

The Use of Local Anaesthetic with Hyaluronidase and Triamcinolone as an Injection Technique for the Treatment of Plantar Fibromatosis

What is Plantar Fibromatosis?

Plantar fibromatosis, also known as Ledderhose disease, is a condition that affects the plantar fascia, a band of tissue on the sole of the foot. The plantar fascia helps support the arch of the foot and assists in walking. In plantar fibromatosis, abnormal tissue growth occurs in the plantar fascia, leading to the development of nodules or lumps on the foot. These nodules are usually firm and may cause pain and discomfort, especially while walking or standing.

Why Use The Combination of Three Drugs to Treat The Condition?

Steroid (Triamcinolone):

Steroids, such as triamcinolone, are potent anti-inflammatory medications. They help reduce inflammation and swelling in the fibroma, thereby alleviating pain and discomfort. The steroid works by suppressing the immune response and reducing the production of inflammatory substances. By targeting the inflammatory component of the fibroma, the steroid can help break down the fibrous tissue and improve the flexibility of the affected area.

Hyaluronidase:

Hyaluronidase is an enzyme that plays a crucial role in breaking down hyaluronic acid, a substance found in excessive amounts in fibrous tissue. Hyaluronic acid contributes to the stiffness and density of the fibroma. By administering hyaluronidase into the fibroma, the enzyme helps to break down and disperse the hyaluronic acid, allowing the fibrous tissue to become more pliable and reducing its overall density. This can lead to a reduction in the size of the fibroma.

Hyaluronidase acts by breaking down the connections between the long chains of hyaluronic acid, which loosens the structure of the fibrous tissue. This breakdown of hyaluronic acid also promotes better dispersion of other injected substances, such as the steroid and local anaesthetic, into the fibroma. The increased dispersion enhances the therapeutic effect of the treatment.

Local Anaesthetic:

Local anaesthetics, such as bupivacaine, are used to numb the foot and provide pain relief during the injection procedure. Additionally, the use of a local anaesthetic allows for the dispersion of hyaluronidase and other medications into the fibroma, as it minimises discomfort and allows for better penetration of the injected substances into the fibrous tissue.

The combination of these three drugs: steroid, hyaluronidase, and local anaesthetic works synergistically to target different aspects of plantar fibromatosis. The steroid reduces inflammation and breaks down the fibroma. Hyaluronidase helps break down the fibrous tissue and disperse other medications, and the local anaesthetic minimises pain and facilitates the effective delivery of the treatment. This combination approach aims to improve symptoms, reduce the size of the fibroma, and enhance foot function.

It is important to note that the specific use of these medications should be determined by your podiatric surgeon based on your individual condition and medical history. They will consider the potential benefits and risks of the treatment and provide personalised care.

Further Information on Injection Technique: Visualising The Injection

To help patients understand the injection process, we use a visualisation technique. During the injections, patients are encouraged to imagine the fibroma as a solid rubber ball. This helps in understanding the treatment and its effects.

First Injection - Solid Rubber Ball:

The first injection is performed directly into the fibroma. At this stage, the fibroma is visualised as a solid rubber ball.

Second Injection - Hollow Rubber Ball:

The second injection takes place approximately three weeks after the first injection. The fibroma still resembles a rubber ball, but it is now less solid.

Week 6 - Balloon Effect:

During a review, a decision will be made whether a further injection is required.

Subsequent Injections:

After the sixth week, subsequent injections can be administered for additional shrinkage if necessary. The use of Verapamil gel is another option, especially if the fibroma has flattened out. Verapamil gel is a treatment option that can be applied topically to the fibroma. The success of Verapamil gel is influenced by the thickness of the fibroma. Thinner, flatter fibromas have a larger surface area relative to their interior volume, allowing for better absorption of the gel and potential improvement.

It is important to note that the injection technique and the use of Verapamil gel will be determined by your podiatric surgeon based on your individual condition and response to treatment. Regular follow-up visits will allow your podiatric surgeon to assess progress and make any necessary adjustments to your treatment plan.

Remember, every individual's response to treatment may vary, and it is essential to communicate any concerns or questions you may have with your podiatric surgeon.

Possible Complications

While the injection technique for treating plantar fibroma has a low risk of complication, it is important to understand that any invasive procedure carries some level of risk. We will take necessary precautions to minimise these risks. Here are some potential complications associated with the injection technique:

Infection:

There is a small risk of infection at the injection site. Signs of infection may include increased pain, redness, swelling, and warmth. If you notice any of these symptoms, it is important to contact our Centre immediately for evaluation and appropriate management.

Hollowing of the Skin:

In rare cases, there is a possibility that hyaluronidase may seep out of the fibroma during the injection procedure. This can potentially cause a temporary hollowing or depression in the skin overlying the fibroma. It is important to note that this concern is more relevant in cosmetically sensitive areas such as the face, where changes in skin contour may be more noticeable. However, for plantar fibromas, which are located on the sole of the foot, the risk of visible hollowing is minimal.

Hypersensitivity and Allergic Reactions:

While uncommon, hypersensitivity or allergic reactions to the injected medications, such as the steroid or hyaluronidase, can occur. Symptoms may include itching, hives, difficulty breathing, or swelling of the face, lips, tongue, or throat. If you experience any of these symptoms, seek immediate medical attention.

Unusual Increased Levels of Pain:

Although the injection technique aims to alleviate pain, in rare cases, there may be an unusual increase in pain following the procedure. This could be due to individual variations in response or other factors. It is important to communicate any unexpected or severe pain to The London Podiatry Centre.

Worsening of Symptoms or Progression:

In some cases, despite treatment, there may be a progression of symptoms or the underlying fibroma. This can result in ongoing discomfort or an increase in the size or number of fibromas. We will monitor your progress closely and adjust your treatment plan if necessary.

Nerve Damage from Tibial Nerve Block:

As part of the injection technique, a tibial nerve block is performed to provide anaesthesia and minimise pain during the injection procedure. While unlikely, there is a theoretical risk of nerve damage associated with the tibial nerve block. However, the use of ultrasound guidance greatly enhances the accuracy and safety of the procedure, reducing the risk of nerve damage.

It is crucial to remember that the overall risk of complications from the injection technique for plantar fibroma is small. The concern about visible hollowing of the skin is primarily relevant in cosmetically sensitive areas such as the face, but it is unlikely to be a significant concern for plantar fibromas.

Open Surgery

Open surgery is associated with a high risk of recurrence. This is particularly the case if the fibroma is removed without also excising a significant part of the plantar fascia. Mr McCulloch Consultant Podiatric Surgeon at The London Podiatry Centre has had success with open surgery but would consider this as a last resort option where all other treatments have failed.