



ACHILLES TENDON PAIN

Achilles tendon pain remains one of the great clinical challenges in sports medicine. This is essentially because the exact cause of Achilles tendon pain remains obscure and the most appropriate form of treatment remains the subject of debate. The athlete with Achilles tendon pain needs to understand that there is no "quick cure" and no "magic fix" for this problem. What is required, however, are a thorough history and examination, and provision of a logical and scientifically-sound rehabilitation process.

Terminology

The term "Achilles tendonitis" is a widely used name for this condition. It is however highly inaccurate as it implies that inflammation is the main underlying pathology. Studies have shown that this condition often involves collagen degeneration rather than inflammation and the term "Achilles tendinosis" is a more accurate representation of the underlying pathology.

Causes

There are many different factors that can contribute to the development of Achilles tendinosis. The "kinetic chain" refers to those moving parts of the body that contribute to a specific movement. In the process of running, it is obvious that all joints of the lower limbs contribute significantly to the action of running. Therefore, an abnormality anywhere in the kinetic chain can affect the distribution of force through the lower limbs and can potentially contribute to increased stress on the Achilles tendon.

Some studies have demonstrated a correlation between the number of years that an individual has been running and the likelihood that they will develop Achilles tendinosis. Similarly, a sudden increase in the training load or a decrease in the time allowed for recovery between running sessions may lead to the development of Achilles tendon pain.

Biomechanical issues such as abnormal running gait, leg length discrepancy, stiffness of the ankle, knee or hip, and muscle tightness or weakness, may all predispose the Achilles tendon to injury.

Neural (nerve-related) pain can mimic and contribute to the clinical presentation of Achilles tendon pain. Where an individual has long-standing Achilles tendon pain, it is quite likely that there is a resulting disturbance of the neural function in the lower limb. The examination therefore needs to include a careful assessment of neurological function in the lower limb.

A thorough history should be taken to try and identify those factors that have contributed to the development of Achilles tendinosis in a particular individual. It is important to remember, however, that in a substantial number of cases it is difficult to identify any clear precipitating factors. This condition can present in individuals who are not physically active, have not recently changed their activity habits and who do not appear to have any significant biomechanical abnormalities. For this reason Achilles tendinosis remains a clinical challenge for even the most experienced sports clinicians.

Pathology

In cases where there has been long-standing Achilles tendon pain, there is often areas of degenerative change (breakdown of the collagen tissue) within the Achilles tendon. This is often accompanied by "neovascularisation" where new blood vessels attempt to infiltrate the damage region. This probably represents an attempt by the body to heal the damage to the region. It has been theorised that these new blood vessels and the nerves associated with them, contribute to the pain of Achilles tendinosis.

The Achilles tendon is surrounded by a thin membrane known as the Achilles paratenon. When there is an inflammatory component to the pain, it usually involves the paratenon, rather than the tendon itself.

In a minority of cases the patient may suffer partial tear of the Achilles tendon.

Medical Investigations

In the past, clinicians have relied heavily on medical investigations such as plain x-ray, ultrasound and MRI to determine the pathology involved and to make decisions regarding the future management of the patient suffering Achilles tendon pain. Recent studies have suggested a very poor correlation between the findings on medical imaging and the patient's symptoms. Most sports medicine physicians would agree that medical imaging should only be used as an adjunct to clinical findings. The findings on history and examination provide the key information on which management decisions should be based.

Symptoms

The patient with Achilles tendinosis will often complain of pain with running activities. Sometimes the pain will actually warm-up during running activities but will be very painful after exercise and with the first few steps each morning. The pain is often relieved by heat (such as a hot shower) and by gentle activity.

As the severity of the condition increases, the patient may experience pain during running activities, during normal activities of daily living (such as walking) and even sometimes at rest. In severe cases, the patient will be limping with all walking activities. The area of the Achilles tendon involved may vary but is commonly between two centimetres and six centimetres above the heel.

Treatment

If the pain is of recent onset and involves inflammation of the paratenon, the patient may gain some benefit from anti-inflammatory medication. In long-standing cases however where degenerative change within the collagen is the prominent pathology, anti-inflammatory medication will usually provide little or no benefit.

Avoidance of aggravating activities is a sensible first step in addressing this condition. Recent studies have shown that specific strengthening programs involving eccentric strengthening (strengthening the calf muscle while the muscle is being elongated) will provide excellent relief of symptoms, if the patient can be diligent with the exercise regime (performing the exercises twice daily for a 12 week period!).

In recalcitrant cases, there is a place for injection of corticosteroid around (not into) the Achilles tendon, in combination with use of a night splint. There has been suggestion from some authors that injections of corticosteroid around the Achilles tendon may predispose the individual to Achilles tendon rupture. At this point in time however there remains no sound scientific evidence to support this claim.

Any biomechanical or neural factors that are thought to contribute to this condition in a particular individual need to be addressed as part of the treatment strategy. Exercises which mobilize the lumbar spine, stretch the lower limb neural structures, and improve strength around the pelvis and trunk, may be appropriate. Obviously, such interventions will vary significantly from patient to patient.

There have been some promising studies suggesting that prolotherapy (injection of sclerosant) to ablate the new blood vessels in the degenerative tendon may provide relief for sufferers. More rigorous scientific trials need to be conducted however before this treatment can be confidently prescribed.

Summary

Achilles tendon pain remains a challenge for even the most experienced sports clinicians. This is because no one yet has a complete understanding of the causes and because no single treatment appears to uniformly benefit every patient. A thorough history and examination is therefore required with treatment tailored to the precipitating factors which are specific to the individual patient.

Dr David Hughes

B.Med., Dip. Sports Medicine (London), FACSP

Sports Physician

References available on request