Medical Coverage Policy | Extracorporeal Shock Wave Treatment for Plantar Fasciitis and Other Musculoskeletal Conditions

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OVERVIEW

Extracorporeal shock wave therapy (ESWT) is a noninvasive method used to treat pain with shock or sound waves directed from outside the body onto the area to be treated (e.g., the heel in the case of plantar fasciitis). Shock waves are generated at high- or low-energy intensity, and treatment protocols can include more than one treatment. ESWT has been investigated for use in a variety of musculoskeletal conditions.

MEDICAL CRITERIA

Not applicable

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Medicare Advantage Plans

Extracorporeal shock wave therapy, using either a high- or low-dose protocol or radial ESWT, is not covered as a treatment of musculoskeletal conditions, including but not limited to plantar fasciitis; tendinopathies including tendinitis of the shoulder, Achilles tendinitis, tendinitis of the elbow (lateral epicondylitis), and patellar tendinitis; stress fractures; avascular necrosis of the femoral head; delayed union and nonunion of fractures; and spasticity, as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Commercial Products

Extracorporeal shock wave therapy, using either a high- or low-dose protocol or radial ESWT, is considered not medically necessary as a treatment of musculoskeletal conditions, including but not limited to plantar fasciitis; tendinopathies including tendinitis of the shoulder, Achilles tendinitis, tendinitis of the elbow (lateral epicondylitis), and patellar tendinitis; stress fractures; avascular necrosis of the femoral head; delayed union and nonunion of fractures; and spasticity, as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

COVERAGE

Benefits may vary between groups and contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage, or Subscriber Agreement for applicable not medically necessary/not covered benefits/coverage.

BACKGROUND

Chronic Musculoskeletal Conditions

Chronic musculoskeletal conditions (eg, tendinitis) can be associated with a substantial degree of scarring and calcium deposition. Calcium deposits may restrict motion and encroach on other structures, such as nerves and blood vessels, causing pain and decreased function. One hypothesis is that disruption of calcific deposits by shock waves may loosen adjacent structures and promote resorption of calcium, thereby decreasing pain and improving function.

Plantar Fasciitis

Plantar fasciitis is a very common ailment characterized by deep pain in the plantar aspect of the heel, particularly on arising from bed. While the pain may subside with activity, in some patients, the pain persists, interrupting activities of daily living. On physical examination, firm pressure will elicit a tender spot over the medial tubercle of the calcaneus. The exact etiology of plantar fasciitis is unclear, although repetitive injury is

suspected. Heel spurs are a common associated finding, although it is unproven that heel spurs cause the pain. Asymptomatic heel spurs can be found in up to 10% of the population.

Tendinitis and Tendinopathies
Common tendinitis and tendinopathy syndromes are:

- Lateral epicondylitis ("tennis elbow")
- Shoulder tendinopathy
- Achilles tendinopathy
- Patellar tendinopathy ("jumper's knee")

Fracture Nonunion and Delayed Union
The following criteria are used to define fracture nonunion:

- At least 3 months have passed since the date of fracture;
- Serial radiographs have confirmed that no progressive signs of healing have occurred;
- The fracture gap is 1 cm or less; and
- The patient can be adequately immobilized and is of an age likely to comply with non-weight bearing limitation.

Delayed union can be defined as a decelerating healing process, as determined by serial radiographs, together with a lack of clinical and radiologic evidence of union, bony continuity, or bone reaction at the fracture site for no less than 3 months from the index injury or the most recent intervention. (In contrast, nonunion serial radiographs show no evidence of healing.)

Other Musculoskeletal and Neurologic Conditions
Other musculoskeletal conditions include medial tibial stress syndrome, osteonecrosis (avascular necrosis) of the femoral head, coccydynia, and painful stump neuromas. Neurologic conditions include spasticity, which refers to a motor disorder characterized by increased velocity-dependent stretch reflexes. It is one characteristic of upper motor neuron dysfunction, which may be due to a variety of pathologies.

Treatment
Most cases of plantar fasciitis are treated with conservative therapy, including rest or minimization of running and jumping, heel cups, and nonsteroidal-anti-inflammatory drugs. Local steroid injection may also be used. Improvement may take up to 1 year in some cases. For tendinitis and tendinopathy syndromes, conservative treatment often involves rest, activity modifications, physical therapy, and anti-inflammatory medications.

Extracorporeal Shock Wave Therapy
Also known as orthotripsy, extracorporeal shock wave therapy (ESWT) has been available since the early 1980s for the treatment of renal stones and has been widely investigated for the treatment of biliary stones. ESWT uses externally-applied shock waves to create a transient pressure disturbance, which disrupts solid structures, breaking them into smaller fragments, thus allowing spontaneous passage and/or removal of stones. The mechanism by which ESWT might have an effect on musculoskeletal conditions is not well-defined.

Other mechanisms are also thought to be involved in ESWT. Physical stimuli are known to activate endogenous pain control systems, and activation by shock waves may "reset" the endogenous pain receptors. Damage to endothelial tissue from ESWT may result in increased vessel wall permeability, causing increased diffusion of cytokines, which may, in turn, promote healing. Microtrauma induced by ESWT may promote angiogenesis and thus aid in healing. Finally, shock waves have been shown to stimulate osteogenesis and promote callous formation in animals, which is the rationale for trials of ESWT in delayed union or nonunion of bone fractures.

There are 2 types of ESWT: focused and radial. Focused ESWT sends medium- to high-energy shockwaves of single pressure pulses lasting microseconds, directed on a specific target using ultrasound or radiographic

guidance. Radial ESWT (RSW) transmits low- to medium-energy shockwaves radially over a larger surface area. The U.S. (United States) Food and Drug Administration (FDA) approval was first granted in 2002 for focused ESWT devices and in 2007 for RSW devices.

Currently, 6 focused ESWT devices have been approved by FDA through the premarket approval process for orthopedic use:

- OssaTron® device (HealthTronics) - Approval date: 2000. Delivery system: Electrohydraulic. Indications: chronic proximal plantar fasciitis, i.e., pain persisting >6 months and unresponsive to conservative management; lateral epicondylitis
- Epos™ Ultra (Dornier) - Approval date: 2002. Delivery system: Electromagnetic. Indications: plantar fasciitis.
- Sonocur® Basic (Siemens) - Approval date: 2002. Delivery system: Electromagnetic. Indications: chronic lateral epicondylitis (unresponsive to conservative therapy for >6 months)
- Orthospec™ Orthopedic ESWT (Medispec) - Approval date: 2005. Delivery system: Electrohydraulic spark-gap. Indications: Chronic proximal plantar fasciitis in patients ≥18 years of age.
- Orbasone™ Pain Relief System (Orthometrix) - Approval date: 2005. Delivery system: High-energy sonic wave. Indications: Chronic proximal plantar fasciitis in patients ≥18 years of age.
- Duolith® SD1 Shock Wave Therapy Device (Storz Medical AG) - Approval date: 2016. Delivery system: Electromagnetic. Indications: Chronic proximal plantar fasciitis in patients ≥18 years of age with history of failed alternative conservative therapies >6 mo

Both high-dose and low-dose protocols have been investigated. A high-dose protocol consists of a single treatment of high-energy shock waves (1300mJ/mm-2). This painful procedure requires anesthesia. A low-dose protocol consists of multiple treatments, spaced one week to one month apart, in which a lower dose of shock waves is applied. This protocol does not require anesthesia. The FDA-labeled indication for the OssaTron and Epos Ultra devices specifically describes a high-dose protocol, while the labeled indication for the Sonocur device describes a low-dose protocol.

In 2007, Dolorclast® (EMS Electro Medical Systems), a radial ESWT, was approved by FDA through the premarket approval process. Radial ESWT is generated ballistically by accelerating a bullet to hit an applicator, which transforms the kinetic energy into radially expanding shock waves. Radial ESWT is described as an alternative to focused ESWT and is said to address larger treatment areas, thus providing potential advantages in superficial applications like tendinopathies. The FDA-approved indication is for the treatment of patients 18 years and older with chronic proximal plantar fasciitis and a history of unsuccessful conservative therapy.

The evidence is insufficient to determine that the technology results in an improvement in the net health outcome for individuals who have the following:

- plantar fasciitis
- lateral epicondylitis
- shoulder tendinopathy
- Achilles tendinopathy
- patellar tendinopathy
- medial tibial stress syndrome
- osteonecrosis of the femoral head
- nonunion or delayed union
- spasticity

CODING

Medicare Advantage Plans and Commercial Products

The following CPT codes are not covered for Medicare Advantage Plans and not medically necessary for Commercial Products:

28890 Extracorporeal shock wave, high energy, performed by a physician or other qualified health care professional, requiring anesthesia other than local, including ultrasound guidance, involving the plantar fascia.

0101T Extracorporeal shock wave-involving musculoskeletal system, not otherwise specified

0102T Extracorporeal shock wave performed by a physician, requiring anesthesia other than local, and involving the lateral humeral epicondyle

There is no specific CPT code for low-energy or radial ESWT. The unlisted CPT code for general musculoskeletal procedure (20999) should be used.

RELATED POLICIES

Medicare Advantage Plans National and Local Coverage Determinations
Unlisted Procedures

PUBLISHED

Provider Update, September 2026
Provider Update, October 2025
Provider Update, September 2024
Provider Update, August 2023
Provider Update, October 2022

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