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## **Club Foot and its Treatment: A Case Study**

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### **ABSTRACT**

Club Foot is a congenital musculoskeletal abnormality that affect 1 in every 1,000 newborns. Children born with clubfoot have an inward curved forefoot, high arches and inverted heel with a downward pointing ankle. Clubfoot is a structural malformation in which delay physical mobility and activity occurs in diagnosed children. They can also have long lasting negative effects on the quality of life. In approximately 80% of cases club foot is idiopathic and remaining 20 % is associated with other disorders most commonly Spina Bifida, cerebral Palsy and Arthrogyrosis.

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### **1. Introduction**

Congenital talipes equinovarus also known as clubfoot occurs in one in 1000 live births and is one of the most common birth defects involving the musculoskeletal system.<sup>1</sup> Although clubfoot is recognizable at birth, the severity of the deformity can vary from mild to an extremely rigid foot. Idiopathic clubfoot is an isolated deformity of the foot and leg that is identifiable in utero and consist of four components: equinus, hindfoot varus, forefoot adductus and cavus.<sup>2</sup> When untreated, children with clubfoot walk on the sides and top of their feet resulting in the callus formation, potential bone and skin infection, inability to wear standard shoes and substantial limitations in mobility.

The prevalence of additional congenital anomalies or chromosomal abnormalities in patient with clubfoot is varies depending upon the population and range from 24% to 50%.<sup>3</sup> Known etiology of clubfoot, disorders involving the nervous system comprise the greatest number. The most common known etiology is arthrogyrosis, myelomeningocele.<sup>4</sup>

Understanding the exact genetic etiology of clubfoot may eventually be helpful in determining both prognosis and selection of appropriate treatment in patient. The primary goal is to provide long term correction, improve quality of life and pain free. To achieve this, a combination of methods (Ponseti methods and French methods) may be needed.

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### **2. Case Presentation**

A 4 days old male newborn admitted in Maharishi Markandeshwar Medical College and Hospital Kumarhatti, Solan, Himachal Pradesh with the chief complaints of tachypnea, Low birth weight and decreased fetal movements. On detailed history taken it was found that baby was born by Lower segment caesarian section (LSCS) because of breech presentation and had severe oligohydramnios. On physical examination it is revealed that baby is having bilateral side club foot.

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### **3. History of Past Illness**

No significant Past Medical and Surgical history of baby.

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### **4. Birth History**

During antenatal period mother had not any kind of bleeding, trauma, Hypertension, infection and not taken alcohol. Mother got two doses of tetanus during the pregnancy. About natal history, Length of labour was 45 minutes and LSCS was done. Birth weight was 1.6 kg and APGAR score was 5 at 1 minutes and 6 at 5 minutes. Need of Intensive Care unit was there due to decreased fetal movements and tachypnea.

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### **5. General Examination**

Weight – 1.6 kg

Height - 44cm

Head Circumference – 31cm

Chest circumference – 30 cm

Mid arm circumference – 14 cm

Baby had poorly developed rooting, sucking, swallowing and moro's reflex.

## 6. Treatment

Inj. Ampicillin 80mg IV, Inj. Gentamycin 7mg IV, Syp. Calimax – P 2.5 ml.

## 7. Intervention

Passive range of motion exercises.

Joint compression bilateral lower limbs.

Manipulation, dorsiflexion and eversion.

## 8. Care Plan

Teach the parents about the passive range of motion exercises.

Exclusive breastfeeding should be given.

Patient is advised for further with casting steps-

### Ponseti Method of Treatment :

**Corrective phase** – During this phase the position of foot is gradually corrected using a series of Manipulation and plaster of Paris, then finally a small outpatient procedure is performed to cut the Achilles tendon (tenotomy).

**Maintenance phase** – Once a corrective phase is done then the aim of the maintenance phase involves keeping the corrected position for the next 4-5 years.

**Manipulation and casting** – Baby's foot is gently stretched and manipulated into a correct position. Each week this process of stretching, re-positioning and casting is repeated until the foot is largely improved. It takes 6-8 weeks.

**Achilles tenotomy** – After the manipulation and casting period, approximately 90 percent need a procedure in which doctors use a instrument to cut the tendon. The cut is small and does not require stitches. A new cast is applied on it to protect the tendon.

**Bracing** – Even after the successful correction with casting, the foot will be permanently stay in correct position, the baby will need to wear a brace for few years.



### French Method of Treatment

French method is also a nonsurgical method to correct clubfoot incorporates stretching, mobilization and taping. Like the Ponseti method, the French method also includes stretching and manipulation and then taped to maintain the range of motion gained by manipulation. After that plastic splint is put over the tape to improve the range of motion exercises.

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## 9. Outcome

Parents was advised to perfume exercises daily.

Parents was advised to visit hospital every week for follow up.

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## 10. Discussion

The most common musculoskeletal birth defects is club foot. There should be updates information regarding its etiology and treatment. The purpose of this study is to provide understanding regarding genetic etiology of clubfoot and surgical or non surgical treatment.

A study was conducted by the researcher on Update on clubfoot: Etiology and Treatment. According to this study clubfoot is one of the most common congenital abnormalities affecting the lower limb. Known etiology for the clubfoot disorder specially involving the nervous system. Distal arthrogryposis and myelomeningocele are the known etiologies of club foot. Other etiology includes brain, spinal cord problems .About the treatment two non - surgical methods of treatment are – Ponseti method and French method.

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## 11. References

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