

### **Verrucae Pedis Treatment Advice Sheet**

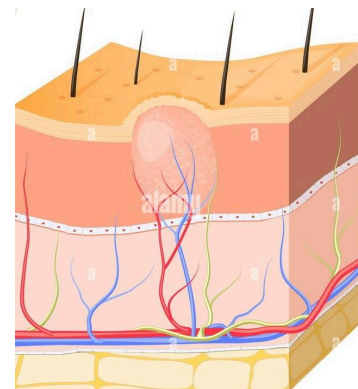
A verruca can be highly contagious and thrives in warm and wet conditions anonymously with swimming pools, changing rooms, or anywhere (damp, humid and wet) that you may go barefoot.

They can only occur in the top layer of skin (Stratum Corneum), with a viral infection known as Human Papilloma Virus entering skin cell through a small cut or abrasion and may not become visible several weeks or months following infection.

They are especially prone if your immune system is compromised. But, **this does not mean** that if you have a verruca, your immune system is necessarily compromised.



**Cross Section of normal skin**



**Cross Section of a Verruca**

**Note the raised area of skin in the verruca image**

Verruca usually disrupts the striation of the skin following appearance. When they healed or disappeared the normal striation of the skin is restored.

They can occur on the soles of the feet, between the toes and or on the pulp of the toes, in single, multiple and or mosaic form. They usually contain brown-blackish dots which is due to a reaction, as the Virus invade skin cells in the area, proliferation of the capillaries (tiny blood vessels) happens and as a result of subsequent pressure (i.e. walking and weight bearing) those capillaries get squashed and blood get stagnated and dissociated from oxygen. That's why they have that appearance.

The main aim and objective of the verruca treatment is to create a blood blister, this is achieved through available treatments:

### **Treatments Available**

**Nothing** If the immune system realises the presence of the virus, it will shut down the blood supply and verruca will spontaneously drop off the foot (or body) and most likely so will other verrucae.

**Daily filing** By filing daily and filing the skin quicker than it is growing, the verruca is being filed off the foot.

**Daily filing and ointment treatment** By keeping the lesion filed down, the ointment is able to get down to the infected tissues, rather than on the protective hard skin, also the ointment means we can file even lower.

### **Podiatry Treatment Available**

As Podiatrists, we have the accessibility to stronger treatments than those sold over the counter.

### **Silver Nitrate**

Essentially this is a caustic which cauterises the blood vessels. When it is used for verrucae treatment it inhibits the blood supply to the verruca facilitating the cessation of its growth.

- It changes the colour of the skin to a black and brownish eschar after application.
- Can produce pain 24-48 hours after application
- The area should be kept dry for three days to prevent it affecting the surrounding normal skin, as it can easily move in the presence of wet skin.
- Neutralisation is with bathing in saline solution, in the case of persisting discomfort make a paste with Bicarbonate Soda (Baking powder ) and apply on the area.

### **Salicylic Acid**

Essentially Aspirin

This comes in a variety of strengths in a solution form. Over the counter products start from 11%-26% (Bazuka the Verruca). Podiatrists have access to a more powerful strength(65%) of this chemical. When applied on the verruca, it increases the amount of liquid in the cells, which causes the cell membrane to break, thereby exposing the verruca to the immune system cells that can destroy the virus. Salicylic Acid causes the skin to appear saggy(prickling) and white in colour

The two above chemicals can be used together for deeper penetration as the Silver Nitrate acts like a vehicle to carry the Salicylic Acid deeper into the tissue.

## **Cryotherapy**

It means destruction of tissues by the local application of cold. Tissue death is said to be obtained at temperatures below  $-20^{\circ}\text{C}$ , although some cells are known to survive in culture at  $-120^{\circ}\text{C}$  or more.

Three methods is used to attain this temperature:

**Carbon Dioxide Snow**, produces a tip temperature of  $-80^{\circ}\text{C}$

**Nitrous Oxide**, temperature of  $-88^{\circ}\text{C}$ ,

**Liquid Nitrogen**, temperature of  $-196^{\circ}\text{C}$

Fast freeze near the tip of the probe produces Large ice crystals in bothe the cells and in the extracellular fluid. This damages the cell walls and during slow thawing the cells rupture. Freezes are repeated to overlap the frozen zone in an attempt to create the same temperature at nearer the edge and the intermediate cells.

The rate of thaw is now thought to be more important than the temperature attained, therefore, good tissue destruction requires a **rapid intense freeze, and a slow thaw.**

In our podiatry clinic the most cost effective form of Cryotherapy is used in a prefield canister which is supposed to produce a temperature up to  $-59^{\circ}\text{C}$ . However at the tissue level that temperature is said tobe about  $-33^{\circ}\text{C}$ . Freezing can be done by direct spray or a cotton bud tip, 4 times 15 sec with intervals to allow slow thawing.

## **Resolution**

In the days following Cryotherapy treatment, there may be localised swelling for a few hours, and some pain when the blister forms. If this becomes too large, pain can be eased by releasing the fluid under sterile conditions. Following cryotherapy, topical Silver Nitrate is used to toughen the skin and to prevent blistering.

In 1-2 weeks the area will become dry and a scab or eschar will be formed. If the lesion is regressing, debriding should reveal coagulation of papillae, drying and constricting the area.

## **Dry Needling**

This involves, under local anaesthetic, pushing epidermal cells deeper into the dermis, where the immune system has greater chance of recognising the virus and dealing with it.

## **Electrosurgery**

Or Electrodesiccation, where the procedure again is carried out under local anaesthetic, blistering epidermis away from the dermis. Electric current is applied via fine wires. The probes can cut through tissue by heating and vaporising them. This is a method really used for recalcitrant verucae or persistent corn and when all treatment methods have been exhausted.

## **Microwave Therapy (Swift)**

In this new and innovative treatment method Microwave energy is delivered through a disposable probe (reducing the chance of cross infection) precisely and rapidly to elevate tissue temperature to create a localised cell response.

As microwaves travel into the tissue, water molecules begin to collide and create localised heat energy. In just seconds (3-5) treatment is complete and the heating cascade begins immediately. Treated tissue is quickly replaced, repaired and regenerated.

The recommended protocol suggests that depending on the size of the verruca swift is applied at 8 watts for 2 seconds and between 3-5 applications. Reviewed at 4 weekly intervals and maximum 4 treatment sessions, with 3 months between the 3rd and the 4th treatment.

The success rate is said to be between 70-76% after first treatment and by 3rd raised up to 98%~. It is suggested to exhaust the chemical and cryotherapy option first before proceeding to microwave therapy (swift) treatment.

Please speak to your podiatrist to discuss a suitable treatment plan.