Nomenclature and Classification

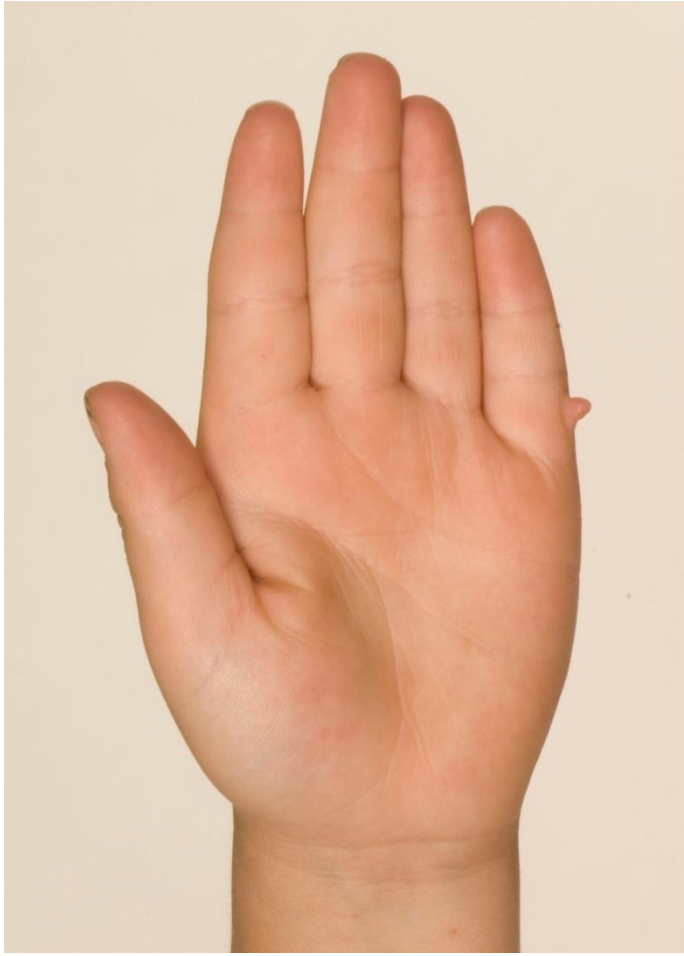
Jeff Auyeung

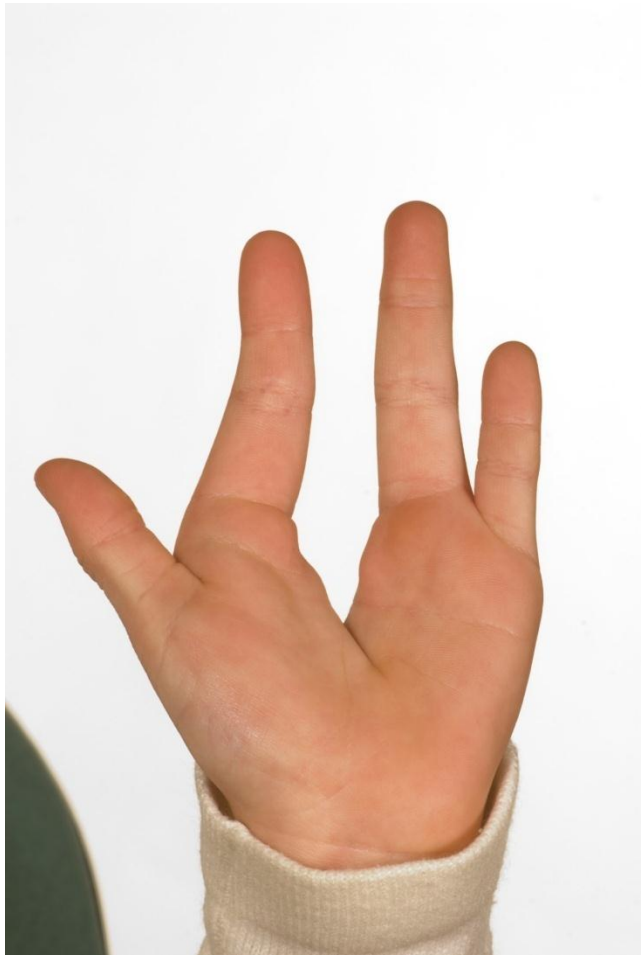
Monday Afternoon Registar Teaching -
Hand Term

What's in a name?

- Pre 2010 = Congenital Hand abnormalities
- Post 2010 = Congenital Hand difference

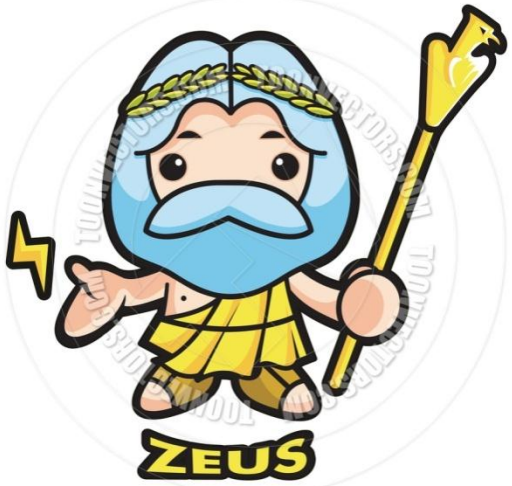
- Cultural context
- “Lucky finger” – post axial duplication



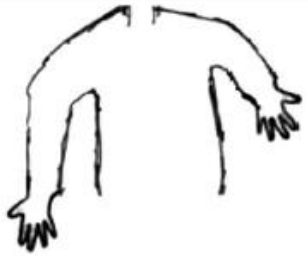


It‘s all Greek to me!

Brachy *short*	
Campto *flexed*	
Clino *bent (radial or ulnar)*	



Sym *fused longitudinally*	

Oligo *few*	
Phoco *sealed*	
Syn *fused side to side*	

Classification - Swanson

- Originally proposed in 1964
- Adopted by ASSH and IFSSH in 1976
- Modified since
- 7 categories
- Morphologic classification
- Good for research not for decision making

Table 1
Abbreviated 1983 Swanson/International Federation of Societies for Surgery of the Hand classification

Main Category	Subcategory	Level	Diagnosis (Example)
I. Failure of formation (arrest)	Transverse longitudinal	Shoulder Arm Elbow Forearm Wrist Carpus Metacarpal Phalanx Radial Ulnar Central Intersegmental	Amelia Radial club Cleft hand (typical/atypical) Phocomelia
II. Failure of differentiation (separation)	Soft tissue Skeletal Tumorous	Disseminated Shoulder Elbow and forearm Wrist and hand Shoulder Elbow Forearm Wrist and hand "Hemangiotic" Lymphatic Neurogenic Connective tissue Skeletal	Arthrogryposis Cutaneous syndactyly Camptodactyly Radioulnar synostosis Osseous syndactyly Clinodactyly Hemangioma Lymphangioma Neurofibroma Enchondroma

III. Duplication	—	Whole limb Humerus Radius Ulna Digit	Mirror hand Polydactyly
IV. Overgrowth (gigantism)	—	Whole limb Partial limb Digit	Hemihypertrophy Macrodactyly
V. Undergrowth (hypoplasia)	—	Whole limb Whole hand Metacarpal Digit	Brachysyndactyly Brachydactyly
VI. Constriction band syndrome	Focal Amputation	—	Constriction band Acrosyndactyly Intrauterine amputation
VII. Generalized	—	—	Achondroplasia Marfan's syndrome

This table presents selected example diagnoses only, without subclassification. Some diagnoses can be conceivably placed in more than one category. For example, Swanson noted that brachysyndactyly (symbrachydactyly) could be placed in category I, II, or V.

Oberg, Manske and Tonkin (OMT) classification

- First developed in 2010
- Based on Pathogenesis and/or molecular biology
- Flexible
- Adopted by IFSSH in Feb 2014 with 3 yearly review

OMT Classification

- 1 Malformation – abnormal development
  - 1A – Entire upper limb
  - 1B – Hand plate
- 2 Deformation – insult after normal formation
- 3 Dysplasia – abnormal shape/size
  - 3A Hypertrophy
  - 3B Tumourous condition
- 4 Syndromes

Classifications - Other

- Separate ones for
- Radial club hands
- Thumb Hypoplasia
- Syndactyly

- Severity based and useful for decision making/prognostication

Classification – Future?

- Move away from morphological to embryological classification

- Phocomelia – embryology/research = longitudinal deficiency – forms of severe radial or ulnar longitudinal deficiency and not intercalary

General plan for surgery

- Reduce tissue – Macrodactyly
- Add Tissue – Syndactyly/Absence
- Correct Deformity – Clino/Camptodactyly
- Stabilise – Club Hands
- Create motion - Symphalangism

Prerequistes for Congenital hand surgery

Good Surgeon

3.5 times better Surgeon