

Treatment of *Molluscum contagiosum* in a Child with Sensory Defensiveness

Josef A Brinckmann*

* Research and Development Department, Traditional Medicinals, 4515 Ross Road, Sebastopol, CA, 95472, USA



Josef Brinckmann, a medicinal plant researcher and writer, has worked in the herbal trade since 1979 and serves as VP of Research & Development for Traditional Medicinals. Josef is a co-author and co-editor of several medicinal plant textbooks, has co-translated two handbooks, and his articles and clinical research are published in peer-reviewed journals. Josef is also an author and reviewer of selected sections of the American Herbal Pharmacopoeia.

Introduction

Pediatric *Molluscum contagiosum* virus (MCV) is a common skin infection, caused by a poxvirus. MCV lesions are typically asymptomatic, firm, smooth, round papules with central umbilication. Recommended conventional medical treatments for lesion eradication include mechanical (curettage, laser, or cryotherapy), chemical (trichloroacetic acid, tertenoin), immunologic (imiquinod) (Stulberg et al 2003), or no treatment since MCV lesions may resolve naturally over time in children with a normal immune system (van der Wouden et al 2006). Homeopathic treatments that have been associated with positive outcome in patients with MCV include *Natrum sulphuricum* (sulphate of sodium), *Sulphur* (sublimated sulphur) and *Natrum muriaticum* (chloride of sodium) (Rajendran 2002). There has been one controlled study showing a positive outcome with a phytomedicine, essential oil of *Backhousia citriodora* leaf (lemon myrtle) (Burke et al 2004).

Very few controlled studies of treatment efficacy have been conducted. In a recent review of randomized controlled trials (published up through March 2004), five studies with a total number of 137 participants were evaluated. Three studies involved topical applications (e.g. povidone iodine and/or salicylic acid), one involved systemic interventions (potassium hydroxide or cimetidine), and another trial involved use of a homeopathic medicine *Calcarea carbonica* (carbonate of lime). The authors concluded that no single intervention has been shown to be convincingly effective in treating MC (van der Wouden et al 2006).

Subsequent to the review by van der Wouden et al, a randomized controlled trial was carried out in 31 otherwise healthy children presenting with MCV (mean

age 4.6 ± 2.1 years; mean length of time with condition 8.6 ± 5.3 months), treated once daily with a 10% solution (v/v) of essential oil of leaves of *Backhousia citriodora* F. Muell., Fam. Myrtaceae (lemon myrtle). In the lemon myrtle group (n=16), at the end of 21 days, there was greater than 90% reduction in the number of lesions in nine children. None of the children in the placebo (olive oil) group (n=15) showed significant reduction in MCV lesions. For 12 children in the placebo group, the lesions either remained the same or became worse. The remaining three children in the placebo group were withdrawn by their parents because the mollusca worsened (Burke et al 2004).

Australian medical herbalist Andrew Pengelly indicates the oral use of *Backhousia citriodora* leaf aqueous infusion and/or alcoholic tincture (1:5 in 45% alcohol) for symptomatic treatment of common cold, influenza, bronchitis, indigestion, and other irritable gastrointestinal tract disorders. For treating herpes simplex virus (HSV), Pengelly recommends topical application of the essential oil or tincture forms. Actions reported are antiseptic, antiviral, calmative, sedative, and corrective (Pengelly 1991). *Backhousia citriodora* leaf essential oil is composed mainly of citral; 46.1-60.7% citral A (geranial), 32.0-40.9% citral B (neral), 1.0-4.2% iso-geranial, 0.6-2.7% iso-neral, 0.1-0.9% citronellal, 0.3-1.0% linalool, 0.1-2.5% 6-methyl-5-hepten-2-one, and 0.1-0.7% myrcene (Southwell et al 2000).

In Australia, *Backhousia citriodora* leaf essential oil (for topical use only) is a substance that is approved for use by the Therapeutic Goods Administration (TGA) as an active ingredient (or as an excipient) in listed medicines with certain restrictions. For example, the concentration must not exceed 10g/kg or 10g/L or 1%,

(TGA 2006a) and the medicine label must carry the following three advisory statements: (1) Not recommended for use by children aged 12 years or under; (2) Not recommended for use by pregnant or lactating women; and (3) If skin irritation occurs, discontinue use (TGA 2006b). There are presently three *Backhousia citriodora* leaf essential oil medicines approved by the TGA: Lemon Myrtle Acne & Blemish Gel (Australian Registry of Therapeutic Goods (ARTG) Number: 118633), Lemon Myrtle Derma Intensive Skin Cream (ARTG Number: 121922), and Lemon Myrtle Fragrance Natural Antiseptic Insect Protection (ARTG Number: 96108) (TGA 2007a). It is not entirely clear as to why the TGA decided to regulate the topical use limit to a concentration not exceeding 1% (w/w) essential oil and to not recommend its use in children under 12 years of age, but this was presumably due to an absence of existing safety data for this population group and at higher concentrations. In any case the aforementioned clinical trial utilized 10% solution of the oil (in an olive oil vehicle), and it is not uncommon for medicated creams or ointments to contain 5% to 20% essential oil. Another herbal preparation with some evidence of efficacy in the treatment of MCV is the juice of fresh *Triticum aestivum* L. spp. *vulgare*, Fam. Poaceae (wheatgrass). Australian general practitioner, Dr Chris Reynolds, uses a *Triticum aestivum* L. spp. *vulgare* juice preparation (DermaWheat Wheatgrass Recovery Cream) in his clinical practice for treatment of MCV, as well as for acne, anal fissure, eczema, and various bites, wounds and burns, among other skin conditions. DermaWheat, which contains 20mg/ml juice of fresh young organically grown wheatgrass, is a registered medicine in Australia [ARTG Number: 97723, Product ID: 173535, Manufacturer: Wheatgrass Pty Ltd (Melbourne, VIC) (TGA 2007b)]. Dr Reynolds states that he and other practitioners have treated hundreds of cases of MCV successfully with the juice preparation of *Triticum aestivum* L. spp. *vulgare*. He views it as a topical and systemic immunomodulator with four main actions; antiinflammatory, wound healing, hemostatic agent, and skin & connective tissue softener (Reynolds 2007a).

In the following case, involving a 6½-year-old female child, allowing the MCV to resolve naturally was not a good option because she suffers from moderate to severe sensory defensiveness. Defined as adverse or defensive

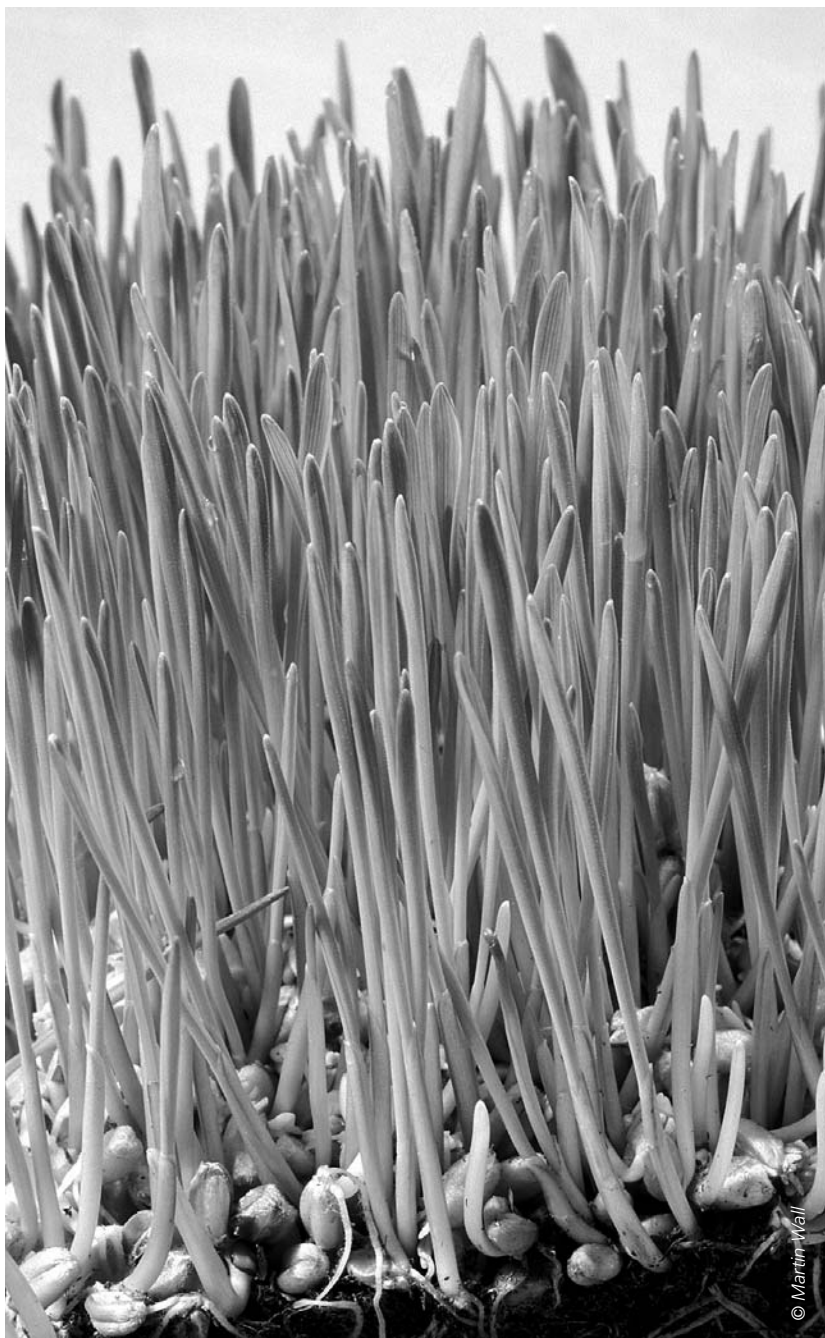
reactions to non-noxious stimuli, symptoms may include withdrawal from touch, discomfort from certain clothes, overreaction to sounds, dislike of foods with mixed textures, exaggerated personal space, increased startle reflex, and dislike of complex visual stimuli (Moore 2006). Thus physically painful methods of treatment such as curettage or cryotherapy were also out of the question. While the pruritus might be tolerated by an otherwise healthy child while waiting for natural resolution, the overall sensory defensiveness exacerbates physical sensations on the skin as well as limits treatment options that will be tolerated.

Based on the clinical trial results of Burke et al (2004) and the case reports of Reynolds (2007b), I decided to try alternating the *Backhousia citriodora* leaf essential oil preparation (q.d.) with the *Triticum aestivum* L. spp. *vulgare* juice preparation (b.i.d.), with applications separated by several hours. While it appeared possible that either preparation could be sufficient on its own to resolve the condition, it also appeared that these two herbal applications taken concomitantly could be an appropriate and complementary approach without negative interference.

Subject and treatment

The subject of the treatment is a 6½-year-old Caucasian non-immunized, female presenting with MCV. The pruritic discomfort was intensified due to her coexisting sensory defensiveness symptoms. She generally wears no clothes at home, and, at night, sleeps very loosely covered with one particular soft blanket due to an intolerance of most types of fabrics on her skin. There are a very limited range of clothes that she will tolerate which are worn after negotiation when socially necessary, for example in order to leave the house to attend school. She experiences anxiety and fear when alone, occasional night terrors, and has not yet slept through an entire night uninterrupted. She awakens every night, calling for her mother or father, requiring comforting to return to sleep. In the car, she often removes her shirt and holds the seat belt away from her body because the rubbing of the shirt and seat belt against her is unbearable. She also experiences some auditory sensory defensiveness with certain pitches or frequencies being intolerable. She often holds her hands over her ears while shouting or screaming in order to block out any undesired stimuli.

Illnesses within the past two years include infectious mononucleosis, mycoplasma pneumonia, and several episodes of Otitis media. Necessary dental procedures have also been performed while unconscious under general anesthesia due to extreme anxiety and inability to tolerate and cooperate with the dentist.



Triticum aestivum (wheatgrass)

About one year prior, her mother observed two papules: one on the abdomen and the other behind the left knee. As they caused no discomfort, no treatment was considered. In late November 2006, she shared a bath with her cousin who appeared to have MCV lesions spread all over her body. Afterwards, the two papules began to itch considerably, thus causing autoinoculation (spreading by scratching). Small umbilicated lesions appeared on the front left of lower abdomen (about 15), inside of left elbow (5), left popliteal fossa (5 lesions inside surrounded by scaly red patches; and 3 to the right), and left inguinal crease area (3).

In December 2006, the diagnosis of MCV was confirmed by observation of a medical doctor. The MD suggested either physical destruction or to do nothing since MCV should eventually resolve without treatment.

After a review of the literature, I decided to try a once daily topical application of a 10% solution (v/v) of essential oil of *Backhousia citriodora* leaf, as per the treatment plan described by Burke et al (2004). The oil, supplied by Mountain Rose Herbs (Eugene, OR) was obtained by steam distillation of fresh leaves of *Backhousia citriodora* in Australia in summer 2006 (Lot No: 12334). I prepared the 10% solution by measuring the essential oil into a glass amber bottle with the fixed oil obtained from the ripe fruit of *Olea europaea* L., Fam. Oleaceae (olive). The solution was applied onto cotton and then dabbed onto the affected areas (q.d.).

Additionally, topical application of DermaWheat Wheatgrass Recovery Cream (Lot Number: B32673A; ARTG Number: 97723; Product ID: 173535), b.i.d. (before and after application of the lemon myrtle oil separated by several hours). DermaWheat contains 20mg/ml juice of fresh young *Triticum aestivum* L. spp. *vulgare* (wheatgrass).

Results

Treatment commenced at the start of 2007 and during the course of the first month little progress was evident. Areas behind the knee in particular became very red and inflamed with an increase in the number of papules. At about the end of one month of treatment, she began to complain that the application of the lemon myrtle solution was irritating and began to resist treatment. Many of the papules also began erupting and itching intensified. The lemon myrtle was discontinued as it

appeared to be causing skin irritation. Wheatgrass juice cream, b.i.d., was continued. During the second month of treatment, significant clearing was apparent. By the end of the second month, the skin was almost completely free of lesions. Daily application of the wheatgrass cream continued during month three on all areas where lesions had been present.

Discussion

It appears in this case that the daily application of wheatgrass juice cream was effective at eradicating MCV in about eight weeks time. However, it is not possible to determine from this single case whether the alternation of lemon myrtle oil with wheatgrass juice during the first month was beneficial, whether either treatment could have been effective without the other, or whether the MCV would have cleared up during the same time frame without any treatment. It is known that the wheatgrass juice cream was well-tolerated; there was good dosage compliance, with no observable side effects. The child and mother believed that it was effective and they looked forward to the daily applications. If the wheatgrass juice was largely responsible for the recovery, the mechanism of action remains unclear.

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