

Journal Club: 29 April 2010  
Organiser: Mr Jonathan Hobby, FRCS, BSc, MD  
Basingstoke & North Hampshire NHS Foundation Trust  
Classic Upper Limb papers

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## **Introduction**

This journal club was hosted and chaired by Mr Jonathan Hobby. The meeting was conducted at the host's home and was attended by 7 registrars, one associate specialist and 6 consultants. A total of 13 classic papers were reviewed and were presented in summary by the reviewing registrar. The aim was to furnish all those attending with the take home messages from each of the papers and the ability to discuss the controversies arising from those papers. The opportunity to discuss the papers was followed by dinner generously provided by the host. Selected papers are presented below.

### **Repetitive Upper Extremity Motions in the Workplace Are Not Hazardous.**

Hadler N  
J Hand Surg [Am] 1997; 22-A:19-29.

Reviewed by Joel Melton

### **Bottom line: Repetitive movements in the workplace do not cause carpal tunnel syndrome or regional arm pain.**

A clinical perspective giving summary of author opinion with a review of the relevant literature.

The author illustrates how association of activity with pathological conditions is multi-factorial and how is entirely different from causation.

Evidence for workplace causation of carpal tunnel syndrome and regional arm pain reviewed and fundamental flaws identified including flaws in terminology, diagnostic differentiators, validity and conclusions reached.

Quotes:

*"Regional musculoskeletal disorders are a part of life".*

*"I do not provide here a compendium of the observational studies or of junk science; rather, I defend my assertions by displaying details of defensible science"*

*“If one assesses daily morbidity over time by asking adults at home to keep a diary, one learns that as many as 5% of us will spend 1 week of every 6 coping with regional arm pain”*

*“The likelihood of recalling neck and shoulder pain has less to do with tasks, but more to do with a perception of the lack of positive aspects in a psychosocial context within the workplace.”*

*“The “cumulative trauma disorder” hypothesis is not just unsupported, it is unsupportable! It has been tested for carpal tunnel syndrome and it is wrong. The “cumulative trauma disorder” hypothesis has been tested for regional arm pain, and it is untenable.”*

*“All too often, the unwary worker is drawn into contests of causation and of treatment sinking inexorably toward the vortex that is disability determination, never to feel well again and never to realise fiscal recompense commensurate with all the iatrogenesis.”*

### **Splinting vs. surgery in the treatment of carpal tunnel syndrome.**

Gerritsen AAM, de Vet HCW, Scholten RJPM, Bertelsmann FW, de Krom MCTFM, Bouter LM.  
JAMA 2002;288:1245-51.

Reviewed by Andrea Pearce

- Randomised controlled Trial from the Netherlands
- Compared short-term and long-term efficacy of splinting and surgery for symptom relief of carpal tunnel syndrome
- Multicenter trial between October 1998 and April 2000 at 13 neurosurgical units in the Netherlands totaling 176 pts.
- Inclusion criteria: pain, paraesthesia and/or hypoesthesia in median nerve distribution; EMG confirmation; over 18; literate
- Exclusion criteria: previous splinting or surgery; wrist trauma, pregnancy, diabetes and other known cause of CTS; severe thenar muscle atrophy
- Randomization stratified and research physiotherapists kept blinded to treatment.
- Splint worn at night +/- day for 6 weeks, allowed simple analgesia and then reviewed
- Surgery occurred within 4/52 from randomization – standard procedure
- Assessed by questionnaires and physiotherapist at 0, 3,6,12 and up to 18 months.
- Outcome measures: Success rate (improvement in symptoms), No nights woken by symptoms, severity of main complaint, parasthesia during day and parasthesia at night
- Results showed that surgery more effective than splinting after 3, 6, 12 and 18 months, though differences less after 12 months due to high proportion of splint group receiving further treatment (58%)
- Concluded splint good for relieving patients symptoms whilst waiting for surgery
- Bad points – did not include severe cases or known causes of CTS

**Injection with methylprednisolone proximal to the carpal tunnel: randomised double blind trial.**

Dammers JW, Veering MM, Vermeuken M.

BMJ 1999;319:884-6 .

- Randomised double blind placebo controlled trial from Netherlands
- Pts had EMG confirmed CTS for >3/12, excluded previous surgery and under 18
- All injections given by same neurologist
- Treatment arm – 10mg lidocaine plus 40 mg Methylprednisolone
- Placebo arm – 10mg lidocaine
- Injection site volar aspect of forearm 4cm proximal to wrist crease between tendons of radial flexor and Palmaris longus.
- Reviewed at base, 1, 3, 6, 9 and 12 months
- At each visit patients who still had symptoms offered injection or surgery (trial code broken)
- Recruitment into trial stopped after interim analysis
- Total 60pts, 30 in each group
- Significant difference between groups at one month (treatment arm better – 77% improved) and single injection still effective at one year in half of pts treated.

**Surgical management of ulnar nerve compression at the elbow: an analysis of the literature.**

Bartels RHMA, Menovsky T, Van Overbeeke JJ, Verhagen WIM.

J Neurosurg 1998;89:722-727

- Literature review between 1970 and 1997
- Inclusion criteria: English, French or German language of report; treatment group of over 9 pts, mean age of patients over 18.
- Exclusion criteria: neuropathy due to leprosy, ulnar nerve neuropathy mainly posttraumatic (50% of treatment group), adequate data retrieval not possible
- Patients pre-op status – McGowan classification – Grade 1 –assigned to purely subjective symptoms & mild hypesthesia; Grade 2 – sensibility loss & weakness of intrinsic hand muscles with or without slight wasting; Grade 3 to severe sensorimotor deficit
- 192 retrieved papers, only included 60, total 3024 pts
- Patients who underwent simple decompression had best outcome, worst anterior submuscular transposition however pats treated by simple decompression more frequently had lower McGowan Grade
- When outcome related to pre-op status, no difference in outcome was found between treatment modalities for pts with mild to moderate symptoms (Grades 1 &2); anterior intramuscular transposition offered best results for those with severe symptoms (Grade 3)

## Excision of the Trapezium for Osteoarthritis of the Trapeziometacarpal Joint: A study of the Benefit of Ligament Reconstruction or Tendon Interposition.

Davis T, Brady O, Dias J.

J Hand Surg (Am) 2004;29-A:1069-77.

Reviewed by Sam Yasen

### Background

- Trapeziectomy first described in 1948 (Gervis at BOA meeting)
- Concerns re:- thumb weakness due to shortening
  - subluxation of the psuedoarthrosis
  - osteoarthritis of the pseudoarthrosis
- Many modifications trialled over the years to avoid these potential complications
  - interposition with a rolled-up ball of tendon
  - interposition with a silicone prosthesis
  - creation of a ligament running from the base of the thumb metacarpal to the base of the index metacarpal [Most popular option]

### Methods

- 162 women (183 procedures) over 9yrs with Eaton grade 2-4 OA, randomised to:
  - trapeziectomy
  - trapeziectomy with palmaris longus interposition (*sutured into a ball*)
  - trapeziectomy with ligament reconstruction & tendon interposition using 50% FCR
- All immobilised by K-wire for 4wks, and thumb abduction splint for 6wks

### Results

- 3 months after operation, pain had improved significantly in all groups, improved further by 1 yr, no difference between groups
- 149/183 (>80%) no pain or manageable pain only on activity [Satisfactory outcome]
- 8/183 failures with constant pain ? cause - 1pt initially with trapeziectomy then had ligament reconstruction and tendon interposition to treat possible instability, but no improvement
- No difference in thumb key- and tip-pinch strength or grip strength between groups
- Significantly better thumb key- and tip-pinch strength and grip strength compared to preop (average increase about 1kg in key-pinch)
- Complications
  - 11 RSD at 3 months, only 3 by 1 yr
  - Diminished sensation around the scar on dorsoradial aspect of thumb common in all
  - No significant difference in complications between groups

**Conclusions**

- Outcomes at 1yr follow up of trapeziectomy are not improved by PL interposition or ligament reconstruction and interposition using FCR
- >80% patients achieve good improvement in pain and function
- Longer term outcomes may be different
- Palmaris Longus may be insufficient to fill trapezial void, therefore results may be better with bigger tendon
- Not standard practice to insert K-wire in simple trapeziectomy, therefore may have stabilised pseudoarthrosis and given better results than usual
- Crude outcome measures (but predates DASH / PEM / Hand questionnaires)