**Wang J, Zhao J, Liang C. Percutaneous release, open surgery, or corticosteroid injection, which is the best treatment method for trigger digits? Clin Orthop Relat Res. 2013 Jun;471(6);1879-86.**

PMID: 23208122

Design: Meta-analysis of clinical trials

Purpose of study: to compare the effectiveness of three interventions for trigger finger: percutaneous release, open release, and corticosteroid injection

PICOS:

* Patient population: trigger finger as defined by the authors of the individual studies
* Interventions and Comparisons: open versus percutaneous surgical release of the A1 pulley; percutaneous surgical release of the A1 pulley versus corticosteroid injection
* Outcomes: number of post-treatment failures, patient satisfaction rate, and complications
	+ Failure was defined as recurrence of symptoms or minimal improvement in symptoms requiring further operations or injections
	+ Complications included infection, vascular injury, flexor tendon injury, digital nerve injury, excessive release or adhesions-related reduction of flexion, and hematomas
	+ Pain scores, grip strength, active ROM, and cost were omitted because they were not consistently available across studies
	+ Only outcome data collected within 6 months from the time of intervention was extracted to ensure a similar time of outcome assessment
* Study types: randomized and quasi-randomized trials (such as allocation by hospital number) were considered; only one quasi-randomized trial was included

Study selection:

* Databases searched were PubMed, EMBASE, and Cochrane Library through October 2012
* Two authors independently reviewed all 199 titles found in the literature search, resolving disagreement by consensus
* Two reviewers independently assessed the methodologic quality of the studies, using a scale which awards points for randomization, blinding of outcome assessment, description of outcome measures, inclusion and exclusion criteria, and descriptions of interventions and statistics

Results:

* Six RCTs and one quasi-randomized study were included in the meta-analysis
	+ Three RCTs compared open versus percutaneous pulley release (one quasi-randomized trial made the same comparison)
	+ Three studies compared percutaneous release versus steroid injection
	+ One study compared open release versus percutaneous release versus steroid injection
* Study quality varied between the included studies, and potential sources of bias were inadequate allocation concealment, lack of blinding, and unclear losses to followup
* Pooled data from the three RCTs showed no difference in failure rates between open and percutaneous release; there was one failure among the 179 percutaneous releases and one failure among the 182 open releases in the combined three studies
* Pooled data from the three RCTs and one quasi-randomized study showed no difference in complication rates between open and percutaneous release; there were 2 complications among the 199 percutaneous releases and 2 complications among the 198 open releases in the combined three studies
* Pooled data from three RCTs showed a substantial difference in failure rates between percutaneous release and steroid injection; there were 2 failures among the 156 surgical cases and 45 failures among the 168 steroid injection cases, for a pooled risk ratio of 0.07 (95% confidence interval form 0.02 to 0.21) in favor of surgical release, and the studies were statistically homogeneous for this effect measure
* Patient satisfaction from two RCTs was greater for percutaneous release than for steroid injection; there were 102 satisfied patients among 111 operated on, and 49 satisfied patients among 107 given a steroid injection
* There was no significant difference between complication rates in four studies comparing percutaneous release (3 out of 202) with steroid injection (0 out of 215)
* Two trials comparing surgery with steroid injection enrolled only patients with trigger thumb; the risk of neurovascular injury may be greater with the thumb than with fingers because of the course of the radian digital nerve, although no nerve injuries were seen in these two studies

Authors’ conclusions:

* Open and percutaneous release of the A1 pulley have similar rates of treatment failure and similar frequency of complications
* Steroid injection is commonly offered as a first-line treatment, but percutaneous release is a reasonable alternative with a lower recurrence rate and an acceptable risk of complications
* Future research needs to be better designed to limit biases arising from lack of concealed allocation and lack of blinding

Comments:

* The followup time was limited to 6 months because of a lack of reporting of the included studies of outcomes beyond that time frame
* The inclusion of one quasi-randomized trial did not have any consequences for the analysis or conclusions of the combined outcome data
* Ultrasonography has been described as a way to make percutaneous release a safer procedure, but was not discussed as an issue by the authors and may not be relevant
* The possibility that percutaneous release could be offered as a first-line intervention would represent a change in the cumulative trauma guideline
	+ One of the three studies showing increased recurrence rates was done on trigger thumb, and two of the studies (Sato 2012 and Zyluk 2011) were published after the most recent revision of the guideline
* The two studies with patient satisfaction as an outcome are statistically homogenous but clinically heterogeneous; one study had only trigger thumb and the other gave a steroid injection to both the surgical and the steroid injection groups (one group was combined surgery plus injection and the control group was steroid alone)

Assessment: adequate meta-analysis supporting good evidence that open and percutaneous trigger finger release have similar success rates and similar complication rates, and supporting good evidence that percutaneous release has a lower rate of recurrence than does a steroid injection

References:

Sato E, Gomes Dos Santos J, et al. Treatment of trigger finger: randomized clinical trial comparing the methods of corticosteroid injection, percutaneous release and open surgery. Rheumatology (Oxford). 2012 Jan;51(1);93-9. PMID:22039269

Zyluk A, Jagielski G. Percutaneous A1 pulley release vs steroid injection for trigger digit: the results of a prospective, randomized trial. J Hand Surg Eur Vol. 2011 Jan;36(1);53-6. PMID: 20709708