Clubfoot & Ponseti Management

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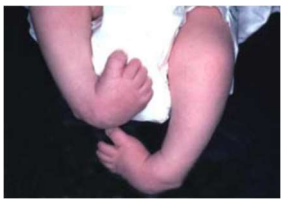
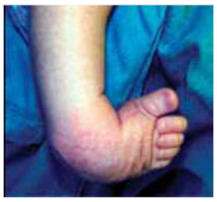


What is Clubfoot?

Clubfoot is a complex developmental deformity that is usually identified at birth or possibly via a prenatal ultrasound. The term clubfoot is used when a baby is born with a foot that is turned inwards and points downward. Clubfoot is not painful and can be corrected with early treatment. Left untreated, clubfoot will cause a severe disability and the child will walk on the outside aspect of their foot. This will limit activity and make shoe wear impossible. With the advancements in Ponseti treatment, a child with a clubfoot is anticipated to have a normal appearing and functioning foot if treated by a trained professional. Following treatment the effected limb will be strong, flexible, and allow for a normal active life.



What Causes Clubfoot?

The exact cause of clubfeet in unknown but likely has a genetic component. This means that clubfoot is not associated with anything the parents did or did not do during pregnancy. The probability that a child will have a clubfoot is 1:1000 births with 1:30 likelihood that a second child will also have a clubfoot. Clubfoot is two times more likely to be seen in males than in females. The severity of clubfoot varies significantly. Clubfoot is slightly more common on one side only (unilateral) but may also present on both sides (bilateral). If the clubfoot is unilateral the foot is slightly shorter and narrower than the unaffected limb.

How is Clubfoot Treated?

Treatment is initiated during infancy with the Ponseti method. This method was created by Dr. Ignacio Ponseti in the 1940's and has become the mainstay for treatment throughout the world. Ponseti treatment method includes serial casting and often a tendon release, which is a minor surgical procedure. Correction is achieved

with brief manipulation and stretching prior to plaster casting in a progressive fashion. Serial casting is provided with long leg plaster casts that extend from the foot to the upper thigh. Casts are changed on a weekly basis. The total duration varies based on severity, ranging from 4-8 weeks. Parents are encouraged to bottle or breast feed during casting to relax and distract the baby for optimal correction with each cast. Before the final cast is applied, a heel-cord tenotomy may be required under anesthesia. This is a minor surgical procedure to release the heel cord with small incision. Final casts are applied and remain in place for 3 weeks. The patient will then be required to wear a foot abduction brace with bar to maintain correction for several years. Treatment of clubfeet requires both the expertise of a trained professional but as importantly the compliance of the patient and parents throughout the process.

Cast Care Instructions for Home:

1. Keep the cast clean and dry. A dampened towel may be used to spot clean.
2. Prevent soiling with frequent diaper changes and try to keep the upper end of the cast out of the diaper.
3. During naps and when your child is on their back, place a pillow under the cast to elevate the leg to prevent pressure sores.
4. Following a new cast application frequently check the circulation in the foot. This can be done by gently pressing on the toes and watching for a quick return of blood flow (they will initially turn white and then should quickly pink back up). If changes occur from the time of casting contact the office immediately for further instructions.
5. Monitor the foot for any signs that the foot may be withdrawing into the cast. Concern would be if the tips of the toes have pulled up into the cast and become hard to visualize. If this occurs, contact the office to schedule a cast change.

Cast Removal:

Removal of the plaster casts is completed at home by unraveling the plaster the morning prior to your appointment. This should be done by first soaking the cast in warm water with Heinz White Vinegar (approx. 1 tablespoon per gallon of warm water) for 20-25 min until the cast becomes soft. You may also consider wrapping the cast in a soaking wet towel and covering with a plastic bag, such as a bread sack, to help soften the cast. The ends of the plaster will be exposed in the form of a knot by the provider to allow for easy identification of where to start unraveling. Baking soda may be added if you have hard water to help speed the softening process. The cast should be removed prior to your appointment.

Maintaining Correction:

Once casting is complete it is important to prevent relapse. Correction is maintained with foot abduction brace and bar configuration. This consists of a pair of high top open toe braces connected to an adjustable bar. Measurements will be made prior to final casting in order to allow for immediate transition from casting to bracing. The effected clubfoot or clubfeet are maintained outward at 60-70 degrees with the bar maintained at shoulder width. The brace is worn 23 hours a day for the first 6 months and then only for naps and nighttime (approx. 14-16 hours per day) until 3-4 years of age.

Initially your child may become fussy or feel uncomfortable as they adjust to their legs being fixed in a shoulder width position. This is something new and different but should not be considered painful. It may take 1-2 nights for your child to adjust. Compliance becomes extremely important and the responsibility of maintaining correction is with the family. If not worn as advised then recurrence is inevitable. When the braces are required less frequently then well supportive shoes with arch support is recommended. There is more than an 80% chance of relapse when the brace and bar configuration is not worn correctly. Wearing the braces will not delay developmental milestones with regards to sitting, crawling, standing, or walking. Failure with brace wear and recurrence unfortunately may require return to casting or in some children large surgical procedures.

Brace Wear:

1. Always wear cotton socks with complete skin coverage in relationship to the brace. Initially you may use double socks for a few days due to skin sensitivity.
2. Hold the foot in the brace and tighten the ankle strap first. This keeps the heel firmly down into the brace. Check that your child's heel is down in the brace. If the heel starts to pull up or the toes are moving back in then the straps need to be readjusted.
3. Do not mark preset holes for the straps to be adjusted to. The leather straps will stretch. Be aware that adjusting should be based on fit, not by routine set hole marks.

4. Make sure the toes are out straight and not curled under. The toe plate can be marked as a quick reference.
5. Play with your child in the brace. You will need to teach your child that they can still kick and swing their legs simultaneously.
6. Pad the bar as needed. This can be done with bicycle handlebar tape or fleece seatbelt padding.
7. Make wearing the braces and bar part of their daily routine to prevent challenges with your child's compliance as they get older.
8. If you notice redness on the heel, this is likely due to the brace not being tight enough and the heel pulling upward. Adjust the brace as needed. Do not use lotion on these areas.
9. Periodically tighten the screws on the bar to prevent loosing and unintentional adjustments.

Monitoring:

Your child will continue to be monitored every 3-4 months for the first few years to evaluate for possible relapse and to adjust the braces and bar as needed. If signs of relapse are seen then additional manipulation and casting may become necessary. Further surgery is not commonly required except in complex cases or when brace wear has not been maintained as recommended.