Anesthetic and Therapeutic Injections of the Foot and Ankle

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Anesthetic Injections

- Infiltration (intradermal) block
- Field block
- Digital block
- Mayo block
- Intermetatarsal block
- Superficial peroneal (MDCN, IDCN)
- Posterior tibial nerve block
- Deep peroneal (anterior tibial) nerve block
- Sural nerve block
- Total ankle block
Therapeutic Injections

• Mortons neuroma
• Tendonitis
• Tenosynovitis
• Plantar fascitis
• Bursitis
• Ganglionic cyst
• Tarsal Tunnel
• Intra-articular injection
• Intra-lesional
A Few Words About Safety…

• Always observe universal precautions
• Do not recap needles, dispose of in appropriate manner
• Maintain aseptic technique
Drawing Technique

• Equal volume of air in syringe to replace liquid volume of injectable in reusable vial
• Evacuate air bubble from syringe prior to injecting
• Draw steroid first, then local
• 19g drawing needle
Infiltration Block

- Intradermal
- Raise wheal, inject slowly to reduce pain
- Epinephrine can help to determine extent of anesthesia
- 5/8 to 1 inch, 25g needle
Field Block

- Subdermal
- Encircles area to be anesthetized
- Epinephrine also helpful as a marker of area of anesthesia and for hemostasis
- 1 to 1 ½ inch needle depending area of procedure, 25g
Field Block
Hallux Block

• Ring block most preferred, less painful and more reliable
• Stabilize toes during injection at distal tip to guard against reflex
• No epinephrine with any full digital block
• Nail structures receive innervation mostly from plantar branches, 1 inch, 25g needle
• Lesser toe block usually “V” block, 5/8 inch, 25g needle
Hallux Block Sequence

Dorsal/medial-plantar/medial
Dorsal/medial-dorsal/lateral  Dorsal/lateral-plantar/lateral
Plantar/medial-plantar/lateral  Plantar/lateral-dorsal/lateral
Mayo Block

- Medial, lateral approach
- Use epinephrine with caution
- Subfascial and intramuscular
- 1 ½ inch, 25g needle
Medial Mayo Block Sequence

1. Dorsal cutaneous N, deep peroneal N medial, lateral terminal divisions

2. Medial dorsal cutaneous N, medial plantar N
Medial Mayo Block Sequence

3. Medial and lateral plantar N branches
4. Deep peroneal N distal branch
Lateral Mayo Block Sequence

- Dorsal cutaneous N branches, deep peroneal N branches
Lateral Mayo Block Sequence

- Lateral dorsal cutaneous N, lateral plantar N branches
Lateral Mayo Block Sequence

- Lateral plantar N branches
Intermetatarsal Block

• Essentially a ‘V’ block overlying a specific metatarsal
• Palpate for intermetatarsal space,
• Dorsal to plantar
• Usually need to have at least two metatarsals blocked
• 1 ½ inch, 25g needle
Superficial Peroneal Block

• Block at level of medial and intermediate dorsal cutaneous nerves
• Superficial to the extensor retinaculum
• 1 ½ inch, 25g needle
Superficial Peroneal Nerve Branches at Level of Block

- Medial dorsal cutaneous nerve
- Intermediate dorsal cutaneous nerve
Posterior Tibial Block

- Palpate posterior tibial artery
- Aspirate prior to injecting
- Paresthesia indicates nerve proximity
- Distribution of anesthesia indicates level of nerve block
- 1 – 1/2 inch, 25g needle
Posterior Tibial Block

- Posterior tibial nerve
Deep Peroneal Block

- AKA the anterior tibial nerve
- Palpate for the dorsalis pedis artery
- Aspirate before injecting
- Paresthesia indicates nerve proximity
- 1 – 1 1/2 inch, 25g needle
Deep Peroneal Nerve Block

- Deep peroneal nerve
Sural Nerve Block

- Provides anesthesia for distribution of LDCN
- Superficial to lateral malleolus best access point
- 1 inch, 25g needle
Total Ankle Block

- Superficial peroneal nerve branches MDCN, IDCN
- From this point one can also block the saphenous nerve superficial to the extensor retinaculum just anterior to the medial malleolus
Total Ankle Block

- Deep peroneal nerve
Total Ankle Block

- Sural Nerve
Therapeutic injections

• Morton’s neuroma
• Tendonitis
• Plantar fascitis
• Bursitis
• Ganglionic cyst
• Tarsal tunnel
• Plantar Fibromatosis
• Intra articular injections
• Intra lesional injections
Therapeutic Injections

Mortons neuroma

• Steroid injection, sclerosing injection
• Dorsal approach for sclerosing with absolute alcohol / 0.5% marcaine with epi mix, 1 cc total, 1 ½ inch, 25g needle
• Dorsal or plantar approach for steroid using ½ to ¾ cc kenalog 10 or celestone soluspan / ¼ cc 0.5% marcaine mix, 1 ½ or 5/8 inch needle depending upon approach, 25g
Mortons Neuroma

- Steroid injection
- Sclerosing injection
Tendonitis

• Inject into tendon sheath
• Placing tension on the tendon may allow easier access
• Do not inject if suspect partial or complete tear
• Decadron phosphate / 0.5% marcaine mix, Decadron amount determined by size of tendon and extent of inflammation
• 1 inch, 25g needle
Tendonitis

- Tibialis posterior
- Flexor hallucis longus
Plantar Fasciitis

• Usually at the insertion of the plantar fascia to the calcaneus
• Palpate for point of maximum tenderness
• Feel for resistance of plantar fascia when advancing needle
• Inject within and deep to plantar fascia using either plantar or medial approach
• More difficult to enter plantar fascia using medial approach
• 1 to 1 1/2 cc Celestone soluspan or kenalog 10 / ½ cc 0.5% marcaine mix
• 1 – 1 ½ inch, 25g needle
Plantar Fascitis

• Plantar approach
Bursitis, Ganglionic Cyst

• Most frequent bursa locations retrotendinious, retrocalcaneal, intermetatarsal 1st, 5th MTPJ
• Ganglion outpocket of tendon sheath, joint capsule
• Two goals, obtain aspirate to confirm diagnosis, inject steroid
• Lateral pressure on lesion may allow more successful aspiration if aspirate is more viscous
• Decadron phosphate / 0.5% marcaine mix
• 19 - 21g to aspirate, 21 - 25g to inject
Therapeutic injections
Ganglionic cyst
Bursitis
Tarsal Tunnel

- Posterior tibial, anterior tibial (deep peroneal) nerve
- Diagnostic injection with marcaine alone, therapeutic injection with steroid / marcaine mix
- Palpate posterior tibial, dorsalis pedis artery
- Aspirate before injecting
- Bathe nerve, do not inject into it
- Paresthesias indicate nerve proximity
- Celestone soluspan or Kenalog 10 / 0.5% marcaine mix
- 1 – 1 ½ inch, 25g needle
- Posterior tibial nerve
- Posterior tibial artery

Posterior Tarsal Tunnel Injection
Anterior Tarsal Tunnel Injection

- Deep peroneal nerve
- Dorsalis pedis artery
Plantar fibromatosis

- Collagen deposition disorder
- Firm, nodular prominence(s) along plantar fascia
- 1/2 cc Kenalog or celestone soluspan combined with 1/2 cc 0.5 cc Marcaine
- Resistance upon entering lesion
- Avoid flexor hallicus longus tendon (use windlass effect)
Joint Aspiration Technique

- Indicated when attempting to confirm diagnosis of inflammatory arthropathy or sepsis
- Appropriate sterile prep
- Place empty 19-24g syringe into joint
- Withdraw synovial fluid
- Replace syringe with one with steroid and inject
- Distract joint if needed for easier access
- Dose adjustment if patient is taking steroids
- May require local anesthesia of overlying skin
Intra-articular Injection

- Combined with aspiration helps to establish diagnosis in acute inflammatory arthropathy or sepsis
- Anterior approach for ankle, anterior lateral for sub talar joint, dorsal for 1st MPJ

- X-ray joint prior to injection
- 1 – 2 cc celestone soluspan or decadron acetate
- 1 – 1 ½ in. needle, 20-24g depending upon size of joint
- Do not inject steroid if suspect infection
Intra-articular Injection

• Ankle mortise
Intra-lesional Injection

• Intradermal
• Keloid, hypertrophic scar
• Celestone soluspan
• 5/8 inch needle
Thank you

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