Ultrasound-Guided Injections & Hydrodissection

A New Frontier in Chronic Pain Care

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Objectives

- Recognize how fascia, interstitial space, and nerve glide influence pain
- Understand where ultrasound-guided injections & hydrodissection outperform blind injections
- Know when to refer — and how to collaborate for chronic MSK & neuropathic pain care

Why This Matters

Normal X-ray. Normal MRI. Still in pain.

Burning, shooting pain down the limb — told it’s “just inflammation.”

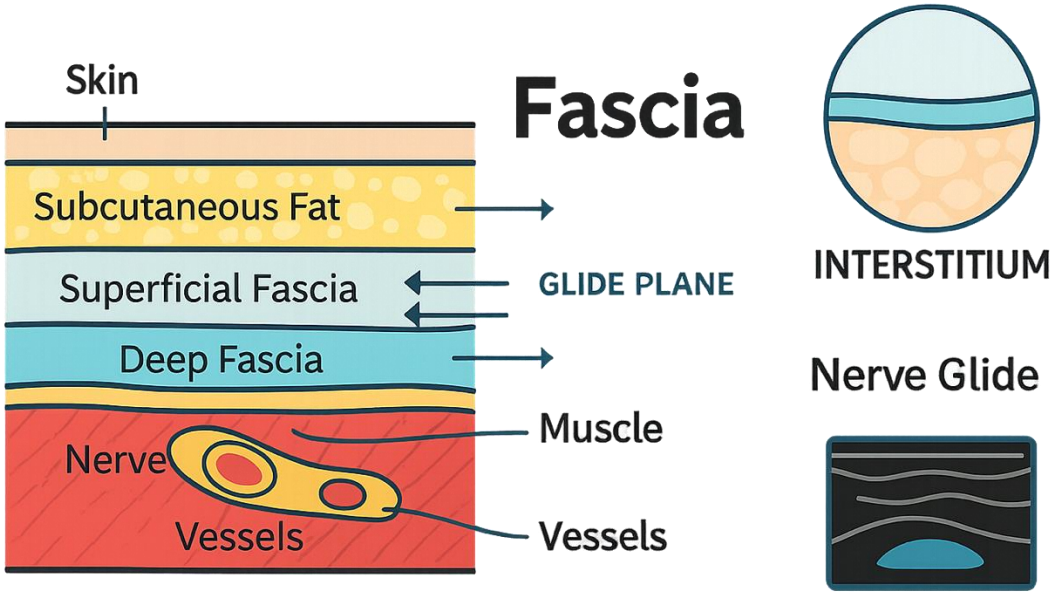
Tried PT, NSAIDs, cortisone, and time — nothing sticks.

The issue isn’t treatment failure. It’s that we’ve been targeting the wrong tissue.

Pain Isn’t Just Bones & Muscles

“Most chronic pain lives in the spaces between — where fascia, nerves, and vessels interact.”

- **Fascia** = structural + sensory organ
- **Interstitium** = fluid highway + inflammation pathway w/in fascia
- **Nerves** = respond negatively to pressure or restriction



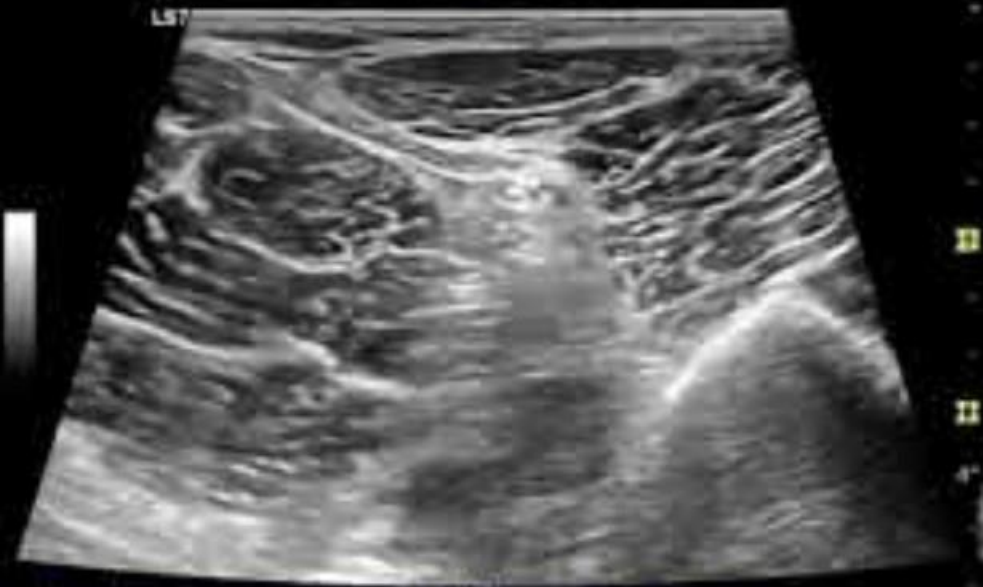
Acceula

Nerve Glide vs Nerve Entrapment (What Ultrasound Sees)

- Healthy Nerve Glide: Slides smoothly between fascial planes; No pain with movement; Clean separation on ultrasound

- Entrapped Nerve: Adheres/tethers to surrounding fascia; Pain reproduced with tension; Blurred/stuck interface on ultrasound

Normal side



Normal seesaw movement of tibial nerve and common peroneal nerve at distal sciatic nerve during planter flexion and dorsiflexion of ankle

Pathological side

Lost seesaw movement of tibial nerve and common peroneal nerve at distal sciatic nerve during planter flexion and dorsiflexion of ankle

Fascia: The Most Ignored Pain Generator

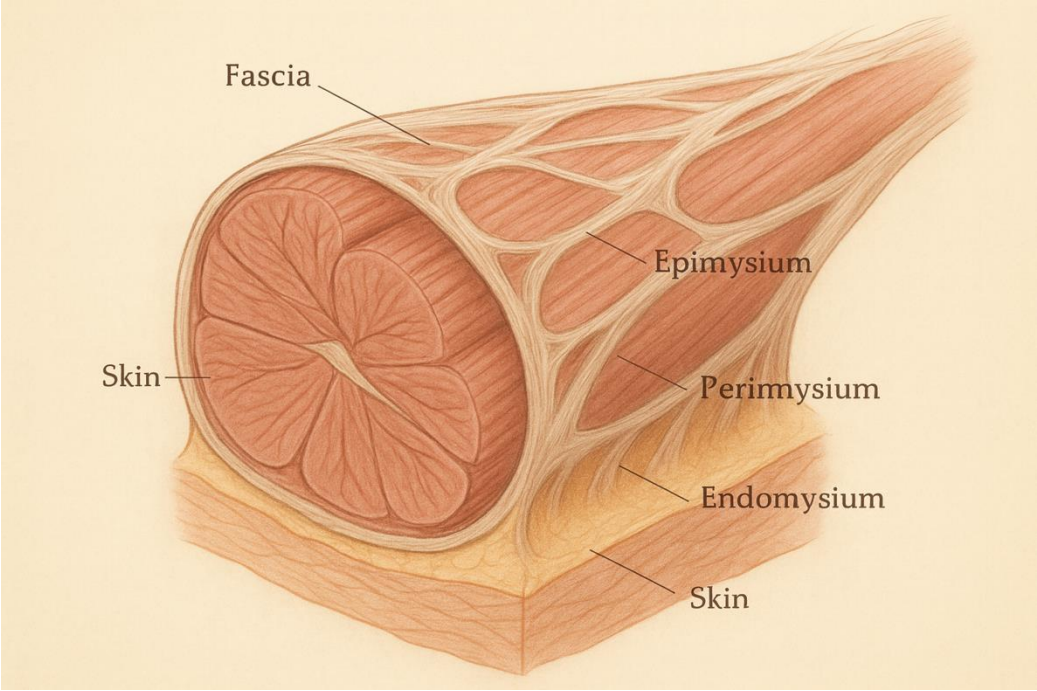
Contains 6–10x more sensory nerves than muscle

Communicates mechanical stress → pain signals

Tight fascia = restricted glide = chronic irritation

Interstitium: The Fluid Layer Nobody Talks About

- Shock absorber + waste transport layer
- Can swell, constrict, or trap inflammatory mediators
- Dysfunction = pressure/burning/swelling without obvious inflammation



What MRI Misses That Ultrasound Shows

‘Normal’ tendon → Thickened peritendon fascia on US

‘No nerve compression’ → Nerve flattened/tethered on dynamic US

‘Mild edema’ → Fluid tracking along fascial planes

Blind Injection vs Ultrasound-Guided

Accuracy: Blind ~40–70% (region-dependent) vs US-guided 95–100%

Volume: Higher for blind (flood area) vs lower, precise for US-guided

Risk: Higher chance of hitting nerve/vessel vs minimal under visualization

Patient confidence: 'Hope it lands' vs 'I watched it happen'

LOGIQ TOTUS

Hydrodissection: More Than Just Injection

- Separates nerve from sticky tissue
- Restores natural glide
- Flushes irritants & inflammatory mediators
- Creates space for healing

→Quick/Lasting Results

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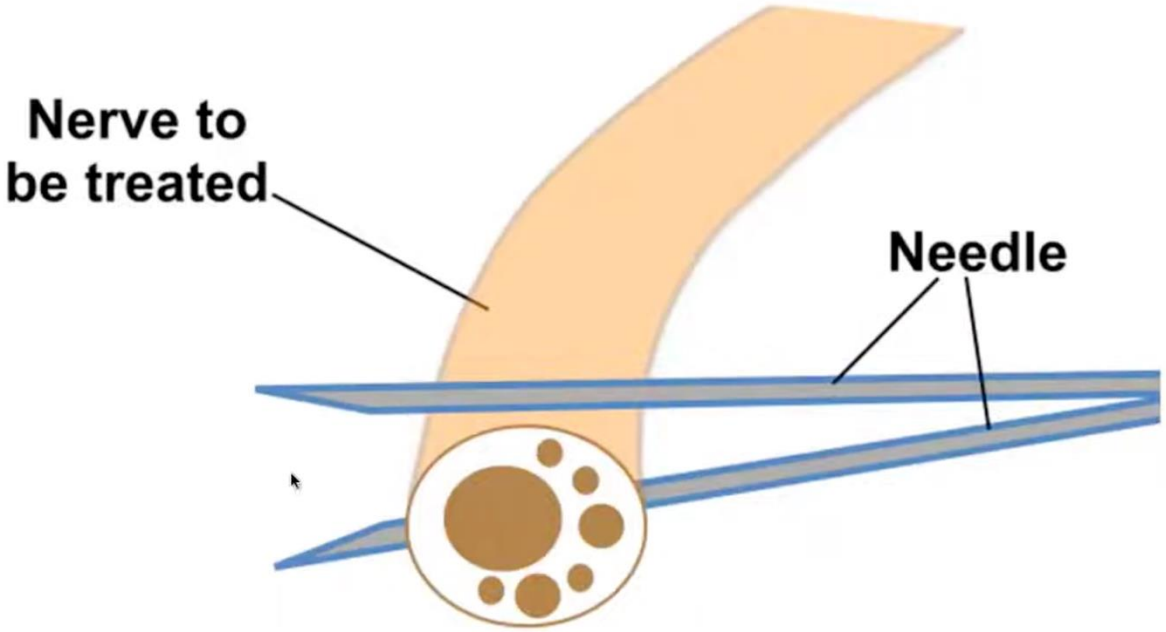
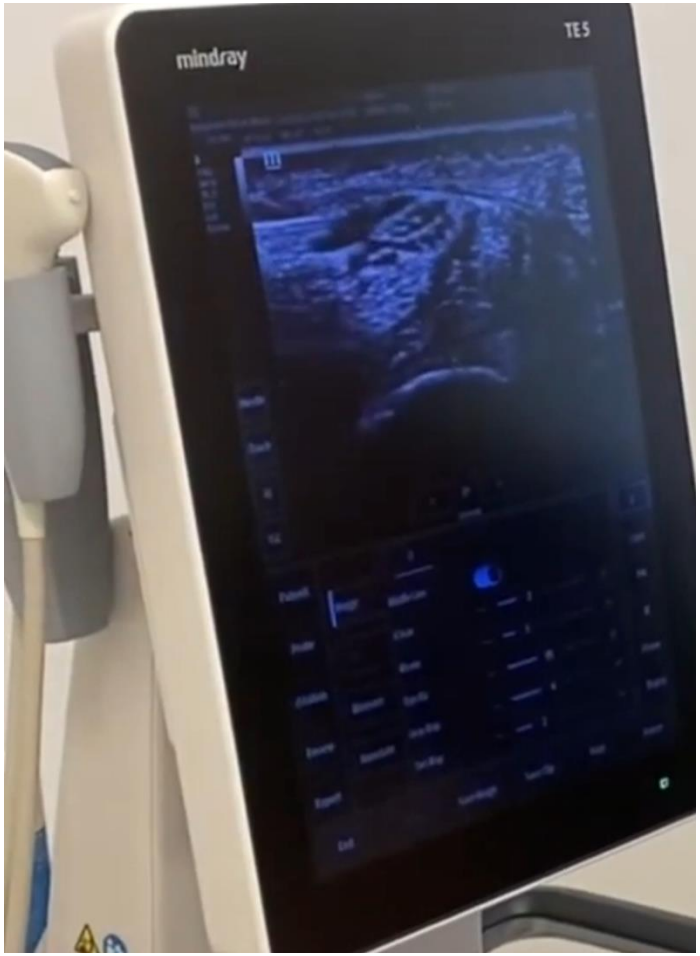



Carpal Tunnel Hydrodissection

Hydrodissection: More Than Just Injection



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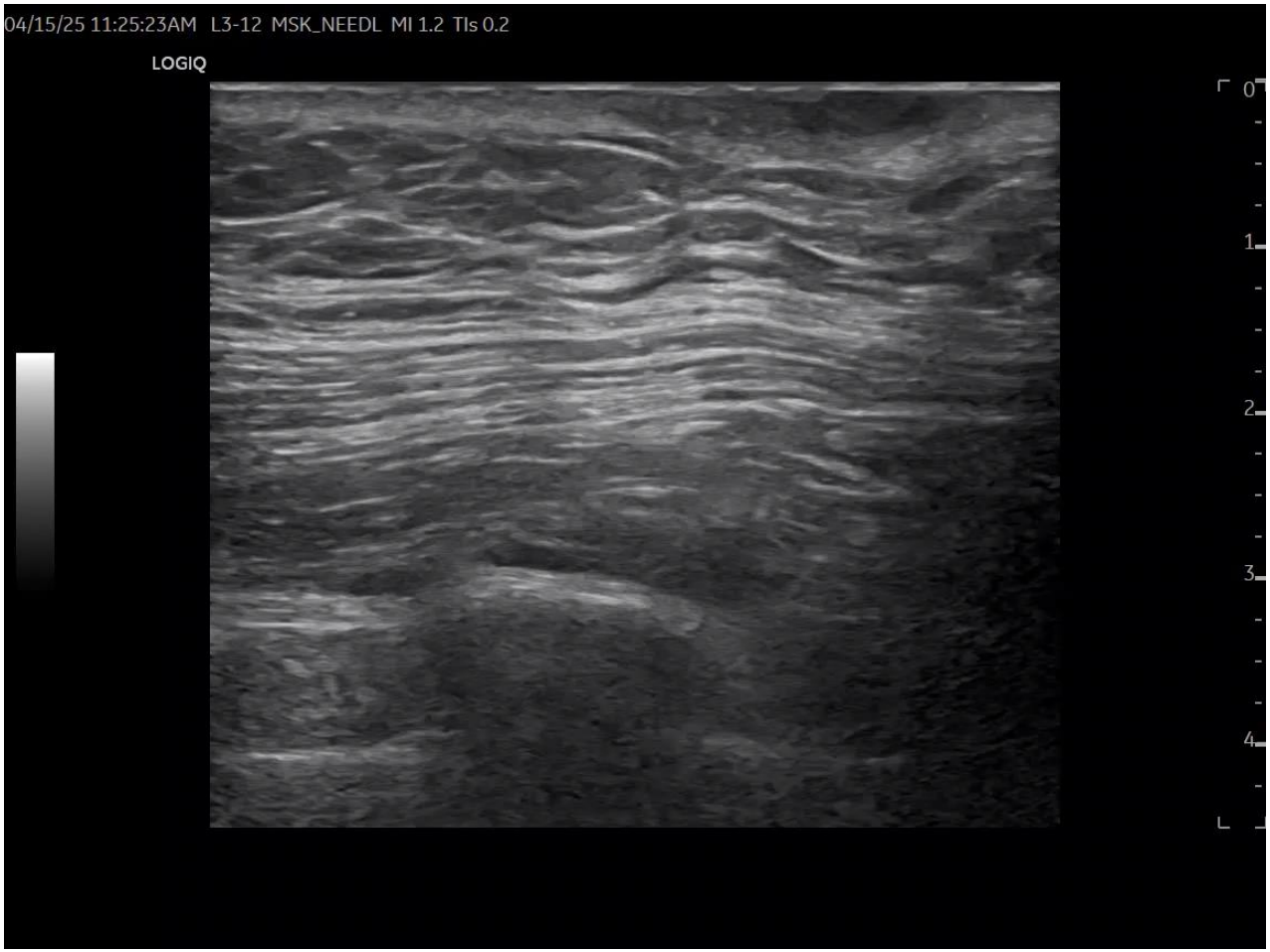
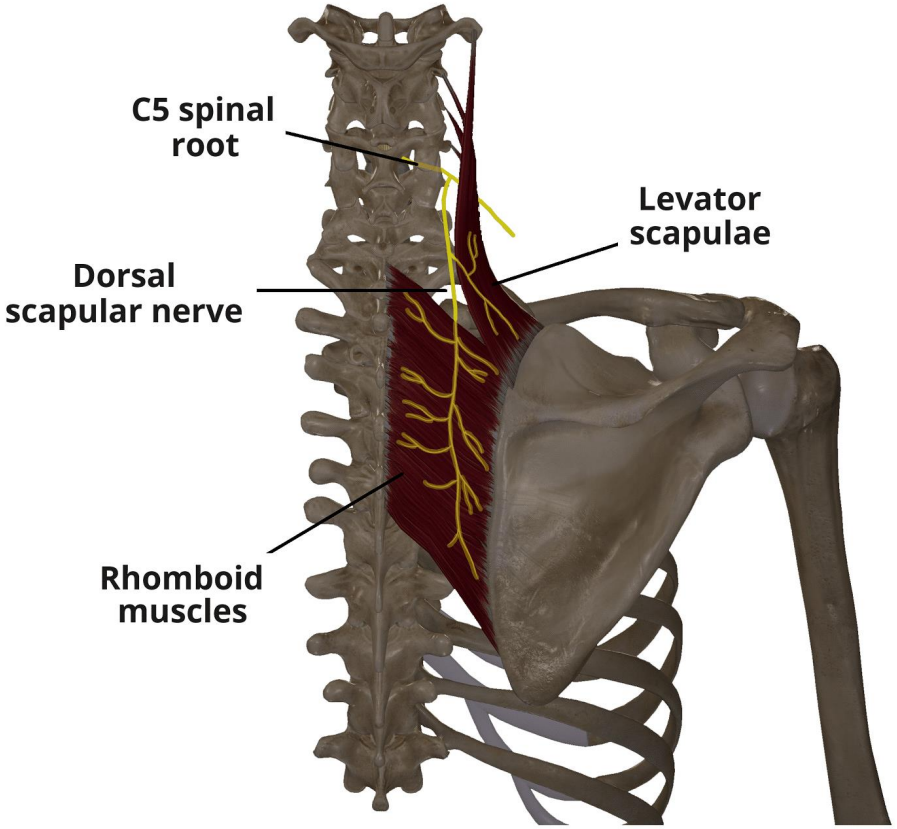


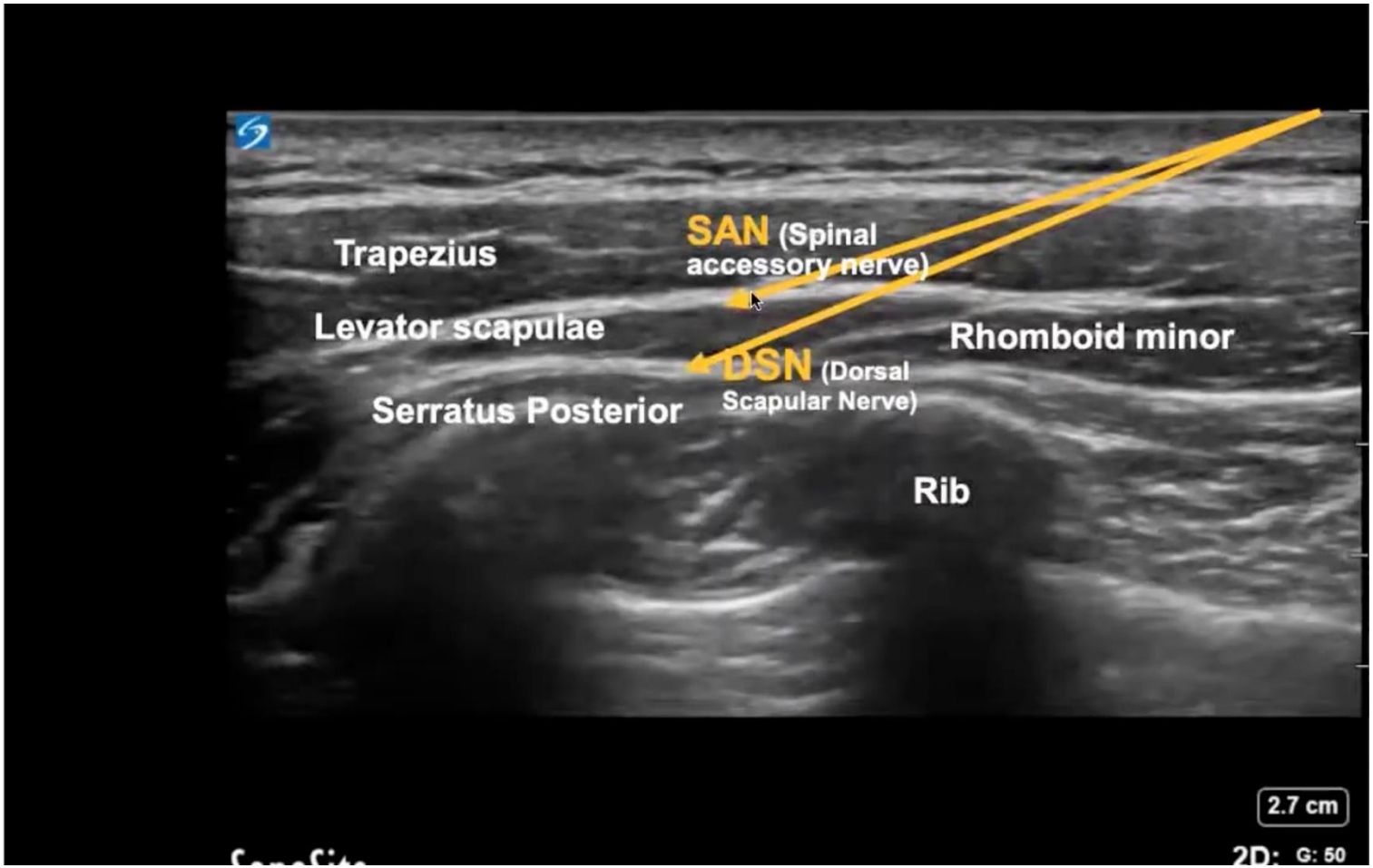
Common Nerve Entrapments That Respond Well

#Dorsal Scapular Nerve

#Suprascapular nerve/SAN



Hydrodissection: More Than Just Injection



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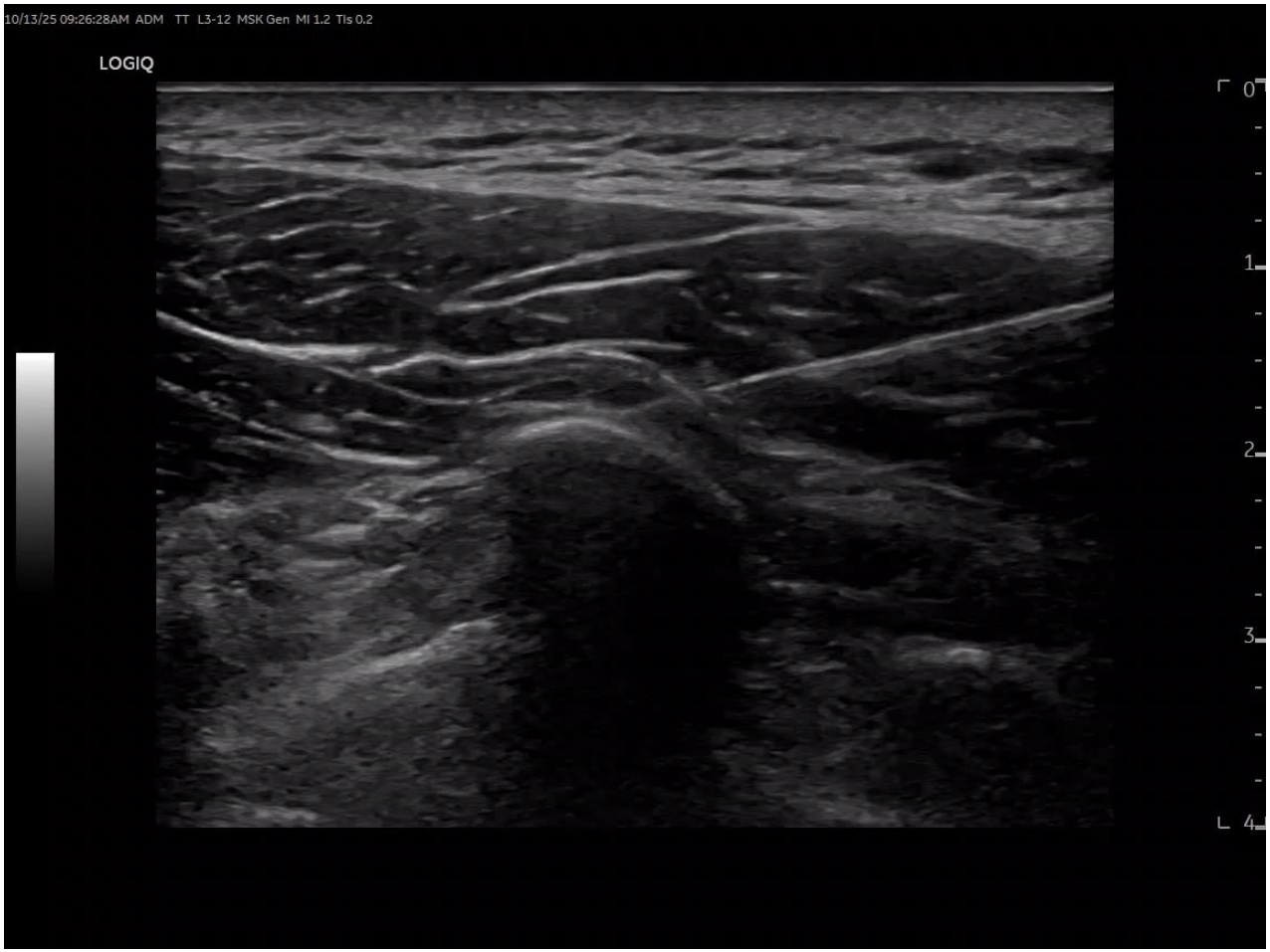

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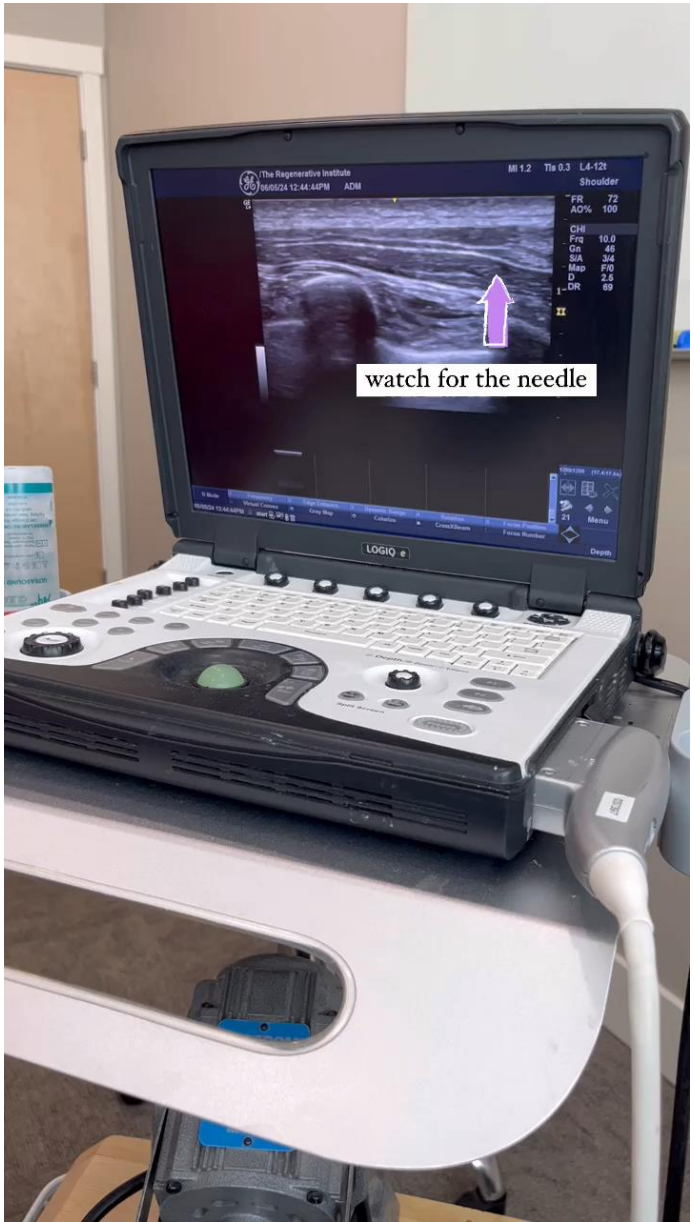

Injectate Options (Cheat Sheet)

Normal Saline — mechanical release; common for pure hydrodissection
Lidocaine / Ropivacaine — diagnostic clarity + pain relief
5% Dextrose (D5W) — neuroinflammation modulation; neuropathic pain →TRPV1 downregulation → Decrease Substance P
Steroid mix — acute inflammatory compression; use cautiously
PRP / Biologics — chronic entrapment/tissue healing; Help reactivate Schwann cells

When to Consider Hydrodissection (Primary Care Triggers)

- Burning/shooting pain along a nerve path
- Paresthesia without clear radicular pattern
- ‘Tight band’ sensation with movement
- Pain improves briefly with stretching or massage
- Steroid/NSAIDs helped — but only temporarily

Common Nerve Entrapments That Respond Well

- Median nerve (carpal tunnel / pronator syndrome)
- Suprascapular nerve (chronic shoulder pain)
- Lateral femoral cutaneous nerve (meralgia paresthetica)
- Saphenous / tibial nerve (post-surgical medial knee pain)
- Cluneal nerves (low back pain / gluteal pain)
- Dorsal Scapular Nerve
- Ulnar Nerve at elbow
- Occipital Nerves (migraines!)
- Common Peroneal Nerve Enrapment
- Sciatic Neuralgia
- V1/V2/V3 trigeminal branch blocks/hydrodissection (Trigeminal Neuralgia)

Case Story #1: Median Nerve Entrapment

42F administrative assistant — 6 months hand numbness/burning

Tried splints/NSAIDs/steroid — temporary relief only; EMG mild slowing

US-guided hydrodissection (saline + lidocaine), 2 sessions/2 weeks apart

Outcome: 80% relief after first; full resolution by 4 weeks; sleeps through night

Case Story #2: Cluneal Nerve Entrapment

60 yo female presents with chronic pain over right low back.

Imaging unremarkable →mild spondylosis

No radicular symptoms

US: superior cluneal nerve, middle cluneal nerve, and inferior cluneal nerve compressed by fascial adhesions

Treatment: u/s guided HD of cluneal nerves→pain gone as pt got off table. Pt remained pain free at 1 month follow-up.

Case Story #3: Whiplash Neck Strain

55 yo Male presents with chronic neck pain after MVA

Imaging normal

Hypertonic cervical paraspinals, ROM antalgic

US: SSN/SAN/DSN compressed by fascial adhesions (levator scap, upper trap, paraspinals)

Single hydrodissection → 90% resolution of pain within 1 weeks—full recovery within 1 month.

Other Conditions for Collaboration

Tendinopathy
Mild radiculopathy
chronic strains
nonspecific limb pain
Non-surgical joint pain
Ligament Injury
PRP // Tenotomy // Biologics// Dextrose // Corticosteroid

You Don’t Need to Do Hydrodissection — Just Recognize It

Your role: identify neuropathic/fascial patterns; try conservative care; refer if partial/short-term relief only

My role: dynamic ultrasound evaluation; targeted hydrodissection; clear post-care plan back to you

Fast Referral Triggers

Spokane Care Pathway (Simple & Fast)

STEP 1: CALL / EMAIL / FAX REFERRAL

STEP 2: ULTRASOUND EVALUATION ON DAY 1

STEP 3: TREAT SAME VISIT IF APPROPRIATE

STEP 4: FOLLOW-UP + RETURN TO YOU WITH OUTCOME & NEXT STEPS

...Collaboration

- Changing how we see pain changes how we treat pain
- Don't assume the pain is in the joint — often, it's in the glide between them
- Patients get complete care — without delay

Key Takeaways

- Chronic pain OFTEN lives in fascia/interstitium/nerve glide — not always joint or muscle
- Ultrasound allows dynamic diagnosis that MRI can’t capture
- Hydrodissection restores mechanical freedom + reduces neuroinflammation
- Primary care—identify & refer early
- Collaboration = faster outcomes & happier patients

Questions / Discussion

- Got a patient stuck in the healing cycle?
- ‘Weird burning pain that doesn’t fit a category’?
- Unsure if it’s radicular or peripheral nerve?

…Cases/Questions?

Let’s Make Spokane a Hub for Collaborative MSK/Pain Care

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- If you’re unsure — just send them. I’ll scan, sort it out, and send them back.