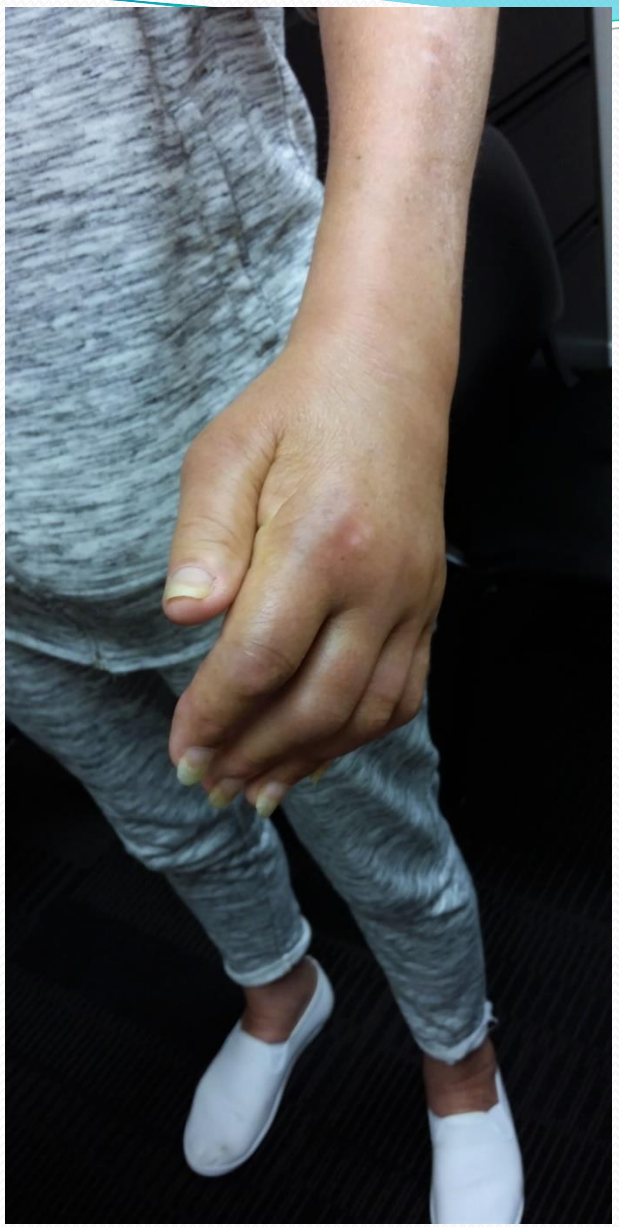
CRPS
Complex Regional Pain Syndrome

Yanshan Lu



CRPS

- Terminology
- Definition
- Classification
- Epidemiology
- Clinical presentation
- Management

Terminology

- Erythromelalgia 1864 (Silas Weir Mitchell)
- CRPS 1994 (IASP)
- Reflex Sympathetic Dystrophy(RSDTypeI)
- Causalgia (Type II)
- Post-Traumatic Pain Syndrome
- Sudeck's Dystrophy (Type I)
- Reflex Neurovascular Dystrophy
- Post-traumatic Spreading Neuralgia
- Shoulder and hand Syndrome
- Algodystrophy

IASP Definition

International Assoc. for Study of Pain 1994:

"Painful syndrome, which includes regional pain, sensory changes, abnormalities of temperature, abnormal sudomotor activity, oedema and an abnormal skin colour that occurs after an initiating noxious event such as trauma etc."

IASP Diagnostic Criteria

1. "The presence of an initiating noxious event, or a cause of immobilization" A
2. "Continuing pain, allodynia, or hyperalgesia in which the pain is disproportionate to any known inciting event"
3. "Evidence at some time of oedema, changes in skin blood flow, or abnormal sudomotor activity in the region of pain (can be sign or symptom)"
4. "This diagnosis is excluded by the existence of other conditions that would otherwise account for the degree of pain and dysfunction"

Harden et al Diagnostic Criteria

budapest 2003 (Harden et al)

1. "Continuing pain, which is disproportionate to any inciting event"
2. "Must ***report*** at least one symptom in three of the four categories"
3. "Must ***display*** at least one sign at time of evaluation in two or more of the four categories"
   - Sensory
   - Vasomotor
   - Sudomotor/Oedema
   - Motor/Trophic
4. "There is no other diagnosis that better explains the signs and symptoms"

classification

- Type I: occurs without a definable nerve lesion (RSD)
- Type II: a definable nerve lesion is present (causalgia)

stages

1. Early: Burning pain, intense and increasing.
   Soft, hot swollen hand
2. Middle: Pain increase,
   Swelling changes soft→→hard
   Redness, heat, sweating ↓
   Demineralisation ↑
3. Late: Pain ↓
   Shiny, atrophic appearance
   Osteoporosis
   Complete dysfunction and alienation of the hand

Epidemiology

- Incidence 1-15%
- Mean age 36-46%
- Predominately women 60-81%
- Upper extremity 44-61%
- Lower extremity 39-51%
- (smokers>non-smokers)

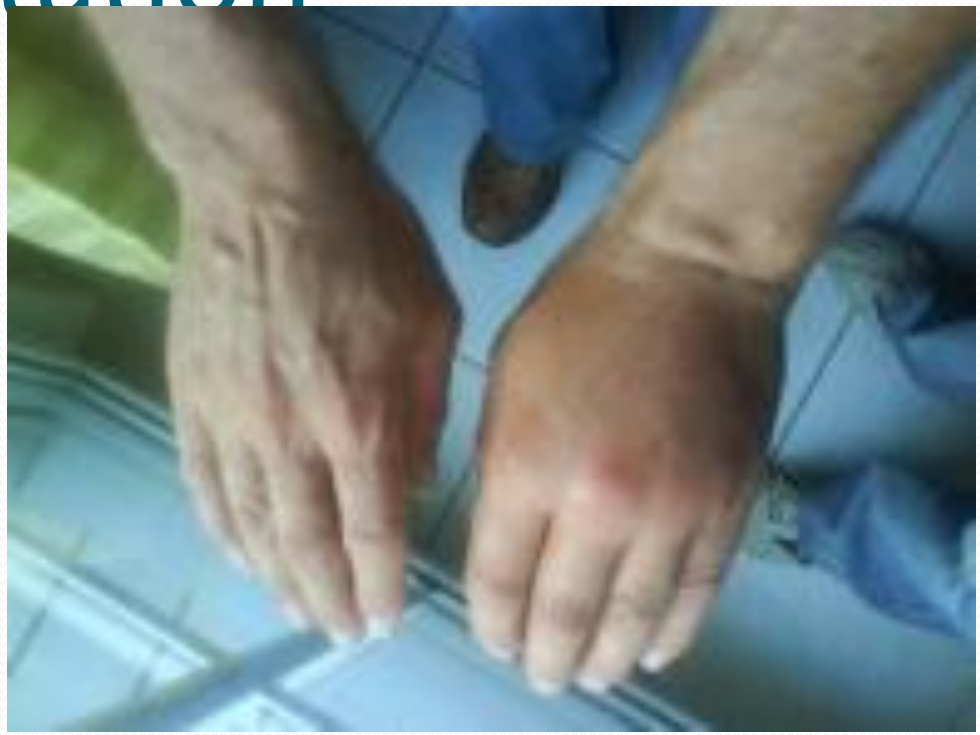
Aetiology

Often minor injury

- Fracture 16-46%
- Strain or sprain 10-29%
- Post surgery 3-24%
- Contusion or crush 8-18%
- Undetermined 2-17%

Clinical presentation

- Sensory
- Vasomotor
- Sudomotor/oedema
- Motor/trophic

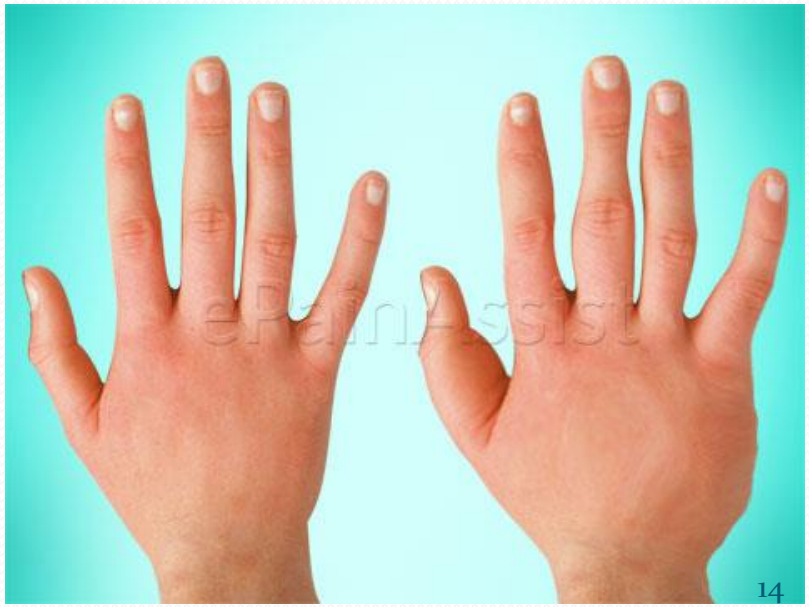


Sensory

- Pain DISPROPORTIONATE to trauma
- Burning, shooting, P& N
- Hyperesthesia
- Allodynia
- Hyperalgesia
- Hyperpathia

vasomotor

- Temperature asymmetry
- Skin colour changes
- Skin colour asymmetry



Sudomotor/Oedema

- Oedema
- Sweating
- Sweating asymmetry
- hyperhydrosis

Motor/trophic

- Decrease ROM
- Motor dysfunction:

  ---weakness/wasting

  ---tremor

  ---dystonia
- Trophic changes:

  ---hair, skin, nails
- Osteoporosis maybe evident around 5^{th} week on xray

Diagnostic tools

- **Clinical findings remain the Gold standard**
- Bilateral thermography
- Plain x-ray
- Three phase bone scan
- Contrast enhanced MRI schurmann et al 2007
- Quantities sudomotor axon reflex test
- Skin conductivity test
- Doppler test

Management

- Hand Therapy
- Pain management
- Psychological support

Hand Therapy

- Early intervention
- Education
- Intensive PTX “no pain no gain”
- Avoid exacerbation of condition
- Team approach

Education

- Compliance
- Support/understanding/empathy
- Moseley 2003 “the results suggest that professionals and patients can understand the neurophysiology of pain, but professionals underestimate the patient’s ability to understand. The implications are that:
  1. a poor knowledge of currently accurate information about pain and
  2. the underestimation of patients’ ability to understand currently accurate information about pain represent barries to reconceptualization of the problem in chronic pain within the clinical and lay areas

Treating pain

- TENS
- Acupuncture
- Active exercise
- Thermal agents &cryotherapy
- Vibration
- Splinting
- CPM

Treating dystonia and joint stiffness

- Active exercises
- **Functional tasks---Use the Hand/ADLs** (with devices)
- EMG with biofeedback
- CPM
- Mobilization

Treating dystonia and joint stiffness

- Splinting
  - Dynamic---pain and motion
  - Static---prevention, assist weak muscles
  - Static progressive---joint/tissue contracture ie: web space
- CMMS

Continues

- Modalities: heat, stretch ie wax
- Passive ROM (pain controlled)

3 flexion &3 extension exercises (Lankford)

- Fist
- Hook
- DIP blocking exercise—active assisted, pain free & gentle, 10 second place and hold in flexion and extension
- 10 seconds light massage—repeat for 3 minutes every 30 minutes

Treating Oedema

- Elevation
- Massage
- Active pumping exercises
- compression

Treating hypersensitivity/allodynia

- Desensitization
- Massage
- Vibration
- Active exercise
- protection

Treating vasomotor instability

- Low impact aerobic activities—hydrotherapy
- Thermal biofeedback
- Contrast baths
- Intermittent compression---putty, weighted arm swinging
- Stress loading

Stress loading

- Watson & Carlson (1987)
- Scrub 3-5 mins, increase to 10 mins x3 / day
- Carry 1-5 lbs x10 mins
- Initial increase in pain

Treating Vasoconstriction

- Thermal agents
- Massage
- Ultrasound
- TENS—high intensity pulse train (burst)
- Education re: avoiding caffeine, and nicotine
- Remote heating

Treating vasodilation

- Cryotherapy ie: cryocuff
- TENS- brief intensity
- Sympathetic trunk mobilization
- Education to avoid alcohol
- Remote cooling

others

- Acupuncture (ear acup. Other types of acup)
- Holistic approach
- Posture
- Diaphragmatic breathing
- Relaxation
- Strengthening
- Return to work (energy conservation)

Graded Motor Imagery

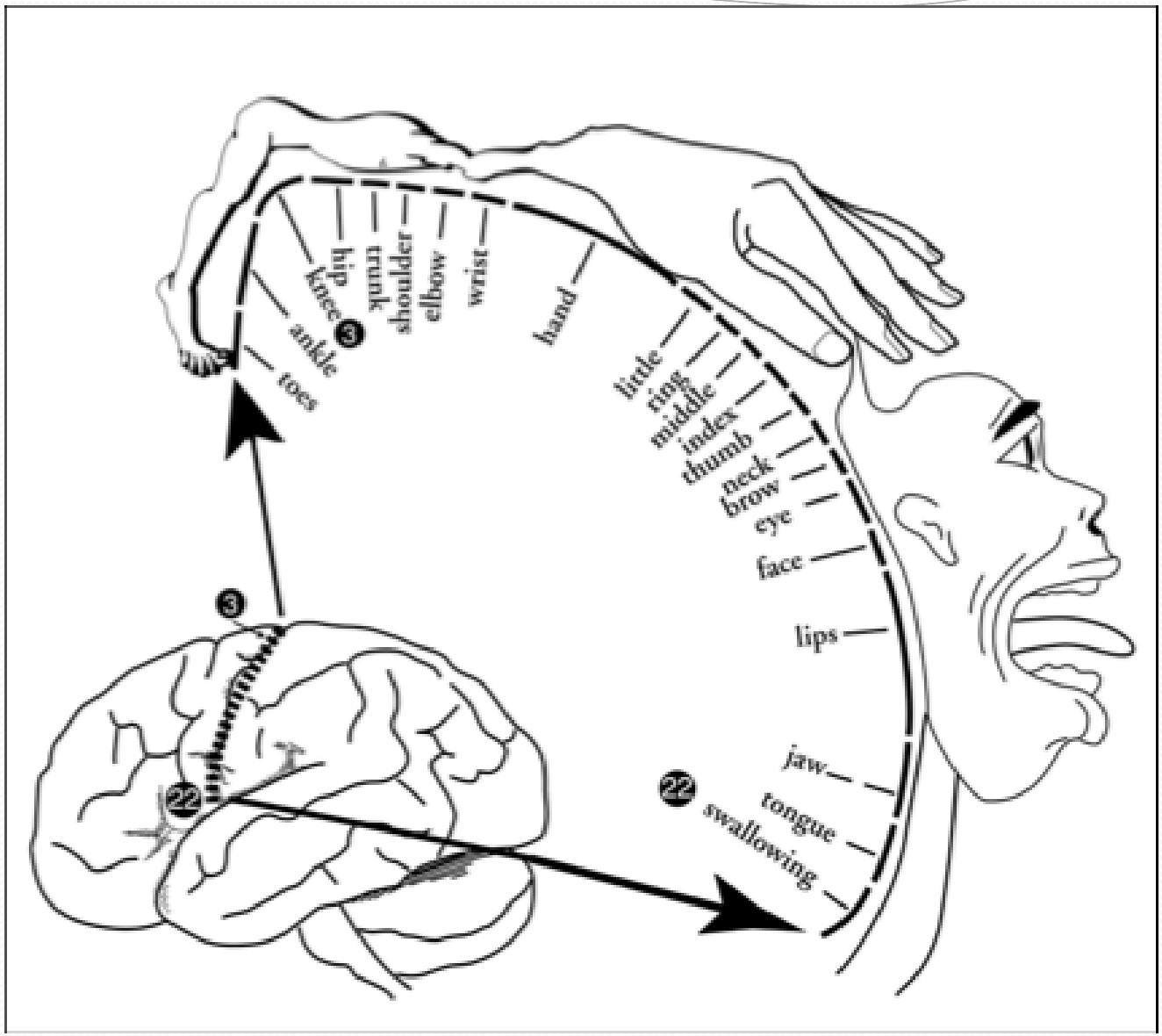
David Butler & Lorimer Mosley/Prof Blake & Sandy Mc Cade

1. Restoration of laterality
2. Motor imaging program(MIP)
3. Mirror visual feedback(MVF)=Mirror Therapy

Central Sensitisation

De representation/Cortical smudging/Cross wiring

Homocular Refreshment/Cortical remapping.


toes
ankle
knee
hip
trunk
shoulder
elbow
wrist
hand
little
ring
middle
index
thumb
neck
brow
eye
face
lips
jaw
tongue
swallowing
3
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Restoration of laterality

- Recognise program

1) Plain left hand and right
2) Hands with image
3) Hands in varying positions

MOTOR IMAGERY

Summary

- Early intervention—Therapist are often the first to recognize
- Therapy is the vital to return to function!