

The Ponseti Technique

5. General considerations and trouble shooting

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physiotherapist/ P & O
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in clubfoot treatment?

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- Neglected, Complex & Resistant Clubfeet
 - Diagnose
 - >2y old
 - Prior non-Ponseti Rx
 - Unresponsive to Ponseti Rx
 - Refer for surgical assessment
 - Monitor for recurrence after correction
 - 3, 6 & 12 months, then annually
 - Brace (SFAB/other)

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- *District Referral Center for Clubfeet*
- Orthopaedic Officer/Physiotherapist
 - Responsible for overall management of all clubfeet
- Orthopaedic Technician
 - Supply Steenbeek Foot Abduction Brace (SFAB)

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- Assessment of the child
- Recognition of the type of clubfoot
- Treatment depending on type of clubfoot

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- Untreated Clubfeet
 - Serial manipulation & casting (Ponseti)
 - Monitor response (Pirani Clubfoot Score)
 - Differentiate between Treated & Resistant foot
 - Coordinate percutaneous tendo achilles tenotomy
 - Indications for surgical referral
 - Keep a logbook for MOH “Quality assurance”

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- Treated Clubfeet
 - Monitor for Recurrence
 - 3, 6, 12 months, then annual
 - Supervise Bracing
 - Fit Steenbeek Foot Abduction Brace (SFAB)
 - 3 months full time
 - 2-4 yr. night time

The Role of the Orthopaedic Officer/ Physiotherapist/ P&O

- Recurrent Clubfeet
 - Diagnose early
 - Serial manipulation and casting
 - Coordinate percutaneous tendo achilles tenotomy
 - Equinus before 1 yr of age
 - Indications for surgical referral
 - Equinus after 1 yr of age
 - 2nd/Subsequent recurrence after age 3

Common Errors in the treatment of the congenital clubfoot

- Pronation or Eversion of the foot...
 - Worsens the deformity by increasing the cavus
 - Does nothing to abduct the adducted & inverted calcaneus, which remains locked under the talus
 - Creates a new deformity of eversion through the mid & forefoot leading to a “bean shaped foot”
- *“Thou shall not pronate!”*



Common Problems for New Users

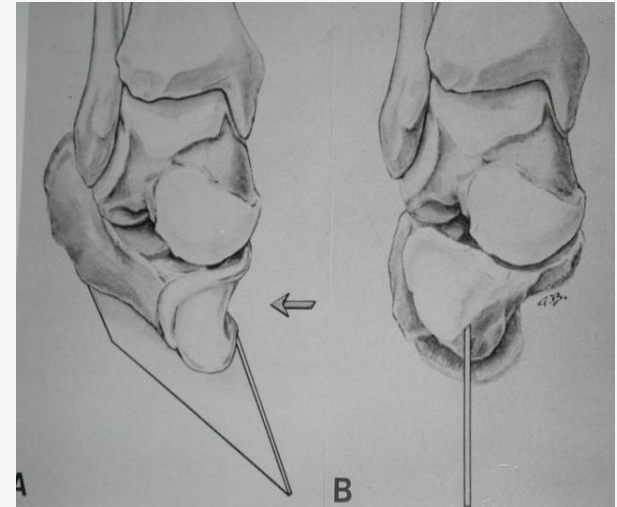
- Failure to over-correct foot (fully correct foot) with manipulation and casting
- Failure to perform tenotomy freely enough
- Inability to coerce family into religious use of the abduction foot orthosis (Denis-Browne splint/Steenbeek foot abduction brace)
- Cast slipping due to too much padding, poor moulding, or failure to use above knee cast
- If cast does slip, change immediately

Common Errors in the treatment of the congenital clubfoot

- External rotation of the foot to correct adduction while the calcaneus remains in varus
 - This causes a posterior displacement of the lateral malleolus by externally rotating the talus in the ankle mortise.
 - The posteriorly displaced lateral malleolus, seen in poorly treated clubfoot, is an iatrogenic deformity
 - It does not occur when the foot is abducted in flexion and slight supination to stretch the medial tarsal ligaments, with counter pressure applied on the lateral aspect of the head of the talus, thus allowing the calcaneus to abduct under the talus with correction of the heel varus.

Common Errors in the treatment of the congenital clubfoot

- Kite's error
 - Kite wrongly believed that the heel varus would correct simply by everting the calcaneus. He did not realize that the calcaneus can evert only when it is abducted, i.e. laterally rotated, under the talus.
 - Abducting the foot at the midtarsal joints with the thumb pressing on the lateral side of the foot near the calcaneocuboid joint blocks abduction of the calcaneus & interferes with correction of the heel varus.
 - This error in the Kite technique had a major negative impact on the manipulative treatment of clubfoot



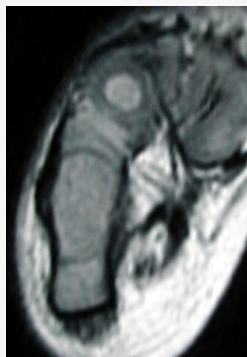
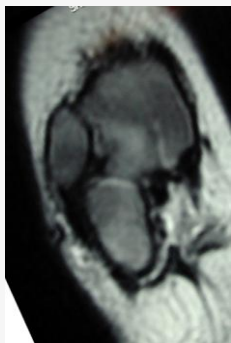
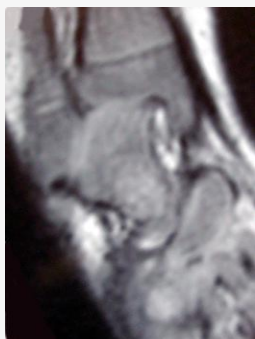
Common Errors in the treatment of the congenital clubfoot

- Frequent manipulations not followed by immobilization.
 - The foot should be immobilized with the contracted ligaments at maximum stretch obtained after each manipulation. In the cast the ligaments loosen allowing more stretching in the next cast
- Application of below knee instead of toe to groin casts.
 - Short leg casts do not hold the calcaneus abducted.
- Attempts to correct the equinus before the heel varus and foot supination are corrected will result in a rocker bottom deformity
 - Equinus through the subtalar joint can only be corrected by calcaneal abduction

Common Errors in the treatment of the congenital clubfoot

- Failure to use shoes attached to a bar in external rotation for three months full-time and at night for two to four years.
 - The most common cause of recurrence is failure to wear braces
- Attempts to obtain a perfect anatomical correction.
 - It is wrong to assume that early alignment of the displaced skeletal elements will result in a normal anatomy. Long term follow up Xrays are abnormal. However good long term function of the clubfoot can be expected. There is no correlation between the radiographic appearance of the foot and long-term function

What happens to the tarsal bones with Ponseti treatment?



KK: Scores at start of Ponseti Treatment

| | |
|--------------------|-------------------|
| Curved Lat Border | 1 |
| Medial Crease | 0.5 |
| Lat Head Talus | 1 |
| <i>MFCS</i> | <i>2.5</i> |
| Post Crease | 1.0 |
| Empty Heel | 1.0 |
| Rigid Equinus | 1.0 |
| <i>HFCS</i> | <i>3.0</i> |
| <i>TS</i> | <i>5.5</i> |

1. Normal tarsal relationships are restored
2. The shapes of individual tarsal bones normalizes



KK: Scores after correction of abduction, and TA tenotomy

Curved Lat Border 0

Medial Crease 0

Lat Head Talus 0

MFCS **0**

Post Crease 0.5

Empty Heel 0.5

Rigid Equinus 0

HFCS **1.0**

TS **1.0**

