

Currently shoulder injections are one of 3 different studies:

ASPIRATION to R/O Infection (most likely to be encountered overnight)

PAIN STUDY: Bupivacaine and Kenalogue injection to test response

MRI gadolinium injection: immediately pre-MRI

**ASPIRATION for Possible Infection:**

NEED: 1.5" 25 gg needle (NOT the standard 5/8")

Basic Tray

20 or 22 gg spinal needle

50 cm tubing

Lidocaine 2 % ( drawn into 5 or 10 cc syringe)

10 cc Omni or Hypaque w/ tubing attached and contrast run through to tube tip

Betadine in one of the two prep cups on standard tray

16 gg purple needle to draw up meds and contrast

5 cc syringe and yellow (20) gg needle-- to use if fluid obtained

**IF PAIN STUDY ADD:** Bupivacaine (~8 cc) and Kenalogue 40 (one 1-cc bottle, shaken well)

**IF MRI STUDY ADD:** 20 cc syringe, 20 cc of sterile water (2 bottles)

smallest size vial Magnevist/Gadolinium

TB ( one cc) syringe

**INFORMED CONSENT:**

INDICATION : sample joint fluid to test for infection OR inject special MR contrast OR inject anesthesia and steroids to test response

Include : "Note that 'Time Out' observed to confirm side of interest" (L, or R) and patient ID" (check wrist bracelet).

RISKS: Pain, Bleeding, Allergy to Materials, Infection

Non-diagnostic test

ALTERNATIVES: Do nothing, Operate

Give one copy of signed and witnessed form to pt. or put in pt chart if EMed or In- pt

LOCALIZE: It's PositionPositionPosition. Extra time here pays off BIG.

Put on nonsterile gloves. Make sure pt. is lying flat in anatomic position, no more than one pillow. Stand behind pt's head and assess for scoliosis or guarding or asymmetry. Gently encourage pt to drop shoulders back towards tabletop (with anxiety or pain, pts. tend to hunch).

Externally rotate hand and arm, so pt is palm-up; use rolled sheet or towel under hand/wrist if it helps them stay supinated--moves labrum and biceps tendon out of way. Use lead mammo marker to localize junction of middle and inferior thirds of the glenohumeral joint space. Be meticulous, w/ tube collimated and centered right over the GH space. Mark site w/ waterproof marking pen.

Now put on sterile gloves.

PREP: use sponge stick and iodine prep in concentric circles extending from the localizing mark. Wipe area x4, then leave iodine prep to 'work' while draw up materials. Stand between pt's eyes and needles/tray to keep catecholamines down!

Draw up Lido 2% in 5 or 10 cc syringe.

Draw up radiographic contrast in 10 cc syringe, promptly attach 50 cm tubing and run contrast to tip.

Extract spinal needle from packing tube and separate occluder from hollow needle, to make sure it isn't stuck (rare but possible)

PROCEDURE: Spread sterile fenestrated sheet over cleaned work area, folding or tucking at pt's chin so it doesn't tickle and make them move. Anesthesia: Use 1.5 " 25 gg needle. Rraise small subQ wheal lidocaine at localizing dot, then go straight down perpendicular to skin through localizing dot towards GH joint. Compress skin under needle to reach deeper than 1.5".

In most average-to-thin pts this should get you to bone. In a very heavy person, now switch to the spinal, go deep to bone with stylet IN (or needle will clog) , and then remove stylet and pull back slowly injecting lidocaine before re-advancing.

Stylet in, advance spinal needle perpendicularly through 25 gg path until you feel bone (solid resistance). Fluoro to see if you are directly over joint space at desired target. IF YOU ARE: remove stylet, give tiny test-injection of lido. If strong resistance, pull back 0.5 mm (to free oblique tip and lumen from cartilage or bone) and try again. If test injection 'falls' in freely, switch to contrast and tubing and under fluoro inject a drop.

If contrast drop hovers at needle tip--not in. If it promptly squirts freely laterally and medially around anatomic neck and head, good. Remove tubing from spinal hub, and use clean/empty 5 cc syringe to try to aspirate fluid. Needle can be gently 'jiggled' up/down less than 1 mm, or 'walked' medial-lateral the same (down to bone gently, pull back gently while keeping negative pressure on syringe).

IF YOU DO NOT GET ANY FLUID: needle 'walked' on bone, can be stabbed into culture medium (green top bottle) for 'dry' needle tip culture (note same on paperwork)

IF ANY FLUID OBTAINED: 2-3 drops in culture bottle suffices for culture and sensitivity and Gram, need not stab medium if fluid present. If more than a few drops obtained, use PURPLE TOP TEST TUBE for Body Fluid Cell Count and Cell Diff. (note source on paperwork)

#### PAPERWORK:

ALL bottles/vials must have machine-printed pt. labels. Bottles go into main compartment of transport bag, paperwork into side pouch of bag.

HAND DELIVER or give direct custody only to intelligent trusted tech or helper who swears they know where labs are and is leaving immediately.

Lab has low threshold to toss samples. Leaving on counter for 'someone'? "Someone" does not exist.

Path 5, green Port-A-Cult--C&S, Gram, anearobic/aerobic; if TB, fungal, requested, check that too but may need more fluid--to MICROBIOLOGY LAB  
Path 2 (pink is stat), purple or green top tube-- body fluid cell count and diff--to CORE LAB

Still got fluid? Red top ("Didja") tube, to a plastic bag, and call houseofficer-- in case he/she wants SpongeBob titres, extraterrestrial DNA test, etc.

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PAIN TEST: Same paperwork (Indication changes), same pt. prep. Draw up 8 cc bupivacaine (Sensorcaine, Marcaine) and one cc (whole bottle) of Kenalogue 40 (shake well first). Once small contrast test injection proves intraarticular position,remove tubing and contrast syringe and inject this slowly till pt. winces or if no problem (post effusion, joint capsule may be distended) inject all.

Clean up tray, take off sterile gloves, leave nonsterile gloves on, help pt. sit up and when ready, 'test' shoulder (move gently) to tell

you if they feel better/worse/same. Tell them anesthesia lasts ~4 hrs, if pain relieved could last hours or days longer than that, and they need to keep track and let Orthopaedist know in a few days.

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MRI Gadolinium injection:

Confirm that MR will be available and expecting pt. in about 30 minutes.

Confirm that TB syringe and Gadolinium in fluoro area (sometimes it's a BYOB affair).

Once sterile and pt signed and prepped:

Draw .5 or .6 cc up into TB (tiny) syringe (comes w/ attached needle, use and leave on).

Draw 19-20 cc sterile water/saline into 20 cc syringe (takes 2 bottles, ok if drop or two eludes extraction)

Use TB syringe to inject 0.1 cc Gad into tip of 20 cc saline syringe, holding latter tip-up. Put finger over tip and invert 20 cc syringe 1ce or 2ce to mix.

Once small contrast injection confirms intraarticular position, remove tubing and slowly inject 5-8 cc saline/Gs as tolerated. If it makes you feel more certain, remove tubing, force tubing contrast out into cup w/ saline solution, and inject through tubing under intermittent fluoro to confirm the residual positive test contrast is being displaced/diluted by the radiolucent saline/Gd solution.

Once done, sit pt. up gently, warn against excessive motion, and ESCORT directly to MR

Call if questions-- Donna