

Talalgia, a Brief Review

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Abstract

Background: Talalgia is a common pathology in the world population, turns out to be one of the frequent causes of the orthopedic consultation and a topic barely known by the general practitioner, due to this, the objective of this study is to carry out a short revision on the topic; To analyze the factors of risk, To review some of its etiologies, Classification, diagnosis and treatment.

Methods: A bibliographic search was conducted in databases such as Uptodate, Pubmed, Elsevier, Medline, scielo; Consulting systematic reviews and scientific studies with content of talalgia published between 2019-2020 and thirty articles related to the subject were chosen.

Conclusion: We differentiate between internal and external risk factors of talalgia cause, we open the paradox of multiple pathological options that cause talalgia, its diagnostic options and treatment.

Thus, the more structured the diagnosis of talalgia is, the better focused will be the management and prognosis of the pathology.

Keywords: Talalgia; Bursitis; Plantar Fasciitis; Achilles Tendon

Introduction

Heel pain is one of the most common musculoskeletal conditions affecting the lower limb and does not discriminate between physically active and sedentary people [21]. Thomas, *et al.* found that heel pain affects one in ten adults aged 50 years or older in the general population and approximately 80% experience some form of disability as a result [21]. Heel pain has a negative impact on health-related quality of life [25]. In a qualitative descriptive study done in Canada, Cotchett, *et al.* found that participants wanted to eliminate their pain and information that their expectations and needs were often not met; therefore, health professionals have an important role in responding patient needs to improve their knowledge and influence pain and behavior [25].

Materials and Methods

A bibliographic search was made in databases such as Uptodate, Pubmed, Elsevier, Medline, scielo; consulting systematic reviews and scientific studies with talalgia content published between 2019-2020 and thirty articles related to the topic were chosen.

Discussion

The anatomy of the foot consists of a set of 26 bones articulated with each other and forming three functional units that are: the hind-foot, midfoot and forefoot [15].

The foot has a similar shape to a parallelepiped, the back part forms the tip of the heel (most common site of talalgia), in the front part we have the talus and cuboids. The back part of the foot anatomically corresponds to the calcaneus (largest bone of the foot), the posterior and plantar areas of the ligamentous and tendon insertions, the serous bags, and the soft tissues of the foot [20].

In addition to supporting weight, the foot acts as a shock absorber and as a lever to push the leg forward, it adapts the body's balance to uneven surfaces but is subjected to significant static and dynamic forces [20]. So, it is not surprising that approximately 75% of people suffer from foot pain at some point in their life [1].

Causes of foot pain:

- Remote mechanisms (gait disturbances)
- For general conditions (rheumatoid arthritis, ankylosing spondylitis)
- Proper causes of the foot (talalgia) [11].

Musculoskeletal pain is the most frequent reason for referral to an orthopedic surgeon. Most of these consultations have a traumatic background present; We must not forget all those causes that can produce pain without there being a previous trauma. Within the latter, the appearance of pain generally occurs around school age and, above all, in adolescence [15].

Talalgia is defined as the perception of pain located in the heel [1]. Although anatomically this is the calcaneus, in clinical practice the term is used more freely to refer to structures within and below the ankle complex [2]. It is a common pathology in middle-aged people and runners [1].

Risk factors for this pathology are documented as:

- Intrinsic factors are those that predispose an individual to injury, such as: limited range of motion of the first metatarsophalangeal joint, limited ankle dorsiflexion, leg length discrepancy, reduce plantar pad thickness, increased plantar fascia thickness, excessive foot pronation, reduced calf strength, advanced age and increased body mass index.
- The extrinsic factors are environmental and conjunctural influences acting on an individual such as prolonged standing, use of inappropriate footwear, previous injury, running surface, speed, frequency and weekly distance in athletes [1,3].

Talalgia classification

According to its etiology:

- Bone origin (traumatic, infectious, dystrophic, tumor (malignant or benign)).
- Enteric Origin (inflammatory enthesopathy, mechanical enthesopathy, metabolic enthesopathy, iatrogenic enthesopathy).
- Soft tissue origin (skin lesions, serous bag lesions, nerve entrapment, tumors) [20].

According to its incidence:

- Heel spur 46%

- Nerve entrapment 18%
- Plantar wart 6%
- Haglund's spur 1%
- Other pathologies 29% [20].

According to its treatment:

- Conservative
- Orthotic
- Physiotherapy
- Surgical [20].

In this article we will focus on the area of pain onset, two of which are identified as: plantar pain and posterior pain [1].

Pain in the lower heel (Plantar)

Under-heel pain is the most common presentation, seen in about 15% of adults. Result of mechanical causes and can be precisely located, it is generally described along the plantar fascia but can extend to the midfoot [2].

Plantar fasciitis: This condition was first described by Plettner. It most often affects women between the ages of 40 and 60 [12].

Plantar fasciitis is the term doctors use when a part of the foot called plantar fascia becomes irritated. Plantar fascia is a tough band of connective tissue that connects the heel bone to the toes [17]. Its main function is to provide support, assist in arch elevation, inversion of the back foot and external rotation of the leg.

The pathophysiological changes that would be present range from the degeneration of fibrous tissue, to proliferation of fibroblasts (without evidence of chronic inflammation) [18].

Considered the most common cause of plantar pain in the hindfoot [3], it is an inflammatory entity of the plantar aponeurotic fascia. In the vast majority of cases it is a self-limited pathology, with a resolution of about one year. It is a gradual onset disorder, which does not arise acutely after a traumatic event. Its exact etiology is unknown but the most accepted theory is that repeated microtrauma predisposes to degeneration and micro ruptures of the plantar fascia as well as periostitis in the posterior medial calcaneus tuberosity [4], we could mention possible mechanical causes such as: pronated foot, externally rotated foot, cavus foot and obesity; degenerative causes such as: increased pronation of the fat pad, atrophy and age and systemic causes: rheumatoid arthritis, systemic lupus erythematosus, gout, ankylosing spondylitis and reiter syndrome [22]. O Belham., *et al.* found that heel pain from plantar fasciitis is directly related to the thickness of the patient's heel fat pad and loss of elasticity, as thickness deficiency reduces shock absorption and causes heel pain [22].

People who compress the metatarsal region of the feet or who exert repetitive tension on the plantar fascia, produce constant force traction on the calcaneal connection of the plantar fascia, during rest, the plantar fascia tends to retract [6], this guides on typical symptoms, pain in the medial plantar area of the heel, particularly during the first steps at the beginning of the day, which progressively improves with ambulation pain worsens with prolonged standing or with rest that increases with pressure to palpation [3].

We have three clinical presentation forms: Acute, Subacute and Chronic [11]. Treatment of Plantar Fasciitis is divided into non-surgical (non-steroidal anti-inflammatory drugs, local cryotherapy, resting splints, lifestyle changes, insoles, plantar fascia stretching exercises, corticosteroid infiltrations, platelet rich plasma infiltrations) and surgical, which is indicated when patients do not respond to medical treatment and are candidates for percutaneous or endoscopic fasciotomy. Currently there are no published studies on the best treatment for this disease, early initiation of conservative treatment (within six weeks of the onset of the symptoms) has been recommended to speed up recovery times [12].

When there is no response to conventional treatment in 9 months, we witness a chronification of the process: recalcitrant plantar fasciitis, a circumstance that occurs in approximately 10% of cases. Historically, the treatment of choice has been open partial plantar fasciotomy (APF), although more recently the release of the medial twin has been proposed as a surgical alternative. Both are valid and effective treatments [5]. Ultrasonography is the most useful imaging modality to confirm the diagnosis of plantar fasciitis where fibrillar structure and fascial thickening > 5 mm with or without calcifications, perifascial fluid, occasional increase in blood flow in the plantar fascia in the Doppler image and a loss of elasticity of the plantar fascia with sonoelastography. It can also be used to check the response to treatment with corticosteroid injections [8].

The presence of pain with irradiation or sensory involvement (hypoesthesia, dysesthesia) are indicative of neurological pathology, and should be excluded [13].

Heel stress fractures: It usually begins with severe pain that begins with physical activity, but disappears or decreases when you stop doing it, as the load on the bone is reduced. Some swelling may appear, including some redness. If the problem is not treated and physical activity continues, the pain usually increases and remains over time, being able to remain continuously in daily life [15].

Subtalar osteoarthritis.

Pain in the back heel

Second most common presentation of foot pain in primary care, much of its pathology is related to the insertion of the Achilles tendon. The pain is described posterior to the calcaneus and can sometimes extend proximally to include part of the tendon, or even the muscle mass itself. Many of these patients are successfully managed conservatively and the initial strategies used are similar. Anti-inflammatories should be prescribed with rest from activities that exacerbate pain or suggested activity modification, as well as ice compression [2].

Achilles tendinopathy: The mechanism is due to repetitive trauma leading to inflammation followed by cartilage and bone metaplasia, imbalance of dorsiflexors and plantar flexors, poor tendon blood supply, fluoroquinolone antibiotics, and inflammatory arthropathy. Its appearance is influenced by the patient's previous anatomical alterations (valgus foot, varus, cavus, short achilles) and the type of footwear [14]. The pathogenesis behind Achilles tendinopathy is due to abnormal vascularization of 2 to 6 cm proximal to the Achilles insertion in response to repetitive microscopic tearing of the tendon [10]. It is characterized by pain, impaired performance, swelling in and around the tendon, morning stiffness or stiffness after a period of inactivity. It is common in athletes, middle-aged overweight people with no history of increased physical activity, and aging [9]. Plain radiograph shows bone spur and intratendinous calcification [10].

Retrocalcaneal bursitis: This is the inflammation of the bursa between the front face of the Achilles and the back one. The pain is located in the anterior insertion and 2 to 3 cm proximal to the insertion of the Achilles tendon, it increases with dorsiflexion. It is associated with Achilles tendinitis, plantar fasciitis, heel spurs, fibromyalgia, and rheumatoid arthritis. management can be pharmacological, with physical therapy, biological and surgical therapy [10].

Calcaneal apophysitis (Sever’s disease): Common musculoskeletal pathology in children. It has a self-limiting character that is related to physiological changes in the calcaneal process in growing children and during the transition to adolescence. The inflammation of the process is caused by the traction released in opposite directions between the Achilles tendon and the plantar structures; causing local congestion, caused by microavulsions at the bone-cartilage junction.

It is usually the result of repetitive movements associated with contusion and plantar overload. It is important to bear in mind that this pathology may suffer recurrences and that these will resolve themselves at all once the development and growth of the pediatric patient has finished [16]. It is a traction apophysitis of the insertion of the Achilles tendon, one of the most frequent causes of talalgia in Pediatrics. It usually appears around the age of 10, more frequent in men, closely related to the level of physical activity. Between 7 and 12 years old, the growth cartilage experiences a higher growth speed, the tendon being shorter, the overload and overuse leads to an inflammation of the growth plate that causes heel pain, as clinical manifestations, which can become very disabling, limiting the patient’s activity. It is a recurring, self-limiting condition that improves if we manage to keep the child at rest. Pain relievers, stretching exercises for the triceps sural and heel pads can help improve evolution. The typical radiological image is considered a variant of normality and consists of the presence of sclerosis and fragmentation, so the diagnosis is fundamentally clinical [7].

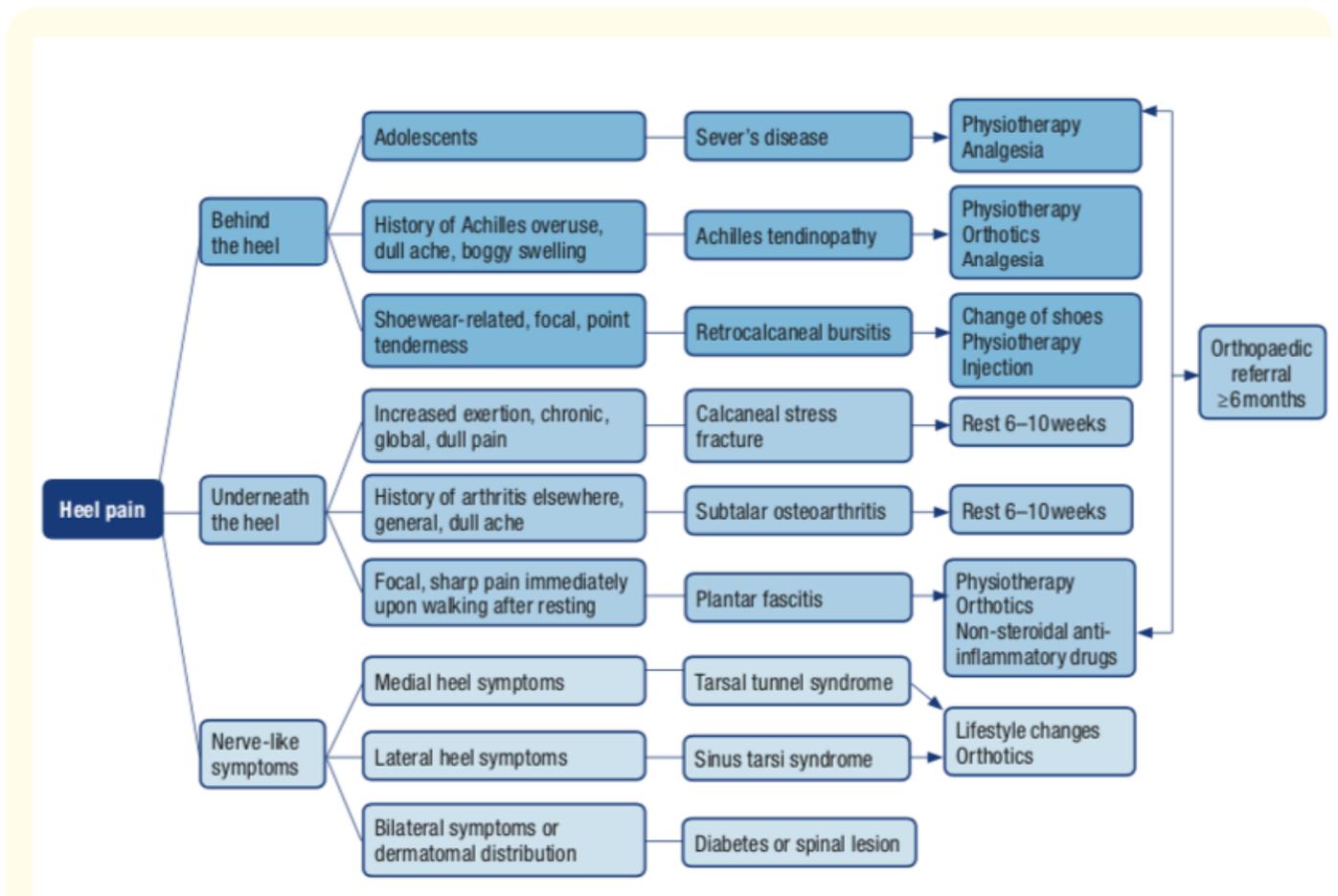
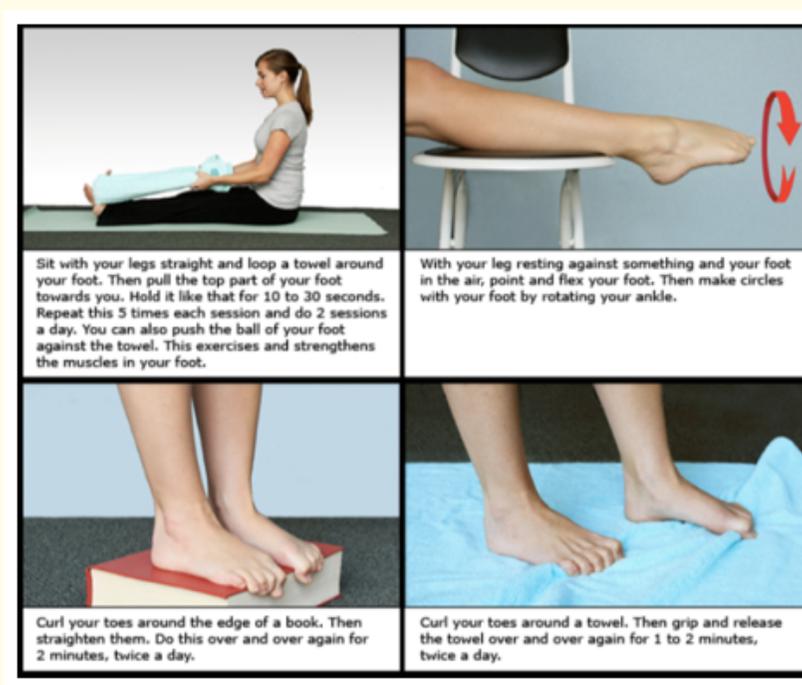


Figure 1: Framework for managing a patient with heel pain [2].

Treatment options

The goal of heel pain treatment is to improve quality of life by relieving pain and preserving the function of the patient’s foot.

- Rest: Give your foot a chance to heal by resting. But don’t stop being fully active. Doing so can lead to more pain and stiffness in the long run.
- Ice on the foot: Ice on the heel for 20 minutes up to 4 times a day can relieve pain.
- Applying ice and massaging the foot before exercise may also help.
- Special exercises for the feet:



Figure

- Take pain relievers: If your pain is severe, you can try taking pain relievers without a prescription. Examples include ibuprofen (sample brand names: Advil, Motrin) and naproxen (sample brand name: Aleve). But if you have other medical conditions or are already taking your medications, consult your doctor or nurse before taking new pain medications.
- Wear sturdy shoes: Sneakers with plenty of cushion and good arch and heel support are best. Shoes with stiff soles can also help. It may also help to add cushioning or gel heel inserts to your shoes.
- Wear splints or kinesthetic tapes at night: Some people feel better if they wear a splint / tape while they sleep that keeps their feet straight [17].

- Acupuncture and moxibustion have been used to treat pain and functional limitations of heel pain for many years with positive results. Several previous studies have demonstrated the positive therapeutic effects of electroacupuncture, warm puncture, or a combination of both for heel pain [26].
- Corticosteroid injection is a method that has been found to be no more effective for pain control in the short term than physical therapy, and in the long term is not more effective than a placebo injection for pain control and preservation of the function making it a method that is not used in the first instance [30]. McClinton, *et al.* found in their study that there is a greater improvement in pain at 6 weeks and at one year in patients who were treated with a combination of routine podiatric care plus physical therapy compared to patients who were only treated with routine podiatric care [27].

Conclusion

- Talalgia is a common pathology in the world adult population, it has multiple causes, but with a good diagnosis its approach can be guided. It is very important for this to determine the precise location of the pain. Diagnostic images will serve as a little help, especially in specific situations, so a good medical history is the key.
- Most of these patients can be managed conservatively by modifying their lifestyle, adding physical therapy and orthopedic devices, all of which forms the basis of treatment. If after 6 months it does not work, it should be considered a referral to the orthopedic surgeon.
- Open the paradigm to other pathological options that cause talalgia such as plantar fasciitis, Achilles tendinopathy, stress fractures, Sever's disease, among others. If other pathologies are taken into account, the mistake of erroneously medicating will not occur, much less prolonging the symptoms. If the pain is not correctly focused, the diagnosis and treatment will be delayed and possibly not adequate for the patient's pathology.
- Differentiate between internal (foot-specific) and external factors that are producing talalgia, such as pain from peripheral neuropathies (associated with diabetes), improper use of the foot, walking on hard surfaces and for long periods of time, aging, and improper use of shoes.
- Have as a second management option before thinking about surgical or pharmacological methods, which can be just as effective for pain management; such as Special exercises, appropriate footwear, hot/cold therapies, kinesthetic bands, among others
- The more structured the diagnosis of talalgia is, the more focused the management and prognosis of the pathology will be. Have as a first option a conservative treatment at least 6 months before referring to a specialization (orthopedics). Similarly discard differential diagnosis, take the first tests (AP and lateral X-ray) in order to advance the process.

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