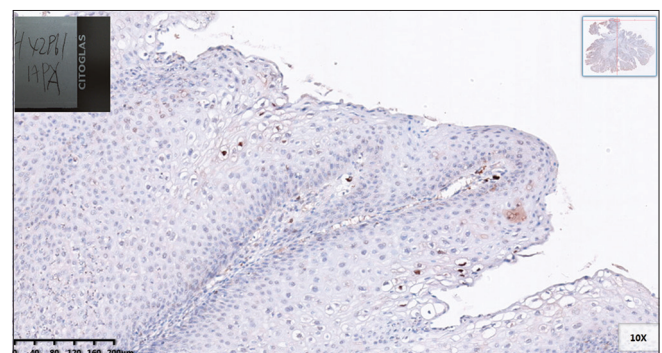


Figure 2b: Human papilloma virus antigen staining showing positive expression in koilocytes (H and E×100)

Table 1: The course of treatment

Time	Course of the disease	Physical examinations		Diagnosis	Treatment
		Perianal area	Anal canal		
20110905	6 months ago	Papules and plaques	Unclear	Perianal CA	Four times laser resection
20120307	Day 1	Papules and plaques	Giant tumor	Perianal CA and BLTAC	Electroresection of perianal lesions + PDT
20120314	Day 7	Faded perianal lesions	Giant tumor	Perianal CA and BLTAC	Electroresection of perianal lesions + PDT
20120320	Day 14	Perianal lesions	Giant tumor	BLTAC	Electroresection under epidural anesthesia
20120411	Week 4.5	None	Two lesions about 8 and 10 mm in diameter under dentate line	Recurrence in anal canal	Electroresection + PDT
20120418	Week 5.5	None	One papule about 3 mm in diameter on dentate line	Recurrence in anal canal	Electroresection + PDT
20120425	Week 6.5	None	None	No recurrence	Topical 5% imiquimod cream
20120503	Week 7.5	None	None	No recurrence	Topical 5% imiquimod cream
20120511	Week 8.5	None	BLTAC	Recurrence in anal canal	Electroresection+PDT
20120518	Week 9.5	None	None	No recurrence	Topical 5% imiquimod cream
20120524	Week 10.5	None	None	No recurrence	Topical 5% imiquimod cream
20120601	Week 11.5	None	None	No recurrence	Topical 5% imiquimod cream
20120609	Week 12.6	None	One papule about 3 mm in diameter on dentate line	Recurrence in anal canal	Electroresection + PDT
20120613	Week 13.5	None	None	No recurrence	Topical 5% imiquimod cream
20120622	Week 14	None	None	No recurrence	Topical 5% imiquimod cream
20120629	Week 15	None	None	No recurrence	Topical 5% imiquimod cream
20120707	Week 16	None	None	No recurrence	Topical 5% imiquimod cream

CA: Condyloma acuminatum, BLTAC: Buschke-Lowenstein tumor in anal canal, PDT: Photodynamic therapy



Figure 3: No recurrent lesion in anal canal

In summary, we recommend electroresection to resect the entire visible lesion and preserve anal function. Subsequently, the combined application of laser-mediated photodynamic therapy and topical 5% imiquimod cream can remarkably reduce the recurrence rate for Buschke-Lowenstein tumor in anal canal. Moreover, the long-lasting efficacy of combined treatment reduces the physical inconvenience for the patients and saves the cost of treatment. We consider this effective and acceptable therapy was worthy of clinical application.

Declaration of patient consent

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Conflicts of interest

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