

## Treatment for Condyloma Acuminatum with Graves' disease

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**Abstract:** A rare case of external genital condylomata acuminatum with Graves' disease was reported. The cauliflower warts were observed on glans penis and foreskin of a 40-year-old man, who had typical Graves' symptoms. After combining treatment of laser, intramuscular injection interferon, and orally administered Acyclovir or Tamciclovir tablets, Amoxicilline capsules or phenoxy mephyl penicillin potassium tablets, vitamin C and vitamin B1 of multiple courses (weeks), the condylomata acuminatum recurred, the warts grew again, and Graves' disease worsened. However, after integrated treatment of laser, orally administered transfer factor, antibiotics and vitamins of three courses, the patient recovered fully and Graves' symptoms alleviated. The venereal warts have not recurred within six months.

**Keywords:** Condyloma Acuminatum, Graves' disease, Laser, Interferon, Antibiotic, Recurrence, Transfer Factor.

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### INTRODUCTION

Condyloma acuminatum or acuminate wart or venereal wart is a genital lesion caused by human papillomavirus (HPV) infection, one of the most common sexually transmitted diseases [1-3]. Generally, genital warts can occur in the vagina and on the cervix in female. However, in men, growths on the penis tend to be very flat and are sometimes hard to see [2]. Current forms of treatments for condylomata acuminatum include surgical treatment (i.e. laser ablation, electro surgery scissors excision and curettage), cryotherapy, podophyllum resin, podophlox, trichloroacetic acid, loop electrosurgical therapy, interferon, and others [1-3]. This case was reported because of its rarity and speciality: condyloma acuminatum with Graves' disease, challenge of treatment for the patient and non-predictableness of the treatment effect. Therefore, the case report could provide valuable information to physicians, nurses, health professionals, epidemiologists, clinics, hospitals and medical agencies for more effective treatment, control and prevention of condylomata acuminatum.

### CASE REPORT

A 40-year-old male worker was diagnosed external acuminate wart in the district hospital, Beibei, Chongqing, China. The cauliflower warts grew on his glans and foreskin. Meanwhile, the patient was diagnosed definitely Graves' disease in the hospital according to his typical Graves' symptoms and results of laboratory test (blood test) for checking thyroid hormone levels. Firstly, the patient was treated with carbonized (CO<sub>2</sub>) laser and intramuscular injection interferon (3,000,000 units/time, one time/day) of two

courses (two weeks) in the hospital. Nevertheless, after two weeks, the dermal surface of the lesion was infected and the warts grew again. One month later, the warts grew fully on glans and prepuce, and merged the lump (3x4x0.5cm). Then, the patient was treated with laser (depth: 1.5-2mm under the bottom of warts), intramuscular injection interferon (3,000,000 units/time, one time/day), and oral Acyclovir tablets of (0.2 mg/time, five times/day) and Amoxicilline capsules (0.5mg/time, three times/day) of two courses (two weeks). After three weeks, the patient's condition had still not been improved, and the warts enlarged. Though the patient was treated again with laser, injection interferon, oral Tamciclovir tablets (0.25 mg, one time/eight hours), phenoxymephylpenicillin potassium tablets (0.5mg/time, three times/days), vitamin C (100mg/time, three times/day) and vitamin B1 (10 mg/time, three times/day) of two courses (two weeks), the new warts grew again on glans penis except foreskin. Meanwhile, the patient presented more marked Graves' symptoms: more bulging eyes, larger goiter and thicker skin, which demonstrated that Graves' disease of the patient worsened. However, after therapy of laser, oral transfer factor, antibiotics and vitamins of three courses (10 mg/time, two times/day), no new warts grew on penis of the patient, and Graves' disease alleviated. After six months, with being examined once a month within six months, venereal warts have not recurred again.

### DISCUSSION

The carbon dioxide laser vaporization is a simple, safe and effective therapeutic approach for the treatment of human papillomavirus warts and genital

condylomata [4, 5]. Laser therapies have been used broadly in treatment for patients with strawberry angioma of infancy, decorative tattoos, genital condylomata and warts, and showed good effects [6], except that less data reveal that treatment of recalcitrant condylomata acuminata with the carbon dioxide laser did not offer any advantages over traditional surgery, including electrocautery [3, 7]. Notwithstanding, the laser therapy for the patient could not eradicate completely acuminata wart, the combining treatments with laser ablation are essential. Many of data show that the applications of other favorable safety profiles or agents are also effective for treatment and prevention of condyloma acuminata, such as podophyllotoxin and imiquimod [3, 6, 8], Autogenous vaccine [9], intraurethral instillation and 5-fluorouracil solution [3, 10], Trichloroacetic acid [3], Chinese medicine Keyouling [11], salicylic acid and dinitrochlorobenzene [12], cidofovir [3, 13], photodynamic therapy with topical 5-aminolevulinic acid [14], microwave therapy combined with interleukin-2 [15], and others.

The interferons (IFNs) are one of the body's natural defensive responses to such foreign components as microbes, tumors, and antigens. The clinical uses of IFNs with other combination therapies, such as chemotherapy, radiation, laser, surgery, hyperthermia, or hormones, are effective for treatment of infectious diseases [16]. IFNs play important roles in reducing tumor growth and modulating immune responses and have been widely used in the treatment of neoplastic, viral, and autoimmune diseases [17]. Some of data show that interferons have positive effects on treatment of infection with human papilloma virus, such as condyloma acuminata [18-20]. Moreover, the integrated therapy using laser surgery, electrosurgery or cryosurgery followed by the intralesional administration of interferon appears to enhance treatment effects [20]. In particular, the direct injection of interferon alpha-2b into genital warts appears to be an effective and fairly well-tolerated form of therapy [20, 21], and has significant activity in the treatment of genital warts [22, 23].

However, the treatment of interferon for the patient in the case report has not achieved the significant effect and the desired result, and led to worsening of Graves' disease. It has been known that adverse effects of interferon treatment include systemic and organ-specific pathological changes; many of them are the consequences of immune enhancement or immune deregulation induced by interferon itself [24]. Meanwhile, Recurrence of condylomata acuminata is not prevented by systemically administered interferon [25]. On the other hand, some of studies indicate that the use of interferons might result in thyroid dysfunction in a variety of ways and induce thyroid disease [26-28], because interferons may have direct effects on the thyroid gland by modulating the aberrant expression of major histocompatibility antigens on

thyroid cells [29] and favoring a cytokine microenvironment, which are able to lead to the immunemediated damage of thyroid tissue [30]. Most of data reveal that primary hypothyroidism associated with interferon therapy [31- 33]. Risk factors for developing thyroid dysfunction with interferon treatment are female sex, underlying malignancy or hepatitis C, higher doses of IFN for longer durations [33]. Although the development of thyroid disease does not seem to be related to the dose of interferon [34], the duration of interferon treatment has been related to the occurrence of thyroid dysfunction [35]. Some of clinical data present that interferon treatment may also induce Graves' hyperthyroidism [36-38], which may occur even after a transient phase of destructive thyrotoxicosis [39]. Though sporadic cases of Graves' ophthalmopathy have been described in patients treated with interferon [40], most of patients developing Graves' hyperthyroidism do not have signs of autoimmune ophthalmopathy [36].

According to the negative effect of interferon treatment on the patient, the clinical use of transfer factor was recommended in the treatment of the patient suffering acuminata wart with Graves' disease. Transfer factor (TF) is an immunomodulator active substance. It could decrease the number of inflammatory cells and the severity of the symptoms of atopic dermatitis [41], and activate the proliferation of lymphocytes and splenocytes [42]. Therefore, it is an efficacious agent for immunotherapy of certain viral and fungal infections [43, 44]. The reports of efficacy of transfer factor in immunodeficiency states and chronic infectious diseases, as well as its lack of toxicity, have spurred clinical trials of transfer factor therapy in human malignant diseases [45]. Transfer factor has been used to treat chickenpox, chronic active hepatitis and AIDS [46], and may be beneficial in some patients with Behcet's syndrome [47]. In particular, transfer factor treatment could lead to spontaneous regression of human warts [48].

Furthermore, transfer factor therapy may be used as a choice of treatment for preventing genital or labial herpes recurrences [49]. The clinical reports show that the combining application of transfer factor, antibiotic and carbon dioxide laser is effective and safe for treatment of condyloma acuminatum [50], and the treatment effect of transfer factor for acuminata wart is equal to or superior to that of interferon, but administered more easily [51-53]. This case report reveals that transfer factor can be used effectually in the treatment of condyloma acuminatum and the impediment of its reversion, and does not conduce to other negative effect on Graves' disease.

## CONCLUSION

When the interferon therapies for viral infectious diseases, especially for condyloma acuminatum, do not present significant and desired effects, and/or bring

negative affection, other effective substitutive immunotherapy agent(s), such as transfer factor and others, should be used in the clinical treatment for the sexually transmitted disease. The patients receiving interferon therapy should be closely monitored for the possible development of thyroid dysfunction and other side effects [54]. Transfer factor may be a better choice of treatment for acuminata wart, albeit its doctoring effects for epidemic venereal diseases need to be studied further. The acceptable and practicable integrated approaches for treatment of venereal warts should be implemented in improvement of therapies, declining of negative effects and palliation of symptoms, lessening of lesion, and control and prevention of recurrence.

#### COMPETING INTERESTS

All of the authors declare that they have no conflict of interests.

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