

# Successful treatment of verruca vulgaris with *Thuja occidentalis* in a renal allograft recipient

R. Joseph, S. A. Pulimood<sup>1</sup>, P. Abraham<sup>2</sup>, G. T. John

Departments of Nephrology, <sup>1</sup>Dermatology and <sup>2</sup>Virology, Christian Medical College, Vellore, India

## ABSTRACT

Human papillomavirus-driven verruca vulgaris infection is common in solid organ transplant recipients and increases the risk for squamous cell carcinoma. The available treatment modalities have limited response. We report a renal allograft recipient who presented with multiple warts not responding to cryotherapy and radiosurgery with one turning malignant, needing amputation of the finger. An extract from *Thuja occidentalis* (White cedar tree) cured the resistant warts on the other fingers, leaving only superficial scars and without affecting allograft function. We have reviewed the pharmacological and clinical properties of *T. occidentalis*.

**Key words:** Renal transplantation, squamous cell carcinoma, *Thuja occidentalis*, verruca vulgaris

## Introduction

Human Papillomavirus (HPV) driven verruca vulgaris (warts) increases the risk of squamous cell carcinoma (SCC) in solid organ transplant recipients, with a reported incidence of 24% to 100%.<sup>[1]</sup> The incidence increases with the duration of transplant. The available treatment modalities have limited response. *Thuja occidentalis* is used to treat warts in homeopathic system of medicine.

## Case Report

A 34-year-old male, a clerk by profession underwent a living donor renal transplantation in 2006 and was maintained on cyclosporine (150 mg daily), prednisolone (10 mg daily), and mycophenolate mofetil (1500 mg daily). He did not receive lytic induction. He was anti-HCV positive and received a 6-months course of

interferon alpha 2b before transplantation. During early post-transplant period, he had acute cellular rejection Banff type II A, requiring three doses of methyl prednisolone. There were no opportunistic infections or reactivation of HCV during the 1<sup>st</sup> year of follow-up.

A year after transplantation, he developed multiple warty lesions on the dorsum of the fingers of both hands suggestive of verruca vulgaris. These lesions were treated with cryotherapy, cauterization, and radiosurgery with marginal improvement. However, 4 months later, the distal end of the right middle finger revealed ischemic changes and necrosis, needing amputation of distal two phalanges [Figure 1a]. Histology of the amputated finger showed nests of malignant squamous cells with keratin pearls infiltrating the dermis [Figure 1b]. He returned to our center where excisional biopsies of few existing warts were done. Histology showed hyperkeratosis, parakeratosis, acanthosis and prominent giant eosinophilic keratohyalin granules and eosinophilic intranuclear inclusions with viral cytopathic effect, and mild dysplasia consistent with verruca vulgaris [Figure 1c]. Human papillomavirus (HPV) genotype Ia was identified from the specimen. Having lost part of the finger on the right hand, the patient had crippling anxiety and fear that the remaining warts would claim his other fingers and his livelihood. Cyclosporine was replaced with everolimus. Ketoconazole augmentation was given for cost reduction. Cryotherapy and cauterization failed over the next 6 months. At this time, the patient was treated with *Thuja occidentalis* (*T. occidentalis*) extract, orally and topically for a period of 7 days at his native place. For external applications, he received mother tincture

### Address for correspondence:

Dr. George T. John, Department of Nephrology, Christian Medical College, Vellore - 632 004, India.  
E-mail: george@cmcvellore.ac.in

Access this article online	
Quick Response Code:	Website: <a href="http://www.indianjnephrol.org">www.indianjnephrol.org</a>
	DOI: 10.4103/0971-4065.116316

and as oral preparation he was given potentized medium (power  $1^m = 1000$  times) *T. occidentalis* as 2 globules thrice a day. By the end of 3<sup>rd</sup> week of therapy, the warts dropped off leaving only small superficial scars [Figure 1d]. The allograft function remained unaffected at creatinine of 1.5 mg/dl. He has been followed up for one year and has not had any recurrence.

## Discussion

Globally, approximately 15% of all malignant tumors are caused by viruses. Early rejections, multiple viral infections, cyclosporine therapy, exposure to ultra violet (UV) light predispose to warts. Though proliferation signal inhibitors are known to reduce the incidence of non-melanoma skin cancers, there is no evidence of eradicating papilloma viruses.<sup>[2]</sup> Our patient was HCV positive and was exposed to higher immunosuppression due to early post-transplant rejection.

The available modalities of treatment for warts include cryotherapy, intralesional bleomycin and interferon, topical 5-fluorouracil and dinitrochlorobenzene,

photodynamic therapy, and pulsed dye laser have not shown to be of benefit in randomized controlled trial.<sup>[3]</sup> Other treatments include topical imiquimod, curettage and excision, glutaraldehyde, formaldehyde, podophyllin, podophyllotoxin, and cantharidin. However, none of them are supported by randomized controlled trials.

*T. occidentalis*, an extract from white cedar (*Arbor vitae* or the white oak) is indigenous to eastern North America and grown in Europe as an ornamental tree. In folk medicine, extract from dried twig tips has been used to treat bronchial catarrh, enuresis, cystitis, psoriasis, uterine carcinomas, amenorrhea, and rheumatism. Hansel *et al.*, have described the drug to contain 1.4-4% essential oil (critical factor as medicinal herb), 60% of which is thujone, which corresponds to 2.4% thujone in the whole drug.<sup>[4]</sup> The pharmacological potential of *T. occidentalis* has been investigated in various *in vitro* and *in vivo* studies. It showed significant increase in interleukin 1, interleukin 6, and tumour necrosis factor alpha and caused local activation of cytokine producing cells for priming without a systemic rise.<sup>[5]</sup> Antibody-producing lymphocytes increased in the hemolytic plaque assay

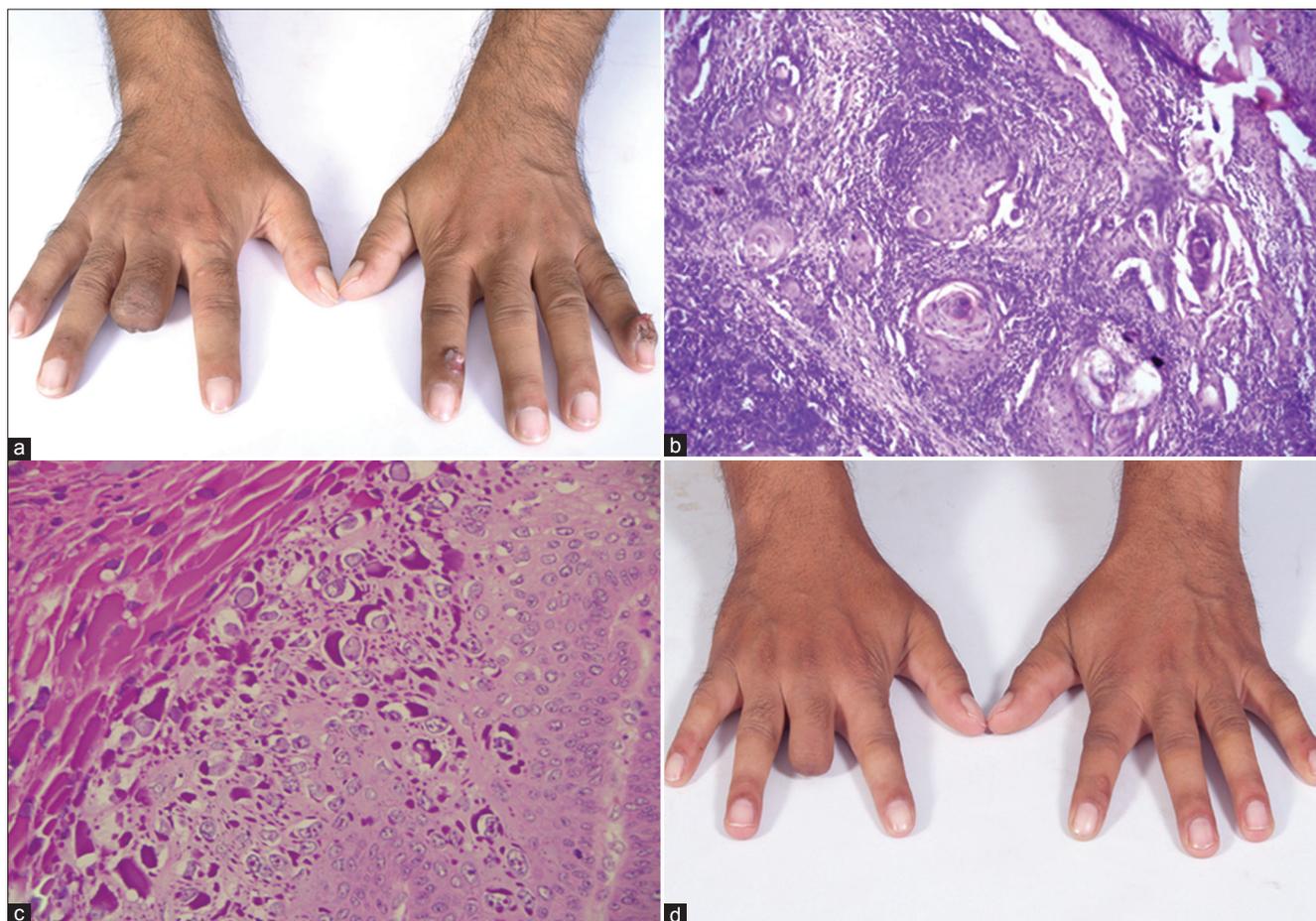


Figure 1: (a) Amputated right middle finger with multiple warts. (b) Squamous cell carcinoma of skin of same finger (H and E,  $\times 200$ ). (c) Skin lesion with prominent giant eosinophilic keratohyalin granules and eosinophilic intranuclear inclusions (H and E,  $\times 200$ ). (d) Disappearance of lesions after *thuja* treatment

*in vitro*.<sup>[6]</sup> *Thuja* causes T-cell induction particularly of Cluster Differentiation 4 (CD 4) positive T-helper cells in connection with an increased production of Interleukin 2.<sup>[7]</sup> Thus, *thuja* has shown definite anti-human immunodeficiency virus-1 activity. A 2-year prospective clinical and therapeutic experience of patients with HPV infection diagnosed based on cytology and or biopsy, which had recurred after treatment found that *thuja* helped to eradicate the papillomatous lesions.<sup>[8]</sup> Hexane, chloroform, and ethyl acetate fractions of *thuja* were tried of which the chloroform fraction rated superior with complete eradication in all the patients in a randomized control study.<sup>[9]</sup>

In summary, we report a case of verruca vulgaris leading to cutaneous squamous cell carcinoma in a young renal allograft recipient, where treatment with *T. occidentalis* helped to eradicate the remaining lesions without compromising graft function.

## References

1. Iraj F, Kiani A, Shahidi S, Vahabi R. Histopathology of skin lesions with warty appearances in renal allograft recipients. *Am J Dermatopathol* 2002;24:324-5.
2. de Fijter JW. Use of proliferation signal inhibitors in non-melanoma skin cancer following renal transplantation. *Nephrol Dial Transplant* 2007;22:i23-i26.
3. Gibbs S, Harvey I. Topical treatments for cutaneous warts. *Cochrane Database Syst Rev* 2006;3:CD001781. p. 72-76, 81-83.4.
4. In: Hänzel R, Keller R, Rimpler H, Schneider G. *Hagers Handbuch der Pharmazeutischen Praxis: Drogen P-Z (Thuja)*. 5<sup>th</sup> ed. Berlin: Springer Verlag; 1994. p. 955-66.
5. Bodinet C, Lindequist U, Teuscher E, Freudenstein J. Effect of an orally applied herbal immunomodulator on cytokine induction and antibody response in normal and immunosuppressed mice. *Phytomedicine* 2002;9:606-13.
6. Bodinet C, Freudenstein J. Effects of an orally applied aqueous-ethanolic extract of a mixture of *Thuja occidentalis* herba, *Baptisia tinctoria* radix, *Echinacea purpurea* radix and *Echinacea pallida* radix on antibody response against sheep red blood cells in mice. *Planta Med* 1999;65:695-9.
7. Gohla SH, Haubeck HD, Schrum S, Soltau H, Neth RD. Activation of CD4-positive T cells by polysaccharide fractions isolated from the Cupressaceae *Thuja occidentalis* L. (Arborvitae). *Haematol Blood Transfus* 1989;35:268-72.
8. Gimeno LQ. *Br Homeopathic J* 1996;85:194-7.
9. Khan MT, Cerio R, Watt R, -Khan MT. Phytotherapy with subfractions of topical *Thuja Occ* on verruca pedis. *Dades Del Sumari de. Br J Dermatol* 2000;143 Suppl. 57:33.

**How to cite this article:** Joseph R, Pulimood SA, Abraham P, John GT. Successful treatment of verruca vulgaris with *Thuja occidentalis* in a renal allograft recipient. *Indian J Nephrol* 2013;23:362-4.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

## Staying in touch with the journal

### 1) Table of Contents (TOC) email alert

Receive an email alert containing the TOC when a new complete issue of the journal is made available online. To register for TOC alerts go to [www.indianjephrol.org/signup.asp](http://www.indianjephrol.org/signup.asp).

### 2) RSS feeds

Really Simple Syndication (RSS) helps you to get alerts on new publication right on your desktop without going to the journal's website. You need a software (e.g. RSSReader, Feed Demon, FeedReader, My Yahoo!, NewsGator and NewzCrawler) to get advantage of this tool. RSS feeds can also be read through FireFox or Microsoft Outlook 2007. Once any of these small (and mostly free) software is installed, add [www.indianjephrol.org/rssfeed.asp](http://www.indianjephrol.org/rssfeed.asp) as one of the feeds.