



Tendinopathy 2020:
Treating The Troublesome Tennis Elbow

Dr Rick Seah FFSEM(UK)

Sports Injuries & Sports Orthopaedics Conference
Royal Society of Medicine

Jan 2020

1

Introduction

- Lateral elbow pain is common and arises not just in tennis players.
- '***Lateral epicondylopathy***' or '***common extensor origin tendinopathy***' can give rise to a spectrum of symptoms, ranging from the mildly uncomfortable but persistent to the frankly debilitating with major impact on a patient's ability to work or compete.
- An overview of the current methods of lateral elbow injury management and what's novel in the research literature is considered, alongside what has been topical and interesting in the research literature in the past 12 months.

R.SEAH

2

2

Overview

- 'Tennis elbow' (TE) is a common condition that presents with pain and tenderness around the common extensor origin of the elbow.
- Estimated to affect 1-3% of the adult population each year and is more common in the dominant arm.
- Generally regarded as an overuse injury involving repeated wrist extension against resistance, although it can occur as an acute injury (trauma to the lateral elbow).
- Amateur tennis players can develop symptoms due to various factors, including poor swing technique and the use of heavy racquets.
- Also seen in labourers who utilise heavy tools or engage in repetitive gripping or lifting tasks.

Cutts S, Gangoo S, Modi N, Pasapula C.
Tennis elbow: A clinical review article.
 J Orthop. 2019 Aug 10;17:203-207.

R.SEAH

3

3

Diagnosis

- a. Detailed history
 - b. Clinical assessment
 - c. Imaging- USS/ MRI
- *Differential diagnoses-* *interstitial tear, ligamentous injury (with resultant elbow instability), enthesitis, bone stress injury...*

R.SEAH

4

4

Management options

- *Broadly speaking..*
- a. **Rehabilitation** (physiotherapy)
- b. **Injections therapy options** (corticosteroid, platelet-rich plasma (PRP), prolotherapy..)
- c. **Non-injection therapy options** (shockwave therapy (ESWT)..)
- d. **Surgery**

R.SEAH

5

5

What's new?

- **Entrez PubMed**
- **Search term: 'tennis elbow 2019'**
- **Concentrated on meta-analysis, systematic reviews (SR) and randomised controlled trials (RCT), where possible.**

R.SEAH

6

6

1. TE: PRP vs CSI

- Literature search performed in EMBASE, Medline, the Cochrane Library and PubMed.
- 7 RCTs comparing PRP with corticosteroids for the treatment of epicondylitis were included.
- Data from 2 studies unavailable for meta-analysis, and the SR criteria were just achieved.
- Local corticosteroid injection (CSI) yielded a significantly superior Disabilities of the Arm, Shoulder and Hand (DASH) score at 4 weeks and 8.
- Otherwise, noteworthy that a significantly lower VAS score and DASH score existed in the PRP regimen than in the steroid regimen at the 24-week follow-up.
- More effective treatments were achieved in the PRP-treated patients than in patients treated with corticosteroids.

Li A, Wang H, Yu Z, Zhang G, Feng S, Liu L, Gao Y.
Platelet-rich plasma vs corticosteroids for elbow epicondylitis:
A systematic review and meta-analysis.
 Medicine (Baltimore). 2019 Dec;98(51):e18358.

R.SEAH

7

7

1. TE: PRP vs CSI

CONCLUSIONS:

- *Local corticosteroid injections demonstrated favourable outcomes compared with those of local PRP treatments for lateral elbow epicondylitis during the short-term follow-up period (4 weeks and 8 weeks post-treatment).*
- *Otherwise, at the long-term follow-up (24 weeks post-treatment), PRP injections had improved pain and function more effectively than corticosteroid injections.*

Li A, Wang H, Yu Z, Zhang G, Feng S, Liu L, Gao Y.
Platelet-rich plasma vs corticosteroids for elbow epicondylitis:
A systematic review and meta-analysis.
 Medicine (Baltimore). 2019 Dec;98(51):e18358.

R.SEAH

8

8

2. TE: PRP vs CSI

- *(Similar findings)*
- 7 RCTs involving 515 patients.
- Meta-analysis indicated that PRP injection yielded statistically significant superior in pain scores and elbow joint function at a 6-month follow up compared with local corticosteroid injection.
- No significant difference identified between 2 groups regarding post-injection adverse events.
- **CONCLUSION:**
- *Local PRP injections was associated with superior outcomes for reducing pain and improving elbow joint function compared with local corticosteroids treatment for lateral epicondylopathy at a follow-up of 6 months.*

Xu Q, Chen J, Cheng L.

Comparison of platelet rich plasma and corticosteroids in the management of lateral epicondylitis:

A meta-analysis of randomized controlled trials.

Int J Surg. 2019 Jul;67:37-46.

R.SEAH

9

9

3. TE: Prolotherapy vs CSI

- 30 subjects with chronic lateral epicondylitis randomly assigned into 2 groups of hypertonic dextrose (prolotherapy) or methylprednisolone injection.
- Participants were assessed through Quick DASH and VAS scores, once before injection, and then after 1- and 3-months follow-up.
- 2 patients were excluded due to not completing the follow-up timepoints.
- **RESULTS:**
- In both groups VAS scores revealed significant improvement during the first month follow-up.
- This declining trajectory continued at the third month visit in the prolotherapy group while it did not change remarkably in the steroid group.
- In fact, comparing VAS scores between the 1st- and 3rd-month time points did not reveal a significant improvement in the steroid group.

Bayat M, Raeissadat SA, Mortazavian Babaki M, Rahimi-Dehgolan S.

Is Dextrose Prolotherapy Superior To Corticosteroid Injection In Patients With Chronic Lateral Epicondylitis?:

A Randomized Clinical Trial.

Orthop Res Rev. 2019 Nov 5;11:167-175.

R.SEAH

10

3. TE: Prolotherapy vs CSI

- **RESULTS:**
- Also, the Quick DASH index showed a similar pattern and improved remarkably in both groups during the first visit.
- Only the efficacy in the prolotherapy group persisted after 3-month follow-up.
- 1 month after injections, no preference between the two interventions was observed ($p=0.74$ for VAS and 0.14 for Quick DASH score).
- However, the 3rd-month follow-up revealed a meaningful superiority ($p=0.03$ for VAS and $p=0.01$ for Quick DASH score) favouring the prolotherapy method.

Bayat M, Raeissadat SA, Mortazavian Babaki M, Rahimi-Dehgolan S.
Is Dextrose Prolotherapy Superior To Corticosteroid Injection In Patients With Chronic Lateral Epicondylitis?: A Randomized Clinical Trial.
 Orthop Res Rev. 2019 Nov 5;11:167-175.

R.SEAH

11

11

3. TE: Prolotherapy vs CSI

- **CONCLUSION:**
- *Both methods proven to be effective in the short-term treatment of chronic lateral epicondylitis, but dextrose prolotherapy seems to be slightly more efficacious than steroid injection over a longer period.*

Bayat M, Raeissadat SA, Mortazavian Babaki M, Rahimi-Dehgolan S.
Is Dextrose Prolotherapy Superior To Corticosteroid Injection In Patients With Chronic Lateral Epicondylitis?: A Randomized Clinical Trial.
 Orthop Res Rev. 2019 Nov 5;11:167-175.

R.SEAH

12

12

4. TE: PRP vs ABI vs CSI

- Objective was to compare the effectiveness of platelet-rich plasma (PRP), autologous blood (AB), and corticosteroid injections in patients with lateral epicondylitis.
- Meta-analysis.
- RCTs that compared any two forms of injections among PRP, AB, and corticosteroid for the treatment of lateral epicondylitis were searched from inception to end November 2018, on PubMed, Embase, and Cochrane library.
- To explore the efficacy between different follow-up periods, they considered the duration within 2 months to be short term, whereas 2 months or more was considered long term.
- 20 RCTs (n = 1271) were included in this network meta-analysis.

Tang S, Wang X, Wu P, Wu P, Yang J, Du Z, Liu S, Wei F.

Platelet-rich plasma versus autologous blood versus corticosteroid injections in the treatment of lateral epicondylitis: a systematic review, pairwise and network meta-analysis of randomized controlled trials.

R.SEAH PM R. 2019 Nov 17. [Epub ahead of print]

13

4. TE: PRP vs ABI vs CSI

- According to ranking probabilities, corticosteroid ranked first for visual analog score (VAS) (surface under the cumulative ranking [SUCRA] = 90.7), modified Nirschl score (82.9), maximum grip strength (69.5), modified Mayo score (MMS) (77.9), and Patient-Related Tennis Elbow Evaluation (PRTEE) score (93.3) for the short-term period.
- For the long-term period, PRP ranked first for VAS (94.3), pressure pain threshold (99.8), Disabilities of Arm Shoulder and Hand (DASH) score (75.2), MMS (88.2), and the PRTEE score (81.8).
- **CONCLUSION:**
- ***PRP was associated with more improvement in pain intensity and function in the long term than were the comparators.***
- ***However, in the short term, corticosteroids were associated with the most improvement.***

Tang S, Wang X, Wu P, Wu P, Yang J, Du Z, Liu S, Wei F.

Platelet-rich plasma versus autologous blood versus corticosteroid injections in the treatment of lateral epicondylitis: a systematic review, pairwise and network meta-analysis of randomized controlled trials.

a systematic review, pairwise and network meta-analysis of randomized controlled trials.

R.SEAH PM R. 2019 Nov 17. [Epub ahead of print]

14

5. TE: Arth vs Open Debridemt

- Arthroscopic debridement (AD) and open debridement (OD) of extensor carpi radialis brevis (ECRB) are effective in the treatment of lateral epicondylitis. Despite this, few studies have focused on the comparative outcomes of these 2 procedures.
- A systematic search to identify relevant articles that were published in MEDLINE, Embase, and Cochrane Library databases during January 2019.
- All studies comparing the efficacy of AD and OD in terms of failure rate, complication rate, and clinical outcome measures were included. Statistical analysis was performed using Review Manager.
- 6 clinical trials were included in the current meta-analysis.

Wang W, Chen J, Lou J, Shentu G, Xu G.

Comparison of arthroscopic debridement and open debridement in the management of lateral epicondylitis: A systematic review and meta-analysis.

Medicine (Baltimore). 2019 Nov;98(44):e17668.

15

5. TE: Arth vs Open Debridemt

- No significant difference with regard to DASH scores, visual analog scale, and failure rate.
- Statistically significant difference in surgical time in favour of the OD (mean difference [MD], -11.45, 95% confidence interval [CI], -12.45 to -10.44, I=0%, P<.001).
- No significant difference of complication rate between the OD group (0.6%) and the AD group (1.0%) (MD, 0.62; 95% CI, 0.12-3.06; P= .55)
- **CONCLUSION:**
- ***There was no significant difference between arthroscopic and open surgery with regards to failure rate, functional outcome score, and complication rate.***
- ***The current meta-analysis found that arthroscopic surgery had a longer surgical time than open surgery for lateral epicondylitis.***

Wang W, Chen J, Lou J, Shentu G, Xu G.

Comparison of arthroscopic debridement and open debridement in the management of lateral epicondylitis:

A systematic review and meta-analysis.

Medicine (Baltimore). 2019 Nov;98(44):e17668.

16

6. TE: Stem Cell Injections (SCI)

- Topical; not uncommon for patients to ask this..
- Not able to find any RCTs/ SRs/ meta-analysis in 2019 relating to SCI treatment of TE.
- Pubmed search- *'tennis elbow stem cell'*
- 9 articles.
- Largely pilot studies, papers describing the challenges & theoretical solutions.

R.SEAH

17

17

Summary

- Rehabilitation plays a vital role.
- CSI can be useful, but only in short term.
- PRP injections appear to have better results in the longer term (more so than ABI).
- SCI - too early to tell, not enough level 1 studies to recommend its use.
- Surgery- Arthroscopic & Open debridement both effective; arthr approach may take longer.

R.SEAH

18

18

