



Orthopaedics

A CLINICAL STUDY ON SURGICAL MANAGEMENT OF CONGENITAL TALIPES EQUINO VARUS DEFORMITY OF FOOT BY POSTEROMEDIAL SOFT TISSUE RELEASE IN CHILDREN

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ABSTRACT

Introduction- Congenital talipes equinovarus deformity of the foot is a common complex deformity in approximately one per 1000 newborns. The long term aim of treatment is a pain free, functional, plantigrade foot with good mobility, without calluses and the need for shoe wear modification. As soon as possible, treatment of congenital talipes equinovarus (Clubfoot) begins. With serial casting techniques with 20 to 95% of success rate. Surgical treatment can be considered in cases of failure of serial casting or recurrence or in which parents seek medical intervention too late. Dissatisfaction with the results of non-operative treatment and various soft tissue procedures provided the incentive to develop operation, which should give long lasting correction. According to the remaining deformities, various surgical procedures range from simple posterior release and tendon transfers to extensive procedures like posteromedial release and complete subtalar release. Reported that the best results were obtained from the surgical treatment of congenital Clubfoot in children with the ages of one and two years and three years and then after that the number of the excellent results diminished as the age at operation increased the posteromedial soft tissue release has got distinct advantages of correction of equinus deformity of the hindfoot adducts and varus components of CTEV. The study aimed to evaluate the effectiveness of clubfoot treatment by posteromedial soft tissue release. **Methods And Methodology-** In this study, 25 patients with congenital club foot with age between 6 months to 3 years who attended and were admitted to the orthopedic OPD clinic of GGH Kurnool were included. The patients with untreated CTEV were included in this study. The youngest child was 8 months old, and the oldest child was 2 years 3 months old. **Results** In this study, 25 patients with clubfoot were studied. All the cases were treated in Government General Hospital, Kurnool, between November 2019 to November 2021. The method used to treat the club foot was posteromedial soft tissue release. The duration of follow up period was 3 months to 2 years. Out of 25 patients, all patients follow up was done, no patient was lost. 72.73% excellent results and 24.24% good results were obtained using Turco's and modified Wynne Davie's scoring system. **Conclusion** If the children with CTEV are treated early i.e. before bony changes appear, posteromedial soft tissue release with proper follow up and splinting gives a cosmetically normal looking and functionally acceptable pain free foot as seen in the study performed. In conclusion the posteromedial soft tissue release has done below 3 years age is an excellent way of managing the problem of congenital Talipes equinus varus deformity with fewer complications and good cosmetically and functional outcome.

KEYWORDS :**INTRODUCTION**

Congenital talipes equinovarus deformity of the foot is a common complex deformity in approximately one per 1000 newborns. The long term aim of treatment is a pain free, functional, plantigrade foot with good mobility, without calluses and the need for shoe wear modification. Since Hippocrates' time, the treatment of club foot has remained a perplexing and challenging problem for orthopaedic surgeons to treat successfully¹. A lot of progress has been made since the third century B.C. Still, much confusion and divergence of opinion remains regarding the aetiology, pathogenesis, treatment, and prognosis of the condition until today. As soon as possible, treatment of congenital talipes equinovarus (Clubfoot) begins. With serial casting techniques with 20 to 95% of success rate. Surgical treatment can be considered in cases of failure of serial casting or recurrence or in which parents seek medical intervention too late. Dissatisfaction with the results of non-operative treatment and various soft tissue procedures provided the incentive to develop operation, which should give long lasting correction.

According to the remaining deformities, various surgical procedures range from simple posterior release and tendon transfers to extensive procedures like posteromedial release and complete subtalar release. Theoretically soft tissues become more contracted as the child becomes older and challenging to be correct because of longstanding deformity and secondary contractures. Reported that the best results were obtained from the surgical treatment of congenital Clubfoot in children with the ages of one and two years and three years and then after that the number of the excellent results diminished as the age at operation increased the posteromedial soft tissue release has got distinct advantages of correction of equinus deformity of the hindfoot adducts and varus components of CTEV. The study aimed to evaluate the effectiveness of clubfoot treatment by posteromedial soft tissue release.

AIMS AND OBJECTIVES

Congenital talipes equinovarus deformity of the foot is a common deformity that occurs in one per 1000 newborns. Regarding the treatment of Clubfoot, most orthopedic surgeons agree that appropriate management of children with clubfoot should begin with conservative measures i.e. manipulation and serial casting in the position of correction. But in patients with incomplete correction and recurrent deformities after repeated manipulations and casts require one or more surgical procedures.

Dissatisfaction with the results of non operative treatment and various soft tissue procedures provided the incentive to develop posteromedial soft tissue release, which should provide a lasting correction. In this procedure, the posterior, medial soft tissue contractures are released to permit the realignment of abnormal anatomy of bones.

So the present study is undertaken

1. To evaluate the effectiveness of posteromedial soft tissue release in congenital talipes equinovarus deformity of the foot.
2. To study the functional Outcome of posteromedial soft tissue release.
3. To study complications of posteromedial soft tissue release.

MATERIAL AND METHODS

In this study, 25 patients with congenital club foot with age between 6 months to 3 years who attended and were admitted to the orthopedic OPD clinic of GGH Kurnool were included. The study was done over a period of 2 years, from November 2019 to November 2021, which is carried in the orthopedic department. A minimum of 25 cases will be studied.

The youngest child was 8 months old, and the oldest child was 2 years 3 months old. In bilateral cases, both feet were operated at an interval of

7 to 10 days.

Inclusion Criteria:

1. Untreated congenital club foot.
2. Age less than 3 years.

Exclusion Criteria:

1. Postural, syndromic, neglected, relapsed club foot.
2. Age greater than 3 years.
3. Patients who are unfit and non-compliant with the described technique.
4. Associated neurological symptoms.

A datasheet was structured to fulfil the objectives of this study.

Details about the patients' history, examination, management is done, and final results are registered.

The following protocol was observed for a patient with clubfoot on arrival

1. General and systemic examination as well as the local examination of the patient.
2. Thorough assessment of the patient to rule out neurological problems and other deformities.
2. Evaluation of patients in terms of

- A) Age
- B) Sex
- C) Laterality of deformity

3. Other deformity examination to rule out the syndromic cause.
4. Musculo skeletal examination of the patient for muscle wasting or other bony deformities.
5. Radiological assessment with anterior posterior and true lateral views of deformed club foot.

Preoperative Investigation:

Pre operative valuation done a per protocol.

Preoperative Planning And Preparation:

Club foot was classified with the help of Harrold and Walker classification.

The preoperative deformity is assessed by radiographs.

Patient position:

In all cases, we have used a supine position on the table.

Operative Procedure:

The procedure is done with the help of a pneumatic tourniquet, and a medial incision is made from the base of the first metatarsal to the tendo calcaneus curving behind the medial malleolus and extending up for a short distance. The neurovascular bundle is identified, mobilized and retracted posteriorly or anteriorly. A posterior release is made first, the tendo calcaneus is lengthened by Z-plasty and posterior capsulotomy is done for ankle and subtalar joints and the posterior talofibular and calcaneofibular ligaments are divided with the posterior portion of the deltoid ligament. Then a medial release begins by dividing tibialis posterior tendon proximally just above the medial malleolus and its distal portion traced to reach the talonavicular joint, which is also opened by incising the navicular insertion of the deltoid ligament and the talonavicular capsule then the navicular is mobilized laterally and dorsally to achieve full reduction over the head of the talus, then the medial release is completed by dividing all the tight soft tissue structures in the medial side of the foot that prevent full correction including the superficial deltoid ligament then the distal part of tibialis posterior is excised. The wound is closed in layers.

Postoperative:

A well padded above knee plaster cast was applied with the foot at a right angle.

In postoperative wards, the limb elevation was done along with injectable or oral analgesics and antibiotics for 5 to 10 days.

Suture removal is done on the 14th posted operative day.

The patient was discharged on the day of 17 to 19th postoperative day and was advised for follow up after the 3rd postoperative week.

After 3 weeks the plaster cast is changed with more dorsiflexion of the foot. Plaster or splint immobilization is continued for 3 months.

At each follow up the patient was assessed as graded by clinical and radiological correction of the deformity. Pain at the operative site, the pliability of the ankle and subtalar motions.

The long term post-operative follow up was evaluated for each foot cosmetically and functionally and rated them according to criteria laid by Turco's and Wynne-Davies scoring system.

OBSERVATION AND RESULTS

In this study, 25 patients with clubfoot were studied. All the cases were treated in Government General Hospital, Kurnool, between November 2019 to November 2021. The method used to treat the club foot was posteromedial soft tissue release. The duration of follow up period was 3 months to 2 years. Out of 25 patients, all patients follow up was done, no patient was lost. 72.73% excellent results and 24.24% good results were obtained using Turco's and modified Wynne Davie's scoring system.

The following are the observations noted

In this Study, the youngest case was 8 months old male and oldest was 2 years 3 months old male, overall mean age was 14.56 months.

In male, it was 14.75 months and in female 14.23 months.

Male were involved 1.8 times as compare to females. And most age group between 1-2 years.

In this study, of 25 cases unilateral is 17 (68% of total cases), and the remaining 8 cases are bilateral (32% of total cases).

The ratio between unilateral to bilateral was 1.8:1. Unilateral was 1.8 times more common than bilateral.

Again from these unilateral cases, right side club foot cases are 10, and left side involved club foot was 7 with a ratio of the right foot to left foot was 1.4:1.

Table 1 Grade of Deformity

S.No.	Grade	No. of feet	Percentage
01	I	0	0%
02	II	25	75.75%
03	III	08	24.24%
04	Total	33	100%

In this study, grade-II deformity is seen in 25 feet and Grade III deformity is seen in 8 feet, grading is according to Harrold & walker classification.

Grade-II is more common than others.

Table 2. Radiological Correction Of Deformity

S.No.	Radiological Correction	No. of feet	Percentage
01	Achieved	32	96.97%
02	Not Achieved	01	3.03%
03	Total	33	100%

In this study radiological correction is achieved in 32 Feet and not achieved in 1 foot after posteromedial release.

Table 3 : Residual Deformity

S.No.	Residual deformity	No. of feet	Percentage
01	Absent	24	72.73%
02	Mild/cosmetically acceptable	08	24.24%
03	Persistent/unacceptable	01	3.03%
04	Total	33	100%

In this study 72.73% of feet have no residual deformity after surgery and persistent/unacceptable residual deformity is seen in only 3.03% of feet.

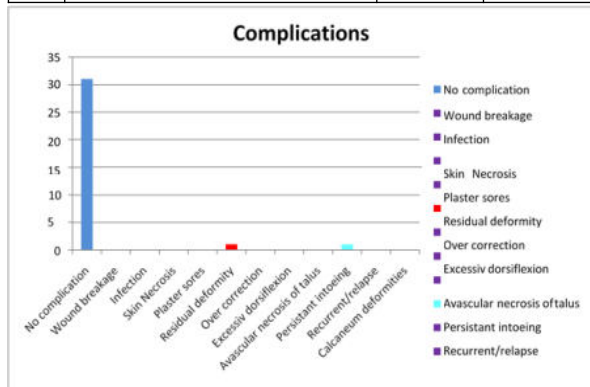
Table 4 : Movements

S.No.	Ankle/Subtalar movements	No. of feet	Percentage
01	Pliable	32	98.97%
02	Restricted	01	3.03%
03	Total	33	100%

In this study pliable ankle/subtalar movements are present in 32 feet and one foot shows restricted subtalar movements.

Table 5. Complications

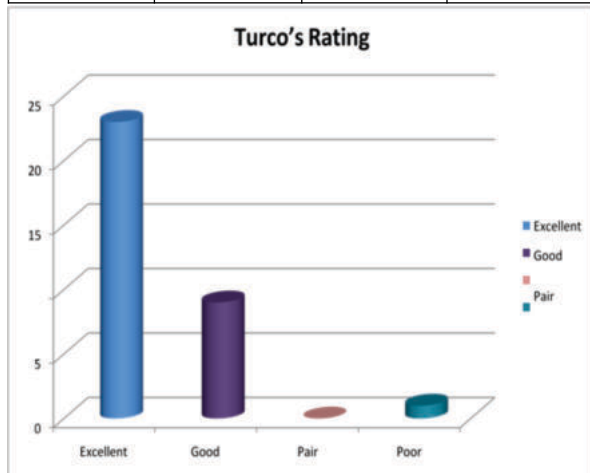
S.No.		No. of feet	Percentage
01	No complication	31	
02	Wound breakage	0	
03	Infection	0	
04	Skin Necrosis	0	
05	Plaster sores	0	
06	Residual deformity	1	
07	Over correction	0	
08	Excessive dorsiflexion	0	
09	Avascular necrosis of talus	0	
10	Persistent in toeing	01	
11	Recurrent/relapse	0	
12	Calcaneum deformities	0	
13	Total	2	



Graph 1: Complications

Table 6: Turco's Rating

S.No.	Result	No. of feet	Percentage
01	Excellent	23	69.70%
02	Good	9	27.27%
03	Fair	0	0%
04	Poor	1	3.03%
05	Total	33	100%

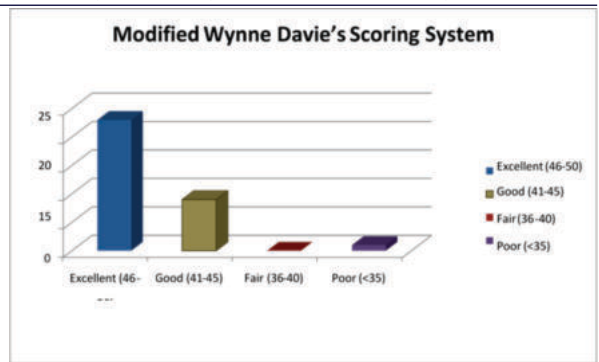


Graph 2: Turco's Rating

In this study 96.97% of feet showed good to excellent results and poor results in one foot.

Table 7: Modified Wynne Davie's Scoring System

S.No.	Results	No. of feet	Percentage
01	Excellent (46-50)	24	69.70%
02	Good (41-45)	08	27.27%
03	Fair (36-40)	0	0%
04	Poor (<35)	01	3.03%
05	Total	33	100%



Graph 3: Modified Wynne Davie's Scoring System

In this study 96.97% of feet showed good to excellent results.

Table 8: Correlation Between Age And Results

	RESULTS				TOTAL
	Excellent	Good	Fair	Poor	
1 MONTHS- 1 YEAR	7	3	0	1	11
Count					
%with in this age group	63.63%	27.27%	0%	9.1%	100%
% with in final results	21.21%	9.1%	0%	3.03%	33.34%
1 YEAR-2 YEAR	15	60	0	0	21
Count					
% with in this age group	71.43%	28.57%	0%	0%	100%
% with in final results	45.45%	15.18%	0%	0%	63.63%
2 YEAR-3 YEAR	1	0	0	0	1
Count					
% with in this age group	100%	0%	0%	0%	100%
% with in final results	3.03%	0%	0%	0%	3.03%
TOTAL Count	23	9	0	1	33
% with in this age group	100%	100%	0%	100%	100%
% within final results	69.70%	27.27%	0%	3.03%	100%

DISCUSSION

Clubfoot constitutes one of the most common presenting paediatric orthopaedic problems in an orthopaedic department in the government general hospital Kurnool. These children will benefit from early surgical intervention.

Surgical treatment in clubfoot aims to obtain a plantigrade, painless, functional foot with good mobility and without calluses and the ability to wear normal shoes.

The objective is to obtain a complete and lasting correction with a single surgery. Single staged surgery is advantageous compared to a two staged procedure, as it leads to less scar formation and less chance of recurrence.

The present study was carried in the department of orthopaedics between November 2019 to November 2021. In these 2 years, 25 cases with 33 feet were recorded. All feet were corrected by poster medial soft tissue release.

Age Incidence:

This study included 25 patients with 33 clubfoot between age of 6month to 3 years; the youngest case was 8 months old male, and the oldest was 2 years 3 months old male. Overall mean age was 14.56 months. The number of cases between 6 months to 1 year in 8 patients (32%), between 1 year to 2 years are 16patients (64%), and between 2 years to 3 years is only 1 patient (4%).

Hussain et al² 70 surgically treated patients by modified Turco³ posterior medial release, concluded that this operation can be used

successfully in all the cases of resistant clubfoot until three years. Chacko et al⁴ (70%), Turco³ (87%), Bensahel et al⁵ (88 %). Mazon⁶ also found 76.6 excellent and good results in 23 clubfoot patients with a mean age of 7.7 months (range 3.5-19 months) treated by posteromedial release. RONALD JOSEPH MENEZES et al⁷ studies between 2009 to 2013 has shown mean age of 8.4 months who studied cases between 3 months to 18 months.

Thus most of the studies confirm that many authors considered less than 3 years of age from their study in club foot treated by posteromedial soft tissue release.

Sex incidence:

In the present study, a total of 25 patients there were 16 males and 9 females with a ratio of 1.8:1, which shows that **males** are more commonly involved than females.

RONALD JOSEPH MENEZES et al⁷ the sex ratio (M.F. =1.8:1) observed in the present study was almost similar to that observed by Turco³ and Kite⁸.

Club foot predominantly seen males in our series 64% and is comparable with other series like a kite⁸, 71% males and 29% females. Gupta⁹ 70% males and 20% females, while this ratio was 2: 1 a study conducted by Ponseti¹⁰, Turco³ and Kite⁸.

Laterality:

In this study, of 25 cases unilateral is 17 (68% of total cases), and the remaining 8 cases are bilateral (32% of total cases). The ratio between unilateral to bilateral was 1.8:1. Again from these unilateral cases, **right side club foot** cases are 10, and left side involved club foot was 7 with a ratio of the right foot to left foot was 1.4:1.

Bilateral involvement (3:2) was far more common than what was observed by Turco^{43,61} and Palmer⁶⁶. The data collected by Turco^{43,61} revealed that the right and left sides were equally involved.

Thus from these discussions, the present study shows that **unilateral** was common than bilateral, which was against Turco^{43,61} and palmer⁶⁶ which showed bilateral was more common than unilateral. The miss match occurred because of including the small sample size of cases that is only 25 cases, and again present study included cases only who are admitted for operation, excluding cases treated by serial manipulation and casting so complete conclusion and comparison cannot be made by including an only single set of patients.

GRADE OF DEFORMITY:

In the present study, club foot grading was done according to **Harrold walker**¹² classification system, out of 33 feet, 25 feet are with Grade 2, and 8 feet are with Grade 3 deformity of clubfoot, most of the patients with grade 2 compared to grade 3. Compared with other studies by Joseph Menezes et al¹³ in 2009 to 2013, out of 40 patients, 18 patients had Grade 2 deformity of club foot, 12 with Grade 3. Syed Ajmad Hussain et al¹⁴ in 2004 to 2008, Grade 2 and Grade 3 deformities of club foot were included.

Thus these shows that most of the cases presented for surgery were **grade 2 and grade 3**. Early grades are normally treated by conservative treatment by many orthopaedic surgeons due to less stiff soft tissue and bony structures in grade 1. In grade 2 and 3 there will be more stiffness of bony and soft tissue structures which cannot be treated by simple manipulation and casting need operative procedures most commonly used is posteromedial soft tissue release compared to other techniques.

RESULTS

In the present study, cases follow up done between 6 months to 2 years, that is 18 months. No patient was lost in follow up period and observed good compliance in the present study.

The results of the study show excellent in 23 feet, shows good results in 9 feet, 0 feet with fair results and 1 foot show poor results. **69.70% excellent results**, 27.27% show good results and 3.03% show poor results by **Turcos scoring system** and **modified Wynne Davie's scoring system**.

Thus excellent to good results in 32(96.97%) feet out of 33 feet and 1 foot failure. These results are comparable to Turco³ regarding the

acceptable results. Turco's VJ³ reported 83% satisfactory results, 12% fair results and 5% failure with his surgical procedure and 84% good and excellent results in those with follow up of more than 2 years (25), but the present study failure rate which is 3.03%. The results of operative treatment cannot be easily compared with the results of other studies and to ours because of **different types of operation** and assessment criteria used by **different authors**. However, the results in the literature are considered acceptable Atar D et al¹⁴ (93%), Blakeslee T J¹⁵ (75 to 85%), Laaveg and Ponseti¹⁶ (88%), 77% (Bensahel H et al¹⁵), 72% (Simons¹⁷), 82% (Ghali et al¹⁸) and 81% (Hutchins et al¹⁹). Thompson GH²⁰ achieved excellent results in 86%, Hoquegot had excellent to good results in 75%.

Thus excellent to good results was 96.97% which was more than other authors, because of including the **young age group**, obtained a high percentage of good to excellent results in the present study. Better pre and post operative management were due to the **small sample size** compared to other authors. Good compliance of study was due to no loss of any patient in follow up and less follow up period. Major long term complications and residual deformity cannot be studied due to less follow up period.

Correlation between Age at operation and results:

In the present study cases between age groups between 6 months to 1 year have clubfoot in 11 feet of a total of 33 feet. Due to the presence of bilateral clubfoot, the number of clubfoot were more than patients. Between 1 to 2 year age group deformity is present in 21 feet and between 2 years to 3 years, the deformed foot is 1.

The study shows 7 feet with excellent results, 3 feet with good results and 1 poor result out of 11 feet between age group 6 months to 1 year. Within 6 months to 1 year age group with 11 clubfoot has 63.63% excellent results, 27.27% good results, and 9.1% has poor results.

Compared with the final results of 33 clubfoot, 21.21% of excellent results, 9.1% of good results and 3.03% of the poor result observed between the age group of 6 months to 1 year.

The number of feet between 1 to 2 years is 21 deformed feet of these 15 feet show excellent results, and 6 feet shows good results no poor results are observed. Percentage within 1 to 2 year age group 71.43% excellent results, 28.57% with good results and no any poor results.

Percentage of 1 to 2 year age group deformed feet with total of 33 feet shows 45.45% of excellent results and 18.18% of good results.

Only one foot is available in the present study with an age group of more than 2 years and this foot showed an excellent result of 3.03% compared with the final result. This study shows that **1 year to 2 year age group** deformed foot shows **63.63% of good to excellent result** compared with total feet of all age groups and 6 months to 1 year age group deformed feet shows 30.31% of good to excellent results and failure was showed in 6 month to 1 year age group with 3.03%.

This shows that most of the good to excellent results is in the age group between 1 year and 2 years compared with other age groups.

93.1% of the Excellent and good results obtained in the group of feet operated at an age between **one to two years** as Turco³ recommended. The best time to do the operative procedure in other series is **still debatable**. McKay²¹ and Simons¹⁷ recommended an age less than 4 years for their complete Subtalar release operation to get the best results.

Thompson²⁰ in 1982 showed no correlation between results and age at surgery for posteromedial release operation.

Thus according to the present study and many authors, there is a **strong correlation** between **age** at surgery and the **result** of posteromedial soft tissue release surgery.

Follow up:

In the present study, the follow up was in total 18 months and who followed less than 12 months was 69.70% and who followed for more than 12 months was 30.30% of these less than 12 months follow up shows 51.52% of excellent results 15.15% of good results and no failures and greater than 12 months show 18.18% of excellent results 12.12% of good results and 3.03% of poor result.

The study noted that 66.67% of good to excellent results followed for less than 12 months and 30.3% of good to excellent results. Less than 12 months follow up cases showed no failures, and 3.03% failure in cases followed up more than 12 months.

Hutchins PM et al¹⁹ presented a follow up rate of 70% after a mean follow up of more than 15 years.

Harrold a J et al¹² had about 95% follow up rate in patients treated for clubfoot deformity.

Ryoppy and Sairanen²² and many others believe that recurrence eventually occurs between the first and second year of operation if at all it occurs.

Finally, we concluded that the study with a **long term follow up period** shows **less good to excellent results** because most of the **relapses and residual deformity** were noted only if followed for greater than 2 years, which was confirmed by Ryoppy Sairanen²² many others in their studies.

Radiological correction of deformity:

In the present study radiological correction is achieved in 32 feet and not achieved in 1 foot after posteromedial soft tissue release.

Radiologic assessment of the deformity correction is more reliable and gives a more accurate objective record than the clinical evaluation. The radiologic evaluation also provides permanent data for future comparison assessment following treatment. Radiographic evaluation in the neonatal period is less informative, but in Infancy it is very informative and valuable in assessing the correction during 2 to 3Months of age, the ossification in tarsal bones is sufficient to assess the long axes of talus and calcaneus. These long axis provide a fairly accurate impression of the relationship to the ankle joint.

Postoperative assessment of the correction obtained and to know the chances for recurrence. Yamamoto H et al⁷⁵ reviewed 19 children with clubfoot who underwent one stage posteromedial release at the age of 5 years or older and found good radiographic alignment of tarsal bone but mild adduction and varus deformity as complications.

Postoperative management:

In the present study we have given all patients good postoperative management and good compliance. Out of 25 cases, one case showed poor compliance in the maintenance of foot by parents which was included in post operative management compliance.

All surgeons agree that postoperative management is an important factor in maintaining correction gained by surgery. In all series studying results of clubfoot surgery every surgeon described his own post operative management very clearly and stated that all failures were due to loss of correction obtained by surgery postoperatively. This factor is dependent on the parent's compliance with post operative management.

Due to considering only 25 cases good, adequate care has been given both intraoperatively and postoperatively. Thus this study concludes that posteromedial soft tissue release was the best treatment for club foot by giving better care.

In Turco's series³(1979), he had only one case of inadequate postoperative management due to poor compliance of parents, which resulted in failure.

COMPLICATIONS:

In this study **soft tissue swelling** was observed in 5 patients on 2nd postoperative day which was **subsided within a week**.

Wound breakage and infection:

None of the patients in the present series developed wound breakage or infection, compared to 6 feet (3%) in the Turco series³1979 and Turco³ attributed 4 of these 6 to previous surgery which was not the case in this study. Superficial wound infection compared to 5 (2.4%) cases in the Turco series³.

Karakurtet al²⁴ found 18.5% superficial skin necrosis and 78% of soft tissue swelling in patients treated by posteromedial release. He finally concluded that posteromedial incision is a suitable and safe incision for

complete subtalar release.

Kaewpornawant al²⁵ 6% soft tissue infections in patients treated by modified posteromedial release.

Thus, the present study shows **good results** compared to the Turcos, Karakurtet al²⁴ and Kaewpornawant et al²⁵ series because of patients' **good intraoperative and post operative care** due to only 25 cases in series with a long follow up.

Residual deformity:

In the present study, residual deformity of **forefoot adduction** was found in **one foot**. The remaining 32 feet do not show any residual deformity. Due to the presence of residual deformity, this foot was graded as a poor result in the study.

Otremskiet al²⁶ observed reduced incidence of residual forefoot adduction by performing the surgery at an earlier age and releasing short plantar muscles and fascia. Early relocation of the talonavicular joint is one of the causes for reduced incidence of residual forefoot adduction at a younger age.

Ryoppy and Sairanen²² and others believe that recurrence eventually occurs between the first and second years of operation.

Thus in the present study, the forefoot adduction residual deformity is due to **poor compliance by parents** in postoperative maintenance of foot and also older age of patient which is comparable with Otremski et al series²⁶. In the present series, 32 out of 33 don't show any residual deformity due to good intraoperative posteromedial procedure, postoperative management and maintenance of foot and good parent's compliance.

Less residual deformity noted in the present series may be due to less follow up period because most of the deformity will appear in postoperative period 1 or 2 years or above, which will be compared to Ryoppy and Sairanen²².

GAIT:

In the present series, out of 33 feet Gait was considered normal in 32 feet.

The commonest abnormal finding was the **in toe gait**, noted in **one** patient. ANKLE /SUBTALAR MOVEMENTS:

In the present study 32 feet shows good ankle and subtalar movements pliability, only one foot shows restricted subtalar movements.

No overcorrection, no Calcaneum deformities and no avascular necrosis of the talus were noted in the present series.

Turco's rating and Modified Wynne Davie's^{27,28,29} scoring system: Present series noted 23 feet excellent results, 9 feet good results and 1 foot poor results by evaluating the post operative posteromedial soft tissue release of club foot using Turco's rating and Modified Wynne Davie's scoring system^{27,28,29}. By evaluating the results in percentage 69.70% of excellent results 27.27% of good results and 3.03% of poor results.

Thus present series noted 96.97% of good to excellent results with 3.03% of failure by surgical treating congenital talipes equinovarus deformity by posteromedial soft tissue release.

SUMMARY

Congenital talipes equinus varus deformity in 25 patients is treated in this study by the posteromedial soft tissue release method.

The Harrold and Walker classification has been used in this study. 17 feet were grade 2, and 8 feet were grade 3 according to this classification.

The study includes age groups between 6 months and 3 years. The mean age is 14.56 months.

Among 25 patients, 16 are male, and 9 are female. Among 25 patients, 17 have unilateral clubfoot, and 8 have bilateral clubfoot.

Radiological correction of the deformity has been achieved in 96.97% feet. The residual deformity is absent in 24 feet, and cosmetically

acceptable deformity is seen in 8 feet. Gait abnormality of marked limp is seen in only one patient.

In 98.97% of patients, ankle/ subtalar movements are pliable. The postoperative period has no complications for the majority of the patients, only one has persistent in toeing and one has a residual deformity.

In this study postoperative evaluation is done by using Turco's rating and Modified Wynne Davie's scoring according to which 96.97% of patients showed good to excellent results.

Thus posteromedial soft tissue release is a good modality of surgical treatment for congenital talipes equinovarus deformity for patients less than 3 years with fewer complications, good cosmetically and functional outcome and with good results.

CONCLUSION

CTEV is more common in males than females. Unilateral clubfoot cases are more common than bilateral cases in this study.

According to Harrold and walker classification for club foot deformity, grade 2 deformity is more common than other grades.

The deformity should be addressed as early as possible and classified as rigid and nonrigid types. Almost all rigid types require surgical correction.

The procedure of choice was one staged posteromedial soft tissue release.

The commonest complication of surgery is wound dehiscence, which was seen less in our study.

There was good standing, gait pattern and tip toe walking in patients.

The end cosmetic appearance and level of parent's satisfaction were good.

The posteromedial release is an excellent procedure that is performed at an appropriate time. Once the surgery is performed, it should be a complete release because scarring and fibrosis with repeated surgeries will interfere with the correction.

The follow up done was up to 1 ½ years. It requires further long term follow up until skeletal maturity to find residual deformity and relapse and recurrences in case of another congenital deformity.

If the children with CTEV are treated early i.e. before bony changes appear, posteromedial soft tissue release with proper follow up and splinting gives a cosmetically normal looking and functionally acceptable pain free foot as seen in the study performed. In conclusion the posteromedial soft tissue release has done below 3 years age is an excellent way of managing the problem of congenital Talipes equinovarus deformity with fewer complications and good cosmetically and functional outcome.

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