

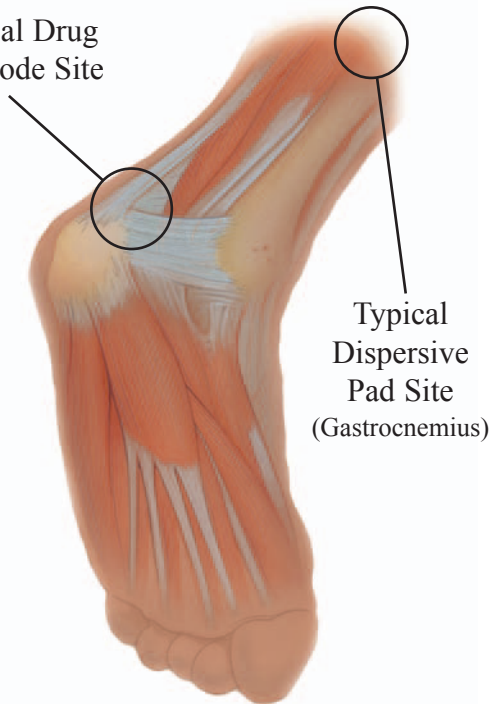
ETIOLOGY

There are two bursae located near the calcaneus. The retrocalcaneal bursa is located between the anterior surface of the Achilles tendon and the posterior superior angle of the calcaneus. The calcaneal bursa lies between the insertion of the Achilles tendon and the overlying skin. Both bursae can become enlarged or inflamed due to damage of the tendon or excessive pressure in the area.

The calcaneal bursa, located just under the skin, is most commonly enlarged and usually gets inflamed because of oversized or tight shoes, especially high heels. It can be palpated by lifting the skin posterior to the tendon. The result will be that the calcaneal bursa lies directly between your fingers.

The retrocalcaneal bursa is located by pinching the soft tissue anterior to the Achilles tendon. If there is any palpable thickening, or the patient complains of tenderness in either bursa, this is a positive sign of bursitis. Bursitis here is more serious and usually caused by overuse.

Typical Drug
Electrode Site



Typical
Dispersive
Pad Site
(Gastrocnemius)

PATIENT EVALUATION

A. Subjective:

- Patient complaint
- Location
- Onset and duration of symptoms
- Description of symptoms (i.e., numbness, pain [constant, dull, sharp], hypersensitivity, stiffness); use pain scale
- Pattern of referred pain
- Pattern of when symptoms occur (AM, PM, after activity, etc.)
- Self-help or other formal treatment
- Other medical problems, history
- Concurrent medications and allergies

B. Objective (compare with uninvolved foot):

1. Inspection:

- Redness, swelling, warmth
- Scars
- Gait Pattern
- Arches

2. Palpation:

- Locate retrocalcaneal and calcaneal bursae and tenderness
- Palpate Achilles tendon for tenderness
- Differentiate between soft tissue tenderness and bursae tenderness and thickening

3. Mobility:

- Active and passive ROM (plantar and dorsi flexion, inversion and eversion)

4. Muscle Testing:

- Dorsi and plantar flexors, invertors and evertors while weight bearing and unloaded

5. Provocation Test:

- Palpation of bursae with pressure

6. Other Joints:

- Test toes, ankle, knee and hip for secondary involvement

7. Review x-ray films and physician's report (rule out calcific tendonitis)

C. Assessment:

1. Problem list
2. Goals
3. Treatment:
 - Iontophoresis (medications, dosages, electrode size)
 - Other modalities (e.g., ice or heat, stretching, friction massage, arch supports for longitudinal arch, readjustment of shoes, home program, activity or sport re-education to prevent re-injury, etc.)
 - Oral or injectable medications (administered by physician, e.g., NSAIDs, corticosteroids)

D. Plan:

1. Frequency and duration of treatment
2. Date(s) for assessment of progress

WHY IONTOPHORESIS IS APPROPRIATE THERAPY

Iontophoretic drug delivery for the condition of calcaneal bursitis provides an alternative to hypodermic injection of corticosteroids, with increased comfort and decreased systemic and localized side effects. It allows short term administration and avoids the associated discomfort of needle insertion at an already tender area of tissue. Avoiding the use of a hypodermic needle also prevents further tissue trauma and eliminates the risk of infection at the injection site. Also, the risk of potential necrosis and/or fascia weakening associated with bolus injections of corticosteroids is eliminated. When calcaneal bursitis can be well localized, iontophoresis is appropriate with electrode placement over the affected site.

RE-EVALUATION

In addition to the patient's subjective reports, check for decreased pain, decreased tenderness to palpation at the point of deep tenderness, full weight bearing without pain and resumption of activities without complaint.

IONTOPHORESIS PROCEDURE

IMPORTANT: See iontophoresis system and electrode instruction guides for indications, contraindications, warnings, precautions and directions for use.

1. Clean skin is absolutely necessary to minimize or eliminate skin irritation. Clean both electrode sites vigorously with an alcohol wipe prior to applying electrodes to remove dry skin, salts and oils. Excess hair may be trimmed with scissors or electric clippers. Do not shave skin. Doing so may result in excessive irritation or burns.
2. Prepare electrodes following package instructions.
3. Place the drug electrode over the point of deep tenderness.
4. The dispersive pad may be placed proximal to the drug electrode over a major muscle (e.g., gastrocnemius). Never tape, bind or compress either electrode in any way. Properly prepared drug electrodes and dispersive pads do not require added fixation on properly prepared skin.
5. Do not allow the patient to extend or flex the foot or to press on, or lean against electrodes during treatment. This prevents circuit breaks and minimizes the possibility of excessive skin irritation or burns.
6. Treat for 40 milliamperes-minutes according to package instructions depending on medications and electrode chosen. Use lower current and/or shorter treatment times for patients with sensitive skin.
7. Treat every other day. Usually, no more than three to six treatments are required, however, additional treatments are not contraindicated.

REFERENCES

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Edited By:

Rebecca Stephenson, PT
Stephenson Physical Therapy
335 Main Street
Medfield, MA 02052