

The Israeli Medical Association

The Israeli Society for Surgery of the Hand

Chairman: Shai Luria, MD

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החברות הרפואית בישראל
האיגוד הישראלי לכירורגיה של היד
יזם האיגוד: ד"ר שי לוריא
מוזכר: ד"ר אנרי פרקש
גבר: ד"ר סורין דניאל יורדאש



Monday, March 14th, 2022

Beilinson Hospital, Rabin Medical Center, Petah Tikva
The Felsenstein Research Center Auditorium

07:00 Registration

07:50 Opening Remarks: Eran Rotman, Director of Beilinson Hospital, Rabin MC
Shai Luria, Chairman, ISSH
Paul Sagiv, Congress Chair

Session I - Chairpersons: Guy Rubin, Rina Aviran

08:00 MY ADL – A new assessment tool of occupational performance of ADLs/IADLs after upper limb injury
¹Michal Elfassi, ¹Amir Oron, ³Nava Ratzon, ³Marina Efron, ^{2,3}Yaffi Levanon
¹Hand Therapy Clinic, Kaplan Medical Center
²Sheba Hospital, ³ Occupational Therapy Department, Tel Aviv University

08:10 Innovations Simon Farnebo
Professor of Hand Surgery, Senior Consultant in Hand Surgery
Dep of Hand Surgery and Plastic Surgery, Linköping University Hospital, Sweden
Chair of FESSH Research Committee

08:30 Hospital under Cyber Attack Boaz Granoth, Hillel Yaffe MC

08:50 High Velocity Gun-shot Wounds Shai Luria, Hadassah MC

09:10 Function after radial head resection Erez Avisar, Shamir MC

09:30 Olecranon Locking Plate and Tension Band Associations with Removal of Hardware and Complications
Brandon E. Earp, Kelly McFarlane, George Bugarinovic, Kyra A. Benavent, Philip E. Blazar
Orthopaedic Surgery, Brigham and Women's Hospital, USA **PRERECORDED**

Introduction: The aim of this study is to examine the relationship between hardware type and prominence with the subsequent requirement of removal of hardware (ROH) or development of hardware complications following locking plate or tension band fixation for olecranon fractures. Our hypothesis was that increased hardware prominence is correlated with an increased rate of complications and need for subsequent ROH after open reduction internal fixation (ORIF) of the olecranon fractures.

Methods: An IRB-approved retrospective review was completed on 319 patients with olecranon fractures treated with ORIF from 2012-2016, at two urban, academic Level 1 trauma centers. Age, BMI, diagnosis, plate brand, complications (stiffness, nerve symptoms, painful hardware, infection, nonunion), reoperation, and follow-up time were recorded. Plate prominence was determined by measuring the most immediate post-operative lateral elbow radiograph available in three defined regions along the olecranon.

Results: A total of 189 cases were included in the final cohort; 124 were treated with plates and screws, and 65 with tension bands. The incidence of ROH for all cases was 55 out of 189 (29.10%) with a rate of 29.03% in the plates and screws group, and 29.23% in the tension band group. An additional 20 patients (10.58%) complained of symptomatic hardware but declined hardware removal (8.87% in the plates and screws group and 13.85% in the tension band group).



Conclusion: Although plate and screw hardware group demonstrated significantly greater prominence than the tension band group, there is no significant difference in ROH or ROH and symptomatic hardware between the two groups. Hardware prominence was not associated with ROH or ROH/symptomatic hardware for either plate and screw or tension band cohorts. Age and BMI were associated with ROH and symptomatic hardware after plate and screw surgery. Age but not BMI was associated with ROH and symptomatic hardware after tension band surgery.

09:40 **Peri-Implant Olecranon Tip Fracture as a Complication of Olecranon Osteotomy Plating**

Haggai Schermann, Anna Hochner-Ger, Daniel Tordjman, Franck Atlan, Tamir Pritsch, Yishai Rosenblatt
Orthopedics, Tel Aviv Medical Center, Israel

Introduction: Several anatomical plates for fixation of the olecranon following a fracture or an osteotomy are currently commercially available. Plating of the olecranon might result in nonunion or malunion, and may eventually require revision surgery or plate removal due to skin irritation. We describe a proximal periprosthetic avulsion fracture of the tip of the olecranon as a unique complication associated with the use of an anatomical plate for fixation of an olecranon osteotomy (OO).

Methods: This is a retrospective case series of four patients with comminuted fractures of the distal humerus treated by internal fixation through transolecranon approach. OO was fixed using an anatomical Acumed® standard olecranon plate. All patients were treated between 2012 and 2018. Two patients had a history of repeated minor trauma and one had osteoporosis.

Results: Each of the four patients in our series had an avulsion fracture of the olecranon tip proximal to the osteotomy site. The fracture occurred between two weeks to three months following the index procedure. In one patient, the tip fracture occurred following a fall from a standing height, another patient sustained a fracture after relying on the elbow, and in the other two patients the fracture was diagnosed on routine follow-up X-rays. The fracture line coursed through the proximal cluster of screws situated on the proximal part of the plate in all cases. Repeated minor trauma in two patients and osteoporosis in one patient might have contributed to the occurrence of these fractures.

Conclusions: Avulsion fractures of the tip of the olecranon following plating of OO could have occurred due to biomechanical factors. We recommend that plate fixation of OO, especially in osteoporotic patients, should be augmented with a tension band suture in an attempt to avoid this complication.

09:50 **Arthroplasty and Motec Implants**

Simon Farnebo

Professor of Hand Surgery, Senior Consultant in Hand Surgery
Dep of Hand Surgery and Plastic Surgery, Linköping University Hospital, Sweden
Chair of FESSH Research Committee

10:10 **Coffee Break**

Session II - Chairpersons: Yuval Krieger, Lee Einav-Fishman

10:40 **Myofascial pain and intramuscular stimulation - is it relevant for OT and hand surgery?**

Negev Bar

Chairman of the Israeli Society of Musculoskeletal Medicine

11:00 **Surgical Treatment of Symptomatic Neuroma**

Amir Arami

Hand Surgery Dept., Sheba Medical Center

Purpose: Overview of surgical strategies for patients with symptomatic neuroma, focusing on novel active approaches

Methods: Literature search; retrospective review of patients treated with active procedures from JAN 2019 to JUN 2021.

Results: Literature search suggest a possible paradigm shift towards active procedures: nerve reconstruction, targeted muscle reinnervation, regenerative peripheral interface and more.

Our preliminary results suggest significant pain relief although comparable to published outcome of more traditional surgical methods.

Conclusions: Introduction to available surgical options and proper intervention may improve outcome of surgical treatment of the painful neuroma.



11:20 **Targeted Motor Reinnervation (TMR) for Hand-Wrist post traumatic neuroma Pain, Case Series and Surgical Techniques.**

Madi El-Haj, Shahar Tal, Sofia Anastasia Vorobeitchik, Ido Volk, Shai Luria
 Orthopedic Department -Hadassah Hebrew University Medical Center

Targeted motor reinnervation (TMR) has emerged as a promising technique for prevention of neuroma formation following major limb loss. Treatment of a painful neuroma of the hand was previously reported in one case report. The aim of the study was to present a variety of other surgical techniques for digital, ulnar sensory and radial sensory post traumatic neuromas in the hand and wrist in patients with intractable pain, following failed previous surgical attempts.

Methods: This is a retrospective review of all patients with symptomatic neuromas treated with different TMR surgical techniques from April 2019 to May 2021. Pain and motor function of donor motor nerves were evaluated using two tailed paired student t-test.

Results: The following table summarizes the patient's data

Patient #	Age/Sex	Injured side	Course of pain (months)	Number of previous surgeries	Injured nerve	Surgical Procedure
1	29/F	Non dominant	13	1	SBRN	SBRN to AIN
2	44/M	Dominant	16	1	RRF UDN, RDN	UDN RDN to 2 ND 3 RD Lumbrical
3	58/M	Dominant	47	3	Thumb RDN, UDN	1 st lumbrical
4	54/M	Non dominant	28	1	DCU	DCU to AIN
5	21/M	Non dominant	21	1	LRF RDN	UDN to 3 rd lumbrical
6	26/M	Dominant	47	3	LRF UDN	UDN to 4 th lumbrical
7	44/M	Non dominant	71	6	SBRN	SBRN to Brachioradialis Branch
8	39/F	Non dominant	4	1	RRF RDN	RDN to 4 th Lumbrical
9	47/F	Non dominant	27	3	LIF RDN	RDN to 1 st lumbrical
10	62/M	Non dominant	100	8	DCU	DCU to AIN

VAS score improved significantly post-operatively (8.82 vs 6.2; P=0.001). Motor deficits due to the sacrifice of motor branches were undetectable.

Conclusion: TMR is reasonable salvage technique to prevent neuromatous pain following failed attempts of reconstructive procedures.

11:30 **Rare case of dynamic thoracic outlet syndrome resolved by an isolated subclavius posticus muscle resection**

Ruben Dukan¹, Gautier Petroni¹, Guy Paul Muller², Silvera Jonathan¹, Emmanuel Masmajan¹

¹Hand, upper limb & peripheral nerve surgery service, HEGP, France

²Upper Limb Surgery, Polyclinique de Paofai, France

Case: We reported a dynamic neurogenic left thoracic outlet syndrome (TOS) with a permanent abduction of the 5th left finger. Pre-operative MRI assessed the presence of subclavius posticus muscle (SPM). Due to a nonoperative treatment failure, we performed a brachial plexus neurolysis and SPM resection. Immediate postoperative assessment showed an immediate disappearance of the Wartenberg's sign.

Conclusion: SPM constitutes an underestimated cause of TOS. A careful MRI reading is necessary to make correct diagnosis. Nonoperative treatment includes physiotherapy and can be proposed in first instance. When nonoperative treatment fails, brachial plexus exploration with release of the SPM may result in resolution of symptoms.

11:40 **Focal Dystonia of the Hand Treated with Focal Neurectomy. Case Report and anatomical landmarks**

Layalee Abu Nasser, Madi El Haj, Sofia Vorobeitchik, Shai Luria

Orthopedic Department, Hadassah Hebrew University MC



Aim: To present the application of median nerve fascicular topographic anatomy on the treatment of a rare case of focal dystonia of the hand.

Introduction: Treatment options for dystonia are very limited and ineffective, especially in the case of focal dystonia. The era of upper extremity reconstructive nerve transfer procedures enables surgeon to have more detailed fascicular topographic anatomy of median, ulnar and radial nerves. Specific targeting of the affected nerve branches minimizes the neurological sequelae in neurotomy procedures.

Case report A sixty-one-year-old woman presented with five years of idiopathic spastic dystonia of the left hand. Extensive work including electrodiagnostic studies, brain imaging and neurological workup, were negative. Physical examination of the left hand revealed specific spasticity of the Flexor digitorum superficialis (FDS) of the long and ring fingers. Median nerve decompression and focal denervation of the Flexor digitorum superficialis (FDS) through specific neurotomy of the median nerve branch to long and ring fingers was done. Symptomatic recovery was noticed at the immediate postoperative period. At 10 months post-operative follow-up, the patient had sustained eloquent finger motion and handwriting. (pre-operative, intraoperative and post-operative videos are available).

Conclusion: Detailed topographic fascicular nerve anatomy and selective neurotomy offers treatment of focal dystonia cases with minimal surgical sequelae.

11:50 **Ultrasound Imaging as Diagnostic tool before Surgery** **Myriam Stern**

Diagnostic and Interventional Musculoskeletal Radiology
Sheba MC

12:10 **Treatment of hand digital neuroma with median anti-brachial cutaneous nerve (MABC) graft, factors predisposing to failure and salvage targeted motor rei-innervation (TMR).**

Madi El-Haj, Liron Ariely, Sofia Anastasia Vorobeitchik, Ido Volk, Shai Luria
Orthopedic Department, Hadassah Hebrew University MC

Abstract: Painful neuromas secondary to traumatic injuries of the hand and digits may cause substantial physical and psychological disability. Neuroma resection and grafting is considered the mainstay of treatment to control neuroma formation and restore nerve function. Nerve autograft is the gold standard for this treatment strategy.

The purpose of this study was to determine the factors accounting for MABC graft failure to control neuroma re-formation and neuropathic pain, as well as to present a novel hand TMR salvage technique.

Material and Methods: We retrospectively reviewed the use of MABC grafting for the treatment of symptomatic hand and digital neuromas at our institution. We collected demographic data and assessed pain and sensation.

Results: Between May 2018 and April 2021, we performed 12 neuroma excisions and MABC grafting repair in 12 symptomatic neuroma patients. The average patient follow-up was 26 months (2–45 months); 8 patients recovered protective 2 point discriminations, with complete resolution of their neuroma symptoms; four patient failed to recover from their neuromatic symptoms, hence revision surgery was undertaken at a mean of 6 months from the index surgery. The affected digital nerve was transferred to the adjacent lumbrical branch at zone 3. Comparing the 2 patients groups according to pain resolution, we found that increased age, longer duration of pain, allodynia, proximal Tinel sign, burning sensation and previous operations were predisposing factors for neuroma re-formation and failure of MABC grafting repair. TMR of the affected digital nerve to the corresponding lumbrical motor branch provided a salvage procedure for the MABC failed group.

Conclusion: MABC grafting should be considered cautiously in treatment of neuroma related pain. In the presence of previous surgical treatment and CRPS like syndrome TMR should be considered as the first treatment strategy.

12:20 **Microcirculation and tissue viability** **Simon Farnebo, Sweden**

12:40 **Radially Based Extensor Retinacular Sling Reconstruction in Extensor Carpi Ulnaris Sub-sheath Injuries**

Michael Mastroianni¹ Matthew Leibman^{1,2} Mark Belsky^{1,2} **David Ruchelsman^{1,2}**

¹Orthopaedics, Tufts University School of Medicine, USA

²Orthopaedics, Newton-Wellsley Hospital, USA

PRERECORDED followed by LIVE Q&A

Background: Extensor carpi ulnaris (ECU) subsheath injuries result in ulnar-sided wrist pain. Subsheat rupture and tendon instability often present concurrently with intrinsic ECU pathology and ulnocarpal compartment injuries. There is a lack of surgical outcome data despite the variety of described ECU subsheath reconstructive techniques.



Methods: We retrospectively reviewed our single-center experience of 35 patients (18 male; 17 female) who prospectively underwent radially based extensor retinacular sling ECU subsheath reconstruction by three senior hand surgeons from April, 2010 to April, 2021. Statistical analysis was conducted via a two-tailed paired t-test.

Results: Median age at time of surgery was 41 years (range, 18-63 years) and 48.6% of patients were female. 22 patients (62.9%) had surgeries on their dominant wrist. Median time between symptom onset and surgery was 186.5 days (range, 4-835 days). 11 patients (31.4%) were collegiate-level or professional athletes. 9 patients (25.7%) had frank ECU snapping on pre-operative exam. All 35 patients received a pre-operative MRI. 18 patients (51.4%) had intrinsic ECU tendinopathy, 20 patients (57.1%) had ECU tenosynovitis, 20 patients (57.1%) had TFCC pathology, 24 patients (68.6%) had ulnocarpal synovitis, and 2 patients (5.7%) had lunotriquetral interosseous ligament tears. Mean preoperative flexion-extension arc was 122.9 +/- 19.4 and mean postoperative flexion-extension arc was 130.6 +/- 16.4 (p-value = 0.02). Mean preoperative pronosupination arc was 152.8 +/- 9.4 and mean postoperative pronosupination arc was 157.8 +/- 7.3 (p-value = 0.01). Mean time to unrestricted return to sports was 89.8 +/- 25.9 days for the athletes in this study. There were no major complications.

Conclusions: Radially based extensor retinacular sling ECU subsheath reconstruction resulted in significant functional improvement in our cohort. We also described the prevalence of concurrent wrist injuries with ECU subsheath tears and demonstrated how our approach allows for simultaneous treatment of these pathologies with minimal post-operative complications.

12:50 **Outcomes of Concomitant Open Reduction Internal Fixation and Endoscopic Carpal Tunnel Release for Treatment of Distal Radius Fractures with Carpal Tunnel Syndrome**

Richard Puzzitiello¹ Cody Perskin¹ Nicholas Coccoluto¹ Andrew Moon¹ Michael Guss² Matthew Leibman² **David Ruchelsman²**

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PRERECORDED followed by LIVE Q&A

Purpose: To evaluate the clinical and functional outcomes of concomitant open reduction internal fixation (ORIF) of distal radius fractures (DRF) and endoscopic carpal tunnel release (ECTR) in patients with new or worsening carpal tunnel syndrome (CTS) symptoms following DRF.

Methods: Patients aged 18 years or older who underwent ORIF of a DRF with concomitant antegrade single portal ECTR under regional anesthesia performed by one of three fellowship trained orthopedic hand surgeons were identified. Patients were indicated for concomitant ECTR if they had significant new or worsening dysesthesias or numbness in the median nerve distribution after DRF. Electronic health records and radiographs were reviewed for demographic, injury, clinical, surgical, and radiographic data. Patients were contacted at 6 months minimum follow-up and interviewed regarding complications, postoperative satisfaction, and to complete the Boston Carpal Tunnel Questionnaire (BCTQ) and VAS-pain score questionnaire.

Results: Twelve (75.0%) of sixteen eligible patients, mean age 57.7 ± 11.3 years, were contacted at an average of 12.2 ± 6.8 months postoperatively. Eleven patients (91.7%) were female. Eight patients (66.7%) sustained their injuries from a low energy injury mechanism and six (50.0%) injured their dominant wrist. Two (16.7%) sustained an ipsilateral ulnar styloid fracture and one (8.3%) sustained an ipsilateral scaphoid fracture. Mean operative time was 60.5 ± 14.3 minutes. One (8.3%) ECTR was converted to an open procedure. There were no intra- or postoperative complications. All fractures achieved radiographic union. Eleven patients (91.7%) reported being completely satisfied, and 1 (8.3%) somewhat satisfied, with their surgical outcome. Mean total postoperative BCTQ score was 1.2 ± 0.2 out of 5. The mean postoperative VAS-pain score was 0.8 ± 0.8 out of 10.

Conclusions: Concomitant distal radius ORIF and ECTR is a safe and effective option to treat patients who sustain distal radius fractures with new or worsening CTS symptoms.

13:00 **ISSH Members Professional Meeting**

13:20 **Lunch Break**

Session III – Chairpersons: Uri Farkash, Mirit Mann Friedman

14:00 **Q&A - David Ruchelsman**

Chief of Hand Surgery

Director, Hand Surgery Research & Education Foundation

Clinical Associate Professor of Orthopaedic Surgery

LIVE



NWH Department of Orthopaedic Surgery, Consultant, MGH/Harvard Medical School

- 14:15 **Medical Rights for You and For Your Patients** **Lior Tomashin**, Adv.
- 15:00 **Assisting in Microsurgery** **Eitan Melamed**, USA
- 15:10 **FESSH Research Committee** **Simon Farnebo**, Sweden
- 15:30 **Academic impact of hand surgery units across the United Kingdom: a bibliometric analysis**
Norbert Banhidy¹ Francis Banhidy² Simon Fleming¹
¹Trauma and Orthopaedics, Royal London Hospital, UK
²School of Medicine, University College London, UK

PRERECORDED

Aim: Quantifying the academic impact of hand surgery units can serve as a useful parameter for clinicians interested in academia when applying for fellowships or consultant posts. The aim of this study is to measure and rank the academic impact of hand surgery units across the United Kingdom (UK) using a bibliometric analysis.

Methods: UK hand surgery units were identified from The British Society for Surgery of the Hand (BSSH) website, and additional manual internet searches. Predefined search strings were used to identify papers of, or relating to hand surgery. Using the Clarivate Analytics Web of Science bibliometric analysis tool, cumulative (1900-2021), 10-year (2011-2021) and 3-year (2018-2021) research output data was collected from UK hand surgery units and ranked using the following parameters: number of papers (Np), number of citations (Nc) and the h-index (a metric evaluating the cumulative impact of academic output).

Results: A total of sixty-eight hand surgery units were identified in the UK. The top 3 units according to 10-year h-index were The Pulvertaft Hand Centre (15), John Radcliffe Hospital (10), and Norfolk and Norwich University Hospital (10). The units with the greatest number of papers published in the last 10 years were The Pulvertaft Hand Centre (70), Chelsea & Westminster Hospital (45), and Broomfield Hospital (44). The units with the single most cited papers were Wrightington Hospital (189), The Pulvertaft Hand Centre (152), and St John's Hospital & Royal Hospital for Sick Children (152).

Conclusion: Academic output of hand surgery units varies greatly across the UK. Hand surgery units with a historically strong academic record have generally maintained a similarly high output of research over the last decade. The 10-year h-index of hand surgery units can be particularly useful for hand surgeons with a strong academic interest.

- 15:40 **Diversity within the Israeli Society for Surgery of the Hand**
¹Assaf Kadar, **¹Shay Shemesh**, **¹Sorin D. Iordache**, **²Shai Luria**
¹Hand Surgery Unit, Department of Orthopedics, Rabin MC
²Hand and Microvascular Surgery Unit, Hadassah MC

Objective: Gender and ethnic diversity in the medical profession has been correlated with better medical care, higher quality medical education and greater research productivity. In this study we sought to explore the gender, ethnic and religious diversity among hand surgeons in Israel.

Methods: We performed a survey among members of the Israeli Society for Surgery of the Hand (ISSH). The survey explored the surgeon's age, gender, ethnic and religious background. Response rate was 76%.

Results: The vast majority of hand surgeons in Israel are male (86.8%). 80.6% of surgeons are married and 97.2% have one or more children. 77.8% of surgeons are Jewish and 16.7% are Muslim. 57.1% of surgeons define themselves as secular and 39.9% define themselves as religious at different levels. The largest ethnical group among hand surgeons in Israel is Ashkenazi Jews with 63.2% followed by Muslim Arabs with 18.4%. 5.1% of surgeons are Jews of Middle Eastern and North African descent.

Discussion: Our survey revealed a substantial lack of gender and ethnic diversity among Hand Surgeons in Israel with women and non-Ashkenazi Jews being poorly represented. Religion and level of religiosity are sufficiently diverse and appear to represent the general population.

Diversity in the medical field has shown to be a beneficial factor in many aspects including research productivity and patient care. Further efforts should be made to make the field of Hand Surgery more diverse and equal to all genders and ethnic groups.

- 15:50 **Discussion and Closing remarks**