

OMT CLASSIFICATION OF CONGENITAL HAND AND UPPER LIMB ANOMALIES

Updated 28th January, 2015

I. MALFORMATIONS

A. Abnormal axis formation/differentiation—entire upper limb

1. Proximal-distal axis

- i. Brachymelia with brachydactyly
- ii. Symbrachydactyly
 - a) Poland syndrome
 - b) Whole limb excluding Poland syndrome
- iii. Transverse deficiency
 - a) Amelia
 - b) Clavicular/scapular
 - c) Humeral (above elbow)
 - d) Forearm (below elbow)
 - e) Wrist (carpals absent/at level of proximal carpals/at level of distal carpals) (with forearm/arm involvement)
 - f) Metacarpal (with forearm/arm involvement)
 - g) Phalangeal (proximal/middle/distal) (with forearm/arm involvement)
- iv. Intersegmental deficiency
 - a) Proximal (humeral – rhizomelic)
 - b) Distal (forearm – mesomelic)
 - c) Total (Phocomelia)
- v. Whole limb duplication/triplication

2. Radial-ulnar (anterior-posterior) axis

- i. Radial longitudinal deficiency - Thumb hypoplasia (with proximal limb involvement)
- ii. Ulnar longitudinal deficiency
- iii. Ulnar dimelia
- iv. Radioulnar synostosis
- v. Congenital dislocation of the radial head
- vi. Humeroradial synostosis - Elbow ankyloses
- vii. Madelung deformity

3. Dorsal-ventral axis

- i. Ventral dimelia
 - a) Furhmann/Al-Awadi/Raas-Rothschild syndromes
 - b) Nail Patella syndrome
- ii. Absent/hypoplastic extensor/flexor muscles

4. Unspecified axis

- i. Shoulder
 - a) Undescended (Sprengel)
 - b) Abnormal shoulder muscles
 - c) Not otherwise specified
- ii. Arthrogryposis

B. Abnormal axis formation/differentiation— hand plate

1. Proximal-distal axis

- i. Brachydactyly (no forearm/arm involvement)
- ii. Symbrachydactyly (no forearm/arm involvement)
- iii. Transverse deficiency (no forearm/arm involvement)

- a) Wrist (carpals absent/at level of proximal carpals/at level of distal carpals)
- b) Metacarpal
- c) Phalangeal (proximal/middle/distal)

2. Radial-ulnar (anterior-posterior) axis

- i. Radial deficiency (thumb - no forearm/arm involvement)
- ii. Ulnar deficiency (no forearm/arm involvement)
- iii. Radial polydactyly
- iv. Triphalangeal thumb
- v. Ulnar dimelia (mirror hand – no forearm/arm involvement)
- vi. Ulnar polydactyly

3. Dorsal-ventral axis

- i. Dorsal dimelia (palmar nail)
- ii. Ventral (palmar) dimelia (including hypoplastic/aplastic nail)

4. Unspecified axis

- i. Soft tissue
 - a) Syndactyly
 - b) Camptodactyly
 - c) Thumb in palm deformity
 - d) Distal arthrogryposis
- ii. Skeletal deficiency
 - a) Clinodactyly
 - b) Kirner's deformity
 - c) Synostosis/symphalangism (carpal/metacarpal/phalangeal)
- iii. Complex
 - a) Complex syndactyly
 - b) Synpolydactyly— central
 - c) Cleft hand
 - d) Apert hand
 - e) Not otherwise specified

II. DEFORMATIONS

- A. Constriction ring sequence
- B. Trigger digits
- C. Not otherwise specified

III. DYSPLASIAS

A. Hypertrophy

1. Whole limb

- i. Hemihypertrophy
- ii. Aberrant flexor/extensor/intrinsic muscle

2. Partial limb

- i. Macrodactyly
- ii. Aberrant intrinsic muscles of hand

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B. Tumorous conditions

1. Vascular

- i. Hemangioma
- ii. Malformation
- iii. Others

2. Neurological

- i. Neurofibromatosis
- ii. Others

3. Connective tissue

- i. Juvenile aponeurotic fibroma
- ii. Infantile digital fibroma
- iii. Others

4. Skeletal

- i. Osteochondromatosis
- ii. Enchondromatosis
- iii. Fibrous dysplasia
- iv. Epiphyseal abnormalities
- v. Others

28. Oculodentodigital dysplasia

29. Orofacialdigital

30. Otopalatodigital

31. Pallister-Hall

32. Pfeiffer

33. Pierre Robin

34. Poland

35. Proteus

36. Roberts-SC Phocomelia

37. Rothmund-Thomson

38. Rubinstein-Taybi

39. Saethre-Chotzen

40. Thrombocytopenia Absent Radius

41. Townes-Brock

42. Trichorhinophalangeal (types 1-3)

43. Ulnar-Mammary

44. VACTERLS association

B. Others

*The specified syndromes are those considered most relevant; however, many other syndromes have a limb component categorized under "B. Others".

IV. SYNDROMES*

A. Specified

1. Acrofacial Dysostosis 1 (Nager type)
2. Apert
3. Al-Awadi/Raas-Rothschild/Schinzel phocomelia
4. Baller-Gerold
5. Bardet-Biedl Carpenter
6. Beales
7. Catel-Manzke
8. Constriction band (Amniotic Band Sequence)
9. Cornelia de Lange (types 1-5)
10. Crouzon
11. Down
12. Ectrodactyly-Ectodermal Dysplasia-Clefting
13. Fanconi Pancytopenia
14. Fuhrmann
15. Goltz
16. Gorlin
17. Greig Cephalopolysyndactyly
18. Hajdu-Cheney
19. Hemifacial Microsomia (Goldenhar syndrome)
20. Holt-Oram
21. Lacrimoauriculodentodigital (Levy-Hollister)
22. Larsen
23. Leri-Weill Dyschondrosteosis
24. Moebius sequence
25. Multiple Synostoses
26. Nail-Patella
27. Noonan