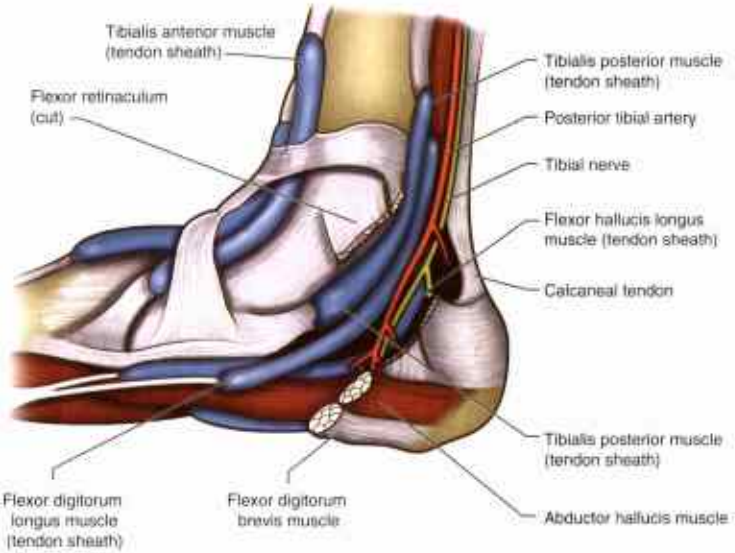

FIGURE 1 ● Medial aspect of the right foot.

ANESTHESIA

- Local anesthesia of the skin using a topical vapocoolant spray.

EQUIPMENT

- 3-mL syringe
- 25-gauge, 5/8 in. needle
- 0.5 mL of 1% lidocaine without epinephrine
- 0.5 mL of the steroid solution (40 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using a topical vapocoolant spray.
3. Position the needle and syringe with the needle tip directed perpendicularly to the surface of the skin with the tip of the needle directed laterally toward the nerve.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle about 1 cm deep. If any pain, paresthesia, or numbness is encountered, back up the needle 1 to 2 mm.
6. Aspirate with the syringe to ensure that the needle tip is not in the posterior tibial artery or vein.
7. Slowly inject the volume of the syringe as a bolus around the posterior tibial nerve and into the tarsal tunnel. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.

FIGURE 2 ● Tarsal tunnel injection.

8. Following injection of the corticosteroid solution, withdraw the needle.
9. Apply a sterile adhesive bandage.
10. Instruct the patient to move his or her ankle through its full range of motion. This movement distributes the steroid solution along the nerve and throughout the tarsal tunnel.
11. Reexamine the foot in 5 min to confirm pain relief or the development of numbness in the distribution of the posterior tibial nerve from the local anesthetic.

AFTERCARE

- Avoid excessive use of the foot over the next 2 weeks.
- Begin a program of physical therapy.
- Use orthotics or motion-control running shoes if there is excessive foot pronation.
- Consider splinting—especially at night.
- NSAIDs, ice, and heat as indicated.
- Consider follow-up examination in 2 weeks.

CPT code: 64450—Injection, nerve block, therapeutic, other peripheral nerve or branch

PEARLS

- Warn the patient that the posterior tibial nerve may be contacted when using this approach. Ask him or her to calmly report any pain or electrical shock sensation without jerking his or her foot away.
- This injection can be superficial. Depositing corticosteroid in the subcutaneous tissues can result in the complication of skin atrophy and hypopigmentation. Avoid the development of a subdermal wheal while performing all injections of the corticosteroid solutions.

Ankle Joint—Anterior-Lateral Approach

Injection of the ankle joint is a fairly uncommon procedure in primary care. Ankle joint pain may occur following a trauma or with osteoarthritis, gout, rheumatoid arthritis, or other inflammatory conditions. A small-diameter needle is appropriate as this technique is primarily used to inject steroid solution into the ankle joint. Occasionally, there will be a small amount of joint fluid to be aspirated.

Indications	ICD-9 Code	ICD-10 Code
Ankle pain	719.47	M25.57
Ankle sprain, unspecified site	845.00	S93.4
Ankle arthritis, unspecified	716.97	M13.97
Ankle arthrosis, primary	715.17	M19.07
Ankle arthrosis, posttraumatic	716.17	M19.17
Ankle arthrosis, secondary	715.27	M19.27

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

1. Supine on the examination table.
2. The knee on the affected side is placed in 90 degrees of flexion.
3. The ankle is slightly plantar flexed so that the plantar surface is in full contact with the chucks pad covering the exam table.
4. Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

1. With the patient lying supine on the examination table, the clinician stands lateral to the affected ankle.
2. Locate the junction between the fibula, distal tibia, and talus over the anterior-lateral aspect of the ankle.
3. Mark a point over this articulation. There is normally a depression in that area.
4. At that site, press firmly on the skin with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
5. After the landmarks are identified, the patient should not move the ankle.

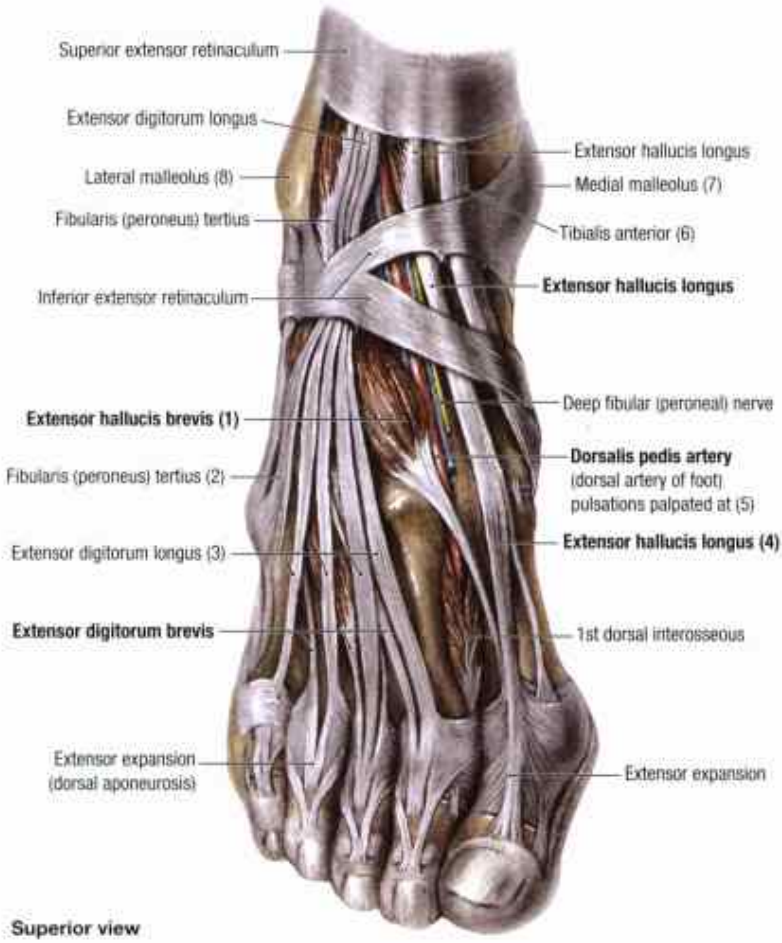

FIGURE 1 ● Right anterior ankle. (From Agur AMR, Dalley AF. *Grant's Atlas of Anatomy*. 12th Ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2009.)

ANESTHESIA

- Local anesthesia of the skin using topical vapocoolant spray.

EQUIPMENT

- 20-mL syringe—for optional aspiration
- 3-mL syringe—for injection
- 20-gauge, 1 in. needle—for optional aspiration
- 25-gauge, 1-1/2 in. needle—if not aspirating fluid
- 1 mL of 1% lidocaine without epinephrine
- 1 mL of the steroid solution (40 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

FIGURE 2 ● Right anterior-lateral ankle joint injection.

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using topical vapocoolant spray.
3. Position the needle and syringe perpendicular to the skin with the tip of the needle directed toward the center of the ankle.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle into the ankle joint. This places the needle tip between the distal tibia and fibula in the ankle joint.
6. If aspirating, withdraw the fluid using a 20-gauge, 1-1/2 in. needle with the 20-mL syringe.
7. If only injecting corticosteroid solution, use a 25-gauge, 1-1/2 in. needle with the 3-mL syringe.
8. If injection following aspiration is elected, remove the large syringe from the 20-gauge needle and then attach the 3-mL syringe filled with the steroid solution.
9. Inject the steroid solution as a bolus into the ankle joint. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
10. Following injection of the corticosteroid solution, withdraw the needle.
11. Apply a sterile adhesive bandage.
12. Instruct the patient to move his or her ankle through its full range of motion. This movement distributes the steroid solution throughout the ankle joint.
13. Reexamine the ankle in 5 min to confirm pain relief.

AFTERCARE

- Consider the use of an ankle brace.
- Avoid vigorous use of the ankle over the next 2 weeks.
- NSAIDs, ice, and/or physical therapy as indicated.
- Consider follow-up examination in 2 weeks.

CPT code: 20605—Arthrocentesis, aspiration, and/or injection of intermediate joint or bursa

PEARLS

- Insert the needle medially to the anterior tibialis tendon in order to avoid injury to the anterior tibial artery, anterior tibial vein, and peroneal nerve.

A video clip showing an ankle joint injection can be found on the book's web site.

Ankle Joint—Anterior-Medial Approach

Injection of the ankle joint is a fairly uncommon procedure in primary care. Ankle joint pain may occur following a trauma or with osteoarthritis, gout, rheumatoid arthritis, or other inflammatory conditions. A small-diameter needle is appropriate as this technique is primarily used to inject steroid solution into the ankle joint. Occasionally, there will be a small amount of joint fluid to be aspirated.

Indications	ICD-9 Code	ICD-10 Code
Ankle pain	719.47	M25.57
Ankle sprain, unspecified site	845.00	S93.4
Ankle arthritis, unspecified	716.97	M13.97
Ankle arthrosis, primary	715.17	M19.07
Ankle arthrosis, posttraumatic	716.17	M19.17
Ankle arthrosis, secondary	715.27	M19.27

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

- Supine on the examination table.
- The knee on the affected side is placed in 90 degrees of flexion.
- The ankle is slightly plantar flexed so that the plantar surface is in full contact with the chucks pad covering the exam table.
- Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

1. With the patient lying supine on the examination table, the clinician stands medial to the affected ankle.
2. Locate the junction between the fibula, distaltibia and talus over the anteriorlateral aspect of the ankle.
3. Mark a point over this articulation. There is normally a depression in that area.
4. At that site, press firmly on the skin with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
5. After the landmarks are identified, the patient should not move the ankle.

FIGURE 1 ● Right anterior ankle. (From Agur AMR, Dalley AF. *Grant's Atlas of Anatomy*. 12th Ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2009.)

ANESTHESIA

- Local anesthesia of the skin using topical vapocoolant spray.

EQUIPMENT

- 20-mL syringe—for optional aspiration
- 3-mL syringe—for injection
- 20-gauge, 1 in. needle—for optional aspiration
- 25-gauge, 1-1/2 in. needle—if not aspirating fluid
- 1 mL of 1% lidocaine without epinephrine
- 1 mL of the steroid solution (40 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

FIGURE 2 ● Right anterior-medial ankle joint injection.

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using topical vapocoolant spray.
3. Position the needle and syringe perpendicular to the skin with the tip of the needle directed toward the center of the ankle.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle into the ankle joint. This places the needle tip between the distal tibia and fibula in the ankle joint.
6. If aspirating, withdraw the fluid using a 20-gauge, 1-1/2 in. needle with the 20-mL syringe.
7. If only injecting corticosteroid solution, use a 25-gauge, 1-1/2 in. needle with the 3-mL syringe.
8. If injection following aspiration is elected, remove the large syringe from the 20-gauge needle and then attach the 3-mL syringe filled with the steroid solution.
9. Inject the steroid solution as a bolus into the ankle joint. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
10. Following injection of the corticosteroid solution, withdraw the needle.
11. Apply a sterile adhesive bandage.
12. Instruct the patient to move his or her ankle through its full range of motion. This movement distributes the steroid solution throughout the ankle joint.
13. Reexamine the ankle in 5 min to confirm pain relief.

AFTERCARE

- Consider the use of an ankle brace.
- Avoid vigorous use of the affected ankle over the next 2 weeks.
- NSAIDs, ice, and/or physical therapy as indicated.
- Consider follow-up examination in 2 weeks.

CPT code: 20605—Arthrocentesis, aspiration, and/or injection of intermediate joint or bursa

PEARLS

- Insert the needle medially to the anterior tibialis tendon in order to avoid injury to the anterior tibial artery, anterior tibial vein, and peroneal nerve.

A video clip showing an ankle joint injection can be found on the book's web site.

Fibularis Brevis Tendonitis

Injection of corticosteroids for the treatment of tendonitis of the fibularis brevis (formerly known as the peroneus brevis) tendon is a fairly uncommon procedure for primary care physicians. The fibularis longus and brevis tendons are often injured with inversion ankle sprains. This can cause chronic subluxation of the tendons. Overuse from repeated forceful plantar flexion and resisted foot eversion may also occur.

Indications	ICD-9 Code	ICD-10 Code
Peroneus brevis tendonitis	726.79	M76.7

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

- Supine on the examination table.
- The ankle and the knee on the affected side are supported by placing rolled towels underneath them.
- The ankle is in a neutral position.
- Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

1. With the patient lying supine on the examination table, the clinician stands lateral to the affected foot.
2. While the foot is held in a position of active eversion, identify tenderness at and immediately proximal to the head of the fifth metatarsal bone.
3. Palpate the fibularis brevis tendon along its course from posterior and distal to the lateral malleolus to its insertion into the head of the fifth metatarsal bone.
4. Locate the area of maximal tenderness.
5. At that site, press firmly with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
6. After the landmarks are identified, the patient should not move the ankle.

ANESTHESIA

- Local anesthesia of the skin using a topical vapocoolant spray.

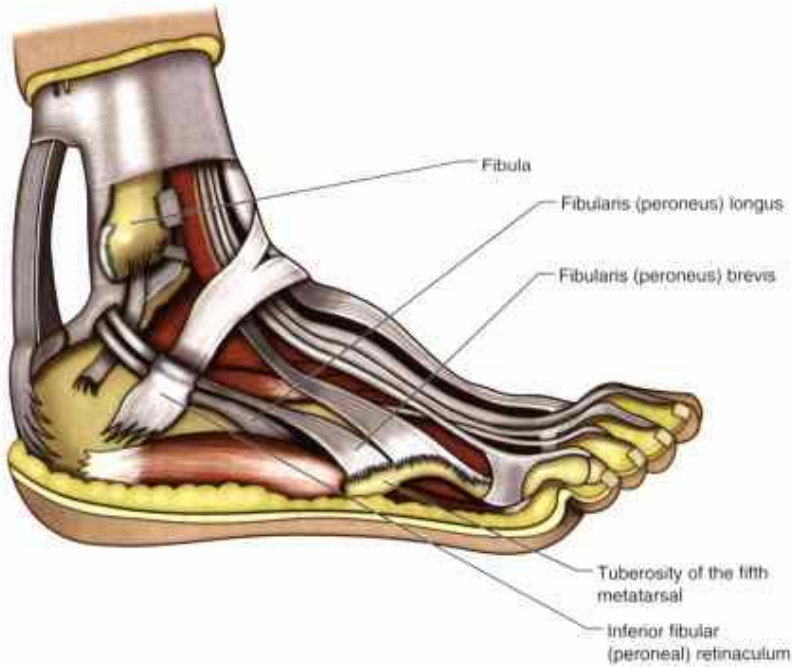

FIGURE 1 ● Lateral aspect of right foot.

EQUIPMENT

- 3-mL syringe
- 25-gauge, 5/8 in. needle
- 0.5 mL of 1% lidocaine without epinephrine
- 0.5 mL of the steroid solution (20 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using a topical vapocoolant spray.
3. If treating tendonitis at the insertion of the fibularis brevis on the fifth metacarpal:
   a. Position the needle and syringe at an angle of 30 degrees to the skin with the needle tip directed distally.
   b. Using the no-touch technique, introduce the needle at the insertion site.
   c. Advance the needle slowly until the needle tip touches the tendon/bone junction. Back up the needle 1 to 2 mm.
   d. Inject the steroid solution slowly as a bolus around the insertion of the fibularis brevis tendon into the head of the fifth metatarsal. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.

FIGURE 2 ● Injection of the peroneus brevis tendon insertion.

FIGURE 3 ● Injection of the right fibularis brevis tendon insertion.

4. If treating tendonitis along the course of the fibularis brevis tendon proximal to its insertion:
   a. Position the needle and syringe at an angle of 30 degrees to the skin with the needle tip directed proximally.
   b. Using the no-touch technique, introduce the needle at the insertion site (Figs. 2 and 3).
   c. Advance the needle slowly until the needle tip touches the tendon. Back up the needle 1 to 2 mm.
   d. Inject the steroid solution slowly as a bolus around the fibularis brevis tendon. A small bulge in the shape of a sausage may develop in the tendon sheath. The injected solution should flow smoothly into the tenosynovial space. If increased

resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
5. Following injection of the corticosteroid solution, withdraw the needle.
6. Apply a sterile adhesive bandage.
7. Instruct the patient to move his or her ankle through its full range of inversion and eversion. This movement distributes the steroid solution throughout the fibularis brevis tenosynovial sheath.
8. Reexamine the foot in 5 min to confirm pain relief.

AFTERCARE

- Ensure no excessive plantar flexion over the next 2 weeks by the use of an ankle-foot orthotic or walking cast.
- NSAIDs, ice, heat, and/or physical therapy as indicated.
- Consider follow-up examination in 2 weeks.

CPT code: 20550—Injection of single tendon sheath

PEARLS

- The fibularis brevis tendon is superficial. As a result, this injection can be complicated by the development of skin atrophy and hypopigmentation. Avoid the development of a subdermal wheal while injecting the corticosteroid solution.

A video clip showing a fibularis brevis tendon injection can be found on the book's web site.

Plantar Fasciitis

Injection of corticosteroids for the treatment of plantar fasciitis is a common procedure for primary care physicians. This condition is a repetitive motion injury to the origin of the plantar aponeurosis at the medial tubercle of the calcaneus. It is usually caused by an excessive pronation of the foot—especially in persons with pes planus. The pain with this condition is worst when bearing weight after a period of rest.

Indications	ICD-9 Code	ICD-10 Code
Plantar fasciitis	728.71	M72.2

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

- Supine on the examination table with the hip in full external rotation, the knee slightly flexed, and the ankle in a neutral position.
- Alternatively, lying on the examination table on the affected side with the knee slightly flexed and the ankle in a neutral position.
- Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

1. With the patient lying supine on the examination table, the clinician stands medial to the affected foot.
2. Identify the point of maximal tenderness over the plantar aspect of the foot. This is usually just medial to the midline over the medial tubercle of the calcaneus.
3. Draw a vertical line down the posterior border of the tibia.
4. Draw a horizontal line one fingerbreadth above the plantar surface.
5. Mark the point where these two lines intersect over the medial aspect of the foot.
6. At that site, press firmly on the skin with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
7. After the landmarks are identified, the patient should not move the foot or ankle.

ANESTHESIA

- Local anesthesia of the skin using a topical vapocoolant spray.

EQUIPMENT

- 3-mL syringe
- 25-gauge, 1-1/2 in. needle

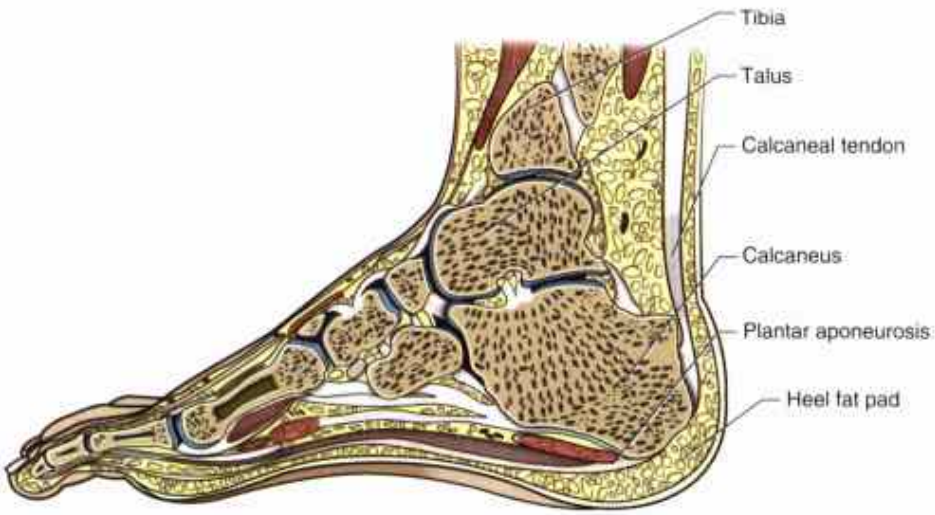

FIGURE 1 Medial right foot—sagittal section.

- 1 mL of 1% lidocaine without epinephrine
- 1 mL of the steroid solution (20 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using topical vapocoolant spray.
3. Position the needle and syringe perpendicular to the skin and the intersection of the two landmark lines with the tip of the needle directed laterally.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle toward the medial tubercle of the calcaneus until the needle tip is located at the origin of the plantar fascia.
6. Inject the steroid solution as a bolus at the origin of the plantar fascia. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
7. Following injection of the corticosteroid solution, withdraw the needle.
8. Apply a sterile adhesive bandage.
9. Instruct the patient to massage the area and then take several steps. This movement distributes the steroid solution along the plantar fascia.
10. Reexamine the foot in 5 min to confirm pain relief.

AFTERCARE

- NSAIDs, ice, heat, and/or physical therapy as indicated.
- Instruct the patient to perform heel cord stretching exercises four times a day.
- Wear proper shoes or orthotics as indicated.
- Consider the use of a tension night splint.
- Consider follow-up examination in 2 weeks.

FIGURE 2 ● Right foot plantar fasciitis injection.

CPT code: 20550—Injection of aponeurosis

PEARLS

- The plantar fascia injection may be quite painful. This is especially true if the injection is performed through the plantar surface of the foot. The medial approach described above minimizes the pain of this procedure.
- Notice the thickness of the plantar fat pad in the anatomic drawing. The injection should be placed superior to the fat pad in order to prevent fat atrophy in this critical area.

A video clip showing a plantar fasciitis injection can be found on the book's web site.

First Metatarsophalangeal Joint

The first metatarsophalangeal (MTP) joint of the foot is a relatively common aspiration and injection site for primary care physicians. This joint is the most commonly involved joint with gout and is frequently affected by osteoarthritis.

Indications	ICD-9 Code	ICD-10 Code
Pain of first MTP joint	719.47	M25.57
Acute gouty arthritis unspecified, toe	274.0	M10.97
First MTP joint arthritis, unspecified	716.97	M13.97
First MTP joint arthrosis, primary	715.17	M19.07
First MTP joint arthrosis, posttraumatic	716.17	M19.17
First MTP joint arthrosis, secondary	715.27	M19.27

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

- Supine on the examination table.
- The knee on the affected side is placed in 90 degrees of flexion.
- The ankle is slightly plantar flexed so that the plantar surface is in full contact with the chucks pad covering the exam table.
- Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

1. With the patient lying supine on the examination table, the clinician stands medial to the affected foot.
2. Locate the first MTP joint with simultaneous palpation and flexion/extension of the great toe proximal phalanx. The patient will report tenderness in this joint and there may be associated erythema and swelling.
3. The injection point is directly over the first MTP joint.
4. At that site, press firmly on the skin with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
5. After the landmarks are identified, the patient should not move the foot or toe.

ANESTHESIA

- Local anesthesia of the skin using topical vapocoolant spray.

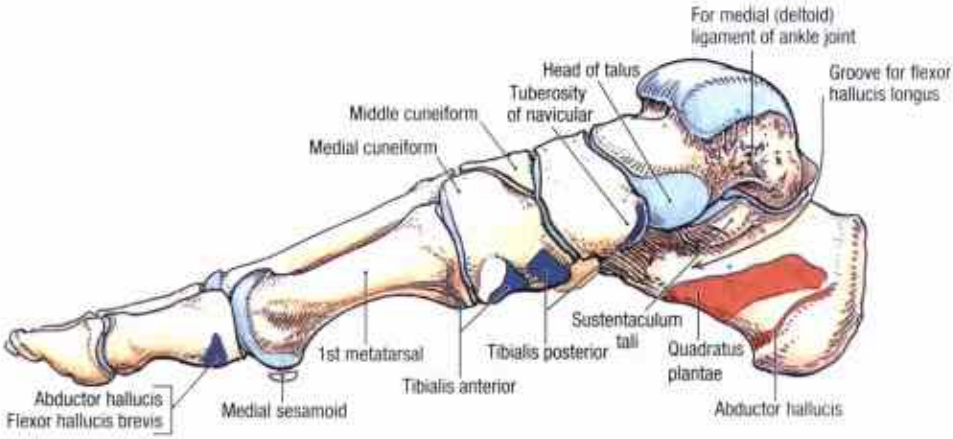

FIGURE 1 ● Right medial foot bony anatomy. (From Agur AMR, Dalley AF. *Grant's Atlas of Anatomy*. 12th Ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2009.)

EQUIPMENT

- 3-mL syringe
- 5-mL syringe—for optional aspiration
- 25-gauge, 5/8 in. needle
- 20-gauge, 1 in. needle—for optional aspiration
- Hemostat—for optional injection following aspiration
- 0.5 mL of 1% lidocaine without epinephrine
- 0.5 mL of the steroid solution (20 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using topical vapocoolant spray.
3. Position the needle and syringe perpendicular to the skin with the tip of the needle directed into the center of the joint.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle until the tip is located in the joint capsule. If the needle contacts bone or cartilage, back up the needle 1 to 2 mm.
6. If aspirating, withdraw fluid using the 20-gauge, 1 in. needle with a 5-mL syringe.
7. If injection following aspiration is elected, remove the 5-mL syringe from the 20-gauge needle and then attach the 3-mL syringe filled with the steroid solution.
8. If only injecting corticosteroid solution, use a 25-gauge, 5/8 in. needle with the 3-mL syringe.
9. Inject the steroid solution as a bolus into the joint capsule. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
10. Following injection of the corticosteroid solution, withdraw the needle.
11. Apply a sterile adhesive bandage.

FIGURE 2 ● Right first MTP joint injection.

12. Instruct the patient to move his or her toe through its full range of motion. This movement distributes the steroid solution throughout the joint capsule.
13. Reexamine the first MTP joint in 5 min to confirm pain relief.

AFTERCARE

- Avoid excessive movement of the first MTP joint over the next 2 weeks.
- NSAIDs, ice, and/or physical therapy as indicated.
- Consider the use of an ankle foot orthotic or wooden soled shoe.
- Consider follow-up examination in 2 weeks.

CPT code: 20600—Injection of small joint

PEARLS

- Applying traction to the great toe in a distal direction may help open up the joint to accommodate the needle.

A video clip showing a first MTP joint injection can be found on the book's web site.

Morton Interdigital Neuroma

Compression of the interdigital nerves in the foot can result in a painful condition referred to as Morton neuroma. This is a fairly common condition seen by primary care physicians. The condition is a repetitive compressive injury causing enlargement of the interdigital nerve. Irritation of the neuroma causes symptoms of lancinating pain and dysesthesias with weight bearing—especially when wearing shoes with a narrow toe box. Usually, the neuroma lies between the second and third or the third and fourth metatarsal heads.

Indications	ICD-9 Code	ICD-10 Code
Morton neuroma	355.6	G57.6

Relevant Anatomy: (Fig. 1)

PATIENT POSITION

- Supine on the examination table.
- The knee on the affected side is placed in 90 degrees of flexion.
- The ankle is slightly plantar flexed so that the plantar surface is in full contact with the chucks pad covering the exam table.
- Rotate the patient's head away from the side that is being injected. This minimizes anxiety and pain perception.

LANDMARKS

- With the patient lying supine on the examination table, the clinician stands or sits distal to the affected foot.
- Locate the site of maximal tenderness. This is found between the heads of the metatarsals. The most common site is between the second and third metatarsals.
- The injection point is on the dorsal aspect of the distal foot directly over the area of maximal tenderness. A tender nodule may be palpated occasionally at this site.
- At that site, press firmly on the skin with the retracted tip of a ballpoint pen. This indention represents the entry point for the needle.
- After the landmarks are identified, the patient should not move the foot.

ANESTHESIA

- Local anesthesia of the skin using topical vapocoolant spray.

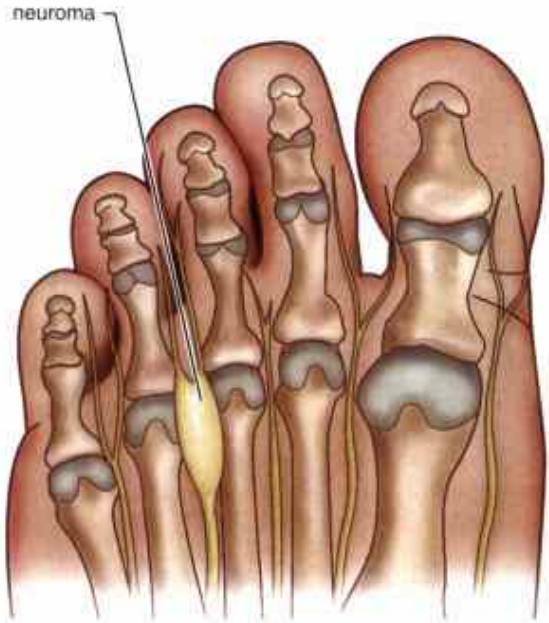

FIGURE 1 ● Right foot plantar aspect—with Morton neuroma.

EQUIPMENT

- 3-mL syringe
- 25-gauge, 1 in. needle
- 0.5 mL of 1% lidocaine without epinephrine
- 0.5 mL of the steroid solution (20 mg of triamcinolone acetonide)
- One alcohol prep pad
- Two povidone-iodine prep pads
- Sterile gauze pads
- Sterile adhesive bandage
- Nonsterile, clean chucks pad

TECHNIQUE

1. Prep the insertion site with alcohol followed by the povidone-iodine pads.
2. Achieve good local anesthesia by using topical vapocoolant spray.
3. Position the needle and syringe perpendicular to the skin with the tip of the needle directed inferiorly between the affected metatarsal heads.
4. Using the no-touch technique, introduce the needle at the insertion site (Fig. 2).
5. Advance the needle until the needle tip is located between the metatarsal heads.
6. Inject the steroid solution as a bolus around the neuroma. The injected solution should flow smoothly into the space. If increased resistance is encountered, advance or withdraw the needle slightly before attempting further injection.
7. Following injection of the corticosteroid solution, withdraw the needle.
8. Apply a sterile adhesive bandage.
9. Instruct the patient to massage the area of injection. This movement distributes the steroid solution around the neuroma.
10. Reexamine the foot in 5 min to confirm pain relief.

FIGURE 2 ● Morton neuroma injection.

AFTERCARE

- Avoid wearing shoes with a narrow toe box.
- NSAIDs, ice, and/or physical therapy as indicated.
- Consider metatarsal pads or custom orthotics.
- Consider follow-up examination in 2 weeks.

CPT code: 64450—Injection, nerve block, therapeutic, other peripheral nerve or branch

A video clip showing a Morton neuroma injection can be found on the book's web site.

APPENDIX 1

Consent for Needle Aspiration and/or Injection

Date: _____

I hereby authorize _____
(Provider's name)

to perform upon _____
(Patient's name)

the following procedure(s): _____

_____

_____

The procedure(s) consists of: _____

_____

_____

_____
(Describe in lay language)

Possible risks associated with the performance of a needle injection/aspiration may include but are not limited to:
Bleeding, Infection, Local pain, Fainting, Allergic reaction, or _____

Possible risks with the use of injected corticosteroids may include but are not limited to:

Feeling flushed
Tendon rupture
Abnormal skin color
Impaired immune response
Irregular menstrual periods
Flare-up of joint inflammation
Abnormal thinning of the skin
Worsening blood sugars in diabetes
Disturbance of hormone balance

The nature of this procedure, methods of diagnosis/treatment, and possible alternatives have been explained to me by _____ or his/her associate. I am aware that there are certain risks associated with this procedure and that the practice of medicine and surgery is not an exact science. I acknowledge that no guarantees have been made to me concerning the results of the procedure or its interpretation.

I certify that I understand the contents of this form:

_____

Signature of patient or authorized representative

_____

Witness

IF THE PATIENT IS UNABLE TO CONSENT OR IS A MINOR, COMPLETE THE FOLLOWING:

Patient is a minor, ___ years of age, or is unable to consent because _____

_____ (strike or define).

The undersigned hereby consents to the performance of the above described diagnostic/therapeutic procedure on the above patient as well as any tests, which are deemed necessary.

_____

Signature of authorized representative

APPENDIX 2

Aspiration and Injection Aftercare Handout

You have just had a procedure done by: _____

Your diagnosis is: _____

The procedure involved placing a needle into the tissues to:

_____ withdraw fluid from the _____

_____ inject "cortisone" into the _____

_____ other _____

Please Follow These Instructions:

Recurring Pain:
Injections are usually done using a local anesthetic such as lidocaine and cortisone. The anesthetic effect of the lidocaine usually lasts for about an hour and then wears off. At that time, your pain will return. Improvement in pain from the cortisone injection usually takes 24 to 48 h. So, expect the pain to return after an hour and hopefully go away in 1 to 2 days.

Rest the Area:
Be careful with the affected area/joint. Usually, the injected medicine causes the area to feel numb. Because you may not feel pain, it is very easy to cause further injury to the area. Do not use the area for anything more than mild essential movements for the next 2 weeks.

Watch for Infection:
Although every precaution has been taken to prevent infection, be alert for the following signs—fever above 100°F, increased warmth in the area, redness at the injection site, redness moving up the arm or leg, and swelling of the area. If *any* of these symptoms develop, call this office immediately at (INSERT PHONE NUMBER).

Follow the Directions of Any Checked Boxes:

- ❑ Apply ice to the area every 4 h for 20 min at a time for ____ day(s)
- ❑ Apply a heating pad to the area every 4 h for 20 min at a time for ____ day(s)
- ❑ Apply an elastic compression wrap to the area for ____ day(s)

- ❑ Perform stretching exercises as instructed
- ❑ Wear a splint to the area for ____ day(s)
- ❑ Physical therapy referral
- ❑ Take the following medicines in addition to your usual medications:

_____

_____

_____

Return to this office in ____ day(s)/week(s) for further evaluation and management of your condition.

APPENDIX 3

Medical Record Documentation

The following template is an example of documentation that may be used for a knee aspiration and injection.

Patient name: _____ Date: _____

Procedure—Knee Aspiration and Injection

Prior to performance of the knee aspiration and injection, a discussion of this procedure and alternative treatments was conducted with the patient. Possible complications were discussed and all questions were answered.

After informed consent was obtained, a point at the intersection of a line in the coronal plane 2 cm above the patella and a line in the frontal plane 1 cm below the patella was identified and marked with the retracted tip of a ball point pen. The lateral aspect of the knee was prepped in a sterile fashion with alcohol and Betadine. Topical vapocoolant spray was used to achieve good local anesthesia. Following the no-touch technique, a 1-1/2 in., 25-gauge needle was inserted and directed medially. 10 mL of 1% lidocaine with epinephrine was used to adequately anesthetize the skin and deep tissues including the periosteum over the anterior aspect of the distal femur. Next, an 18-gauge needle was directed medially into the knee joint capsule and ____ mL of _____ fluid was removed. Finally, a mixture of 8 mL of 1% lidocaine without epinephrine and 1 mL of Kenalog (40 mg) was injected easily into the knee joint using the same 18-gauge needle. The patient tolerated the procedure well without complications and reported complete relief of pain within 5 min.

_____

Signature of medical provider

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مؤسسه خدمات فرهنگی پویان

افزایش روز به روز کتابهای علمی از جمله علوم پزشکی باعث شده تا محققان و دانشجویان از کتابهای الکترونیکی استفاده نمایند.

مؤسسه خدمات فرهنگی پویان با هدف دسترسی آسان، سریع و کم هزینه متخصصان، رزیدنتها و علاقه مندان به کتابهای مرجع پزشکی و با توجه به حضور موفق در کنگره ها اقدام به تبدیل آنها به کتاب الکترونیکی نموده است که از قابلیتهایی همچون وضوح بسیار بالای عکس و متن(300 DPI)و امکان جستجوی کلمه در کل متن و چاپ و انتقال عکس ها و متون به محیطهایی مانند : Word, Photoshop, Power point و غیره برخوردار می باشد.

شما می توانید محصولات مورد نظر خود را از طریق تماس تلفنی و Email یا Website تهیه نمایید.

ضمناً این مؤسسه آمادگی هر گونه همکاری در زمینهٔ یاد شده را با مراکز پزشکی و در خواست کنندگان شخصی را دارد.

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